United States Department of the Interior

FISH AND WILDLIFE SERVICE
Upper Mississippi River National Wildlife and Fish Refuge
51 E. Fourth Street - Room 101
Winona, Minnesota 55987

Dear Reader:

We are pleased to provide you this Final Environmental Impact Statement (EIS) and Comprehensive Conservation Plan (CCP) for the Upper Mississippi River National Wildlife and Fish Refuge.

Established by Congress in 1924, the Refuge remains a national treasure in terms of its importance to fish, wildlife, and people; and in terms of its size, scope, and scenic beauty. The Refuge is also a natural legacy worth conserving through thoughtful planning and management.

The CCP will guide management for the next 15 years and help the Refuge meet its original purpose and contribute to the mission of the National Wildlife Refuge System. The CCP will set a vision, goals, and measurable objectives, and outline strategies for reaching those objectives.

There will now be a 30-day waiting period before a decision is made on which alternative in the Final EIS will be implemented as the CCP for the Refuge. This decision will be documented in a formal Record of Decision signed by the Regional Director, U.S. Fish and Wildlife Service, Twin Cities, Minnesota.

This planning process has been a long and interesting journey. Starting with the first scoping meetings in August, 2002, there have been 46 public meetings and workshops attended by 4,500 people, and dozens of meetings with the states of Minnesota, Wisconsin, Iowa, and Illinois; Corps of Engineers; and various organizations. A total of 3,230 written comments were received.

Despite an amazing diversity of viewpoints, one thing is clear: citizens love and enjoy the Upper Mississippi River, and many depend on it for livelihood and renewal. This passion bodes well for the future of both the river and the Refuge, and the fish and wildlife which call it home.

Thank you to all who have attended long meetings, voiced concerns, offered suggestions, and stayed engaged over the long haul.

Sincerely,

Don Hultman
Refuge Manager

Final Environmental Impact Statement for the Upper Mississippi River National Wildlife and Fish Refuge Comprehensive Conservation Plan

July 2006

Type of Action: Administrative

Lead Agency: U.S. Department of Interior,
Fish and Wildlife Service

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Abstract

The U.S. Fish and Wildlife Service is proposing to adopt and implement a Comprehensive Conservation Plan (CCP) for the Upper Mississippi River National Wildlife and Fish Refuge. The Refuge was established by Congress in 1924 to provide a refuge and breeding ground for migratory birds, fish, other wildlife, and plants. The Refuge encompasses approximately 240,000 acres and 261 river miles in four states. The CCP will guide the management and administration of the Refuge for 15 years and help ensure that it meets the purposes for which established and contributes to the mission of the National Wildlife Refuge System. Five alternatives for future management are described: A) no action or current direction, B) wildlife focus, C) public use focus, D) wildlife and integrated public use focus, and E) modified wildlife and public use focus. The preferred alternative is Alternative E. This Final Environmental Impact Statement considers the physical, biological, and socioeconomic effects that the five alternatives would have in terms of the issues and concerns identified during the planning process.

Reader's Guide

Upper Mississippi River National Wildlife and Fish Refuge Final EIS and CCP

This is a large and daunting document! Below are some questions and answers to help you, whether your review is short and specific or long and comprehensive.

How is the document organized?
Like a book, the document is organized by chapters. Chapter 1 provides the purpose and need, background information, and details on nearly 40 issues addressed in the plan and EIS. Chapter 2 describes the five alternatives considered, with each issue an objective. These alternatives are like five separate plans, arranged identical. Chapter 3 describes the physical, biological, and socioeconomic environment of the Refuge and contains the facts and figures related to the issues. Chapter 4 discusses the impacts or consequences of the four alternatives by a series of parameters. Other chapters provide detail on public involvement, preparers, and references. Appendices provide great detail in maps, tables, and supporting documents.

I just have time for an overview. What should I look at?
Start with the EIS Summary which briefly describes the Refuge, the issues, the alternatives, and the consequences of each. Tables 1 and 2 at the end of Chapter 2 provide a quick and easy guide to what is proposed in each alternative.

I'm just interested in a couple issues. How can I find them?
The Table of Contents is useful in finding a particular issue of interest. For example, if you are interested in waterfowl hunting, start with the discussion of the related issues in the wildlife-dependent recreation section of Chapter 1, then you can find waterfowl hunting related objectives in Chapter 2, background on waterfowl and hunting in Chapter 3, and a section on impacts of alternatives on hunting in Chapter 4. Maps in Appendix P (bound separately or available on the web at http://midwest.fws.gov/planning/uppermiss) will show the areas affected by the alternative objectives. An index at the back of the EIS may also be useful in finding topics of interest.

Where do I find comments received and a response? Chapter 7 contains a comprehensive summary of written comments received and a response to those comments. Chapter 6 summarizes all the public meetings held during the planning process.

How do I keep from getting lost?
If you look at the Table of Contents, you'll see a decimal numbering system used throughout. The first number is the chapter, the second number is subchapter, the third number a section, and so on. Notes on the bottom of each page (footers) also tell you where you are. In the alternatives, a reminder of which alternative you are looking at is in the upper margin of each page, and each objective is numbered the same regardless of alternative. So, if forest management is your issue of interest, its 3.9 in all five alternatives and in Table 1, the useful comparison matrix.

How much will it cost to implement the plan?
Appendix L is a plan of implementation and summarizes the actions to be taken and their estimated cost.

Upper Mississippi River

National Wildlife & Fish Refuge

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Summary
Final Environmental Impact Statement

Egrets. Copyright by Sandra Lines

Introduction

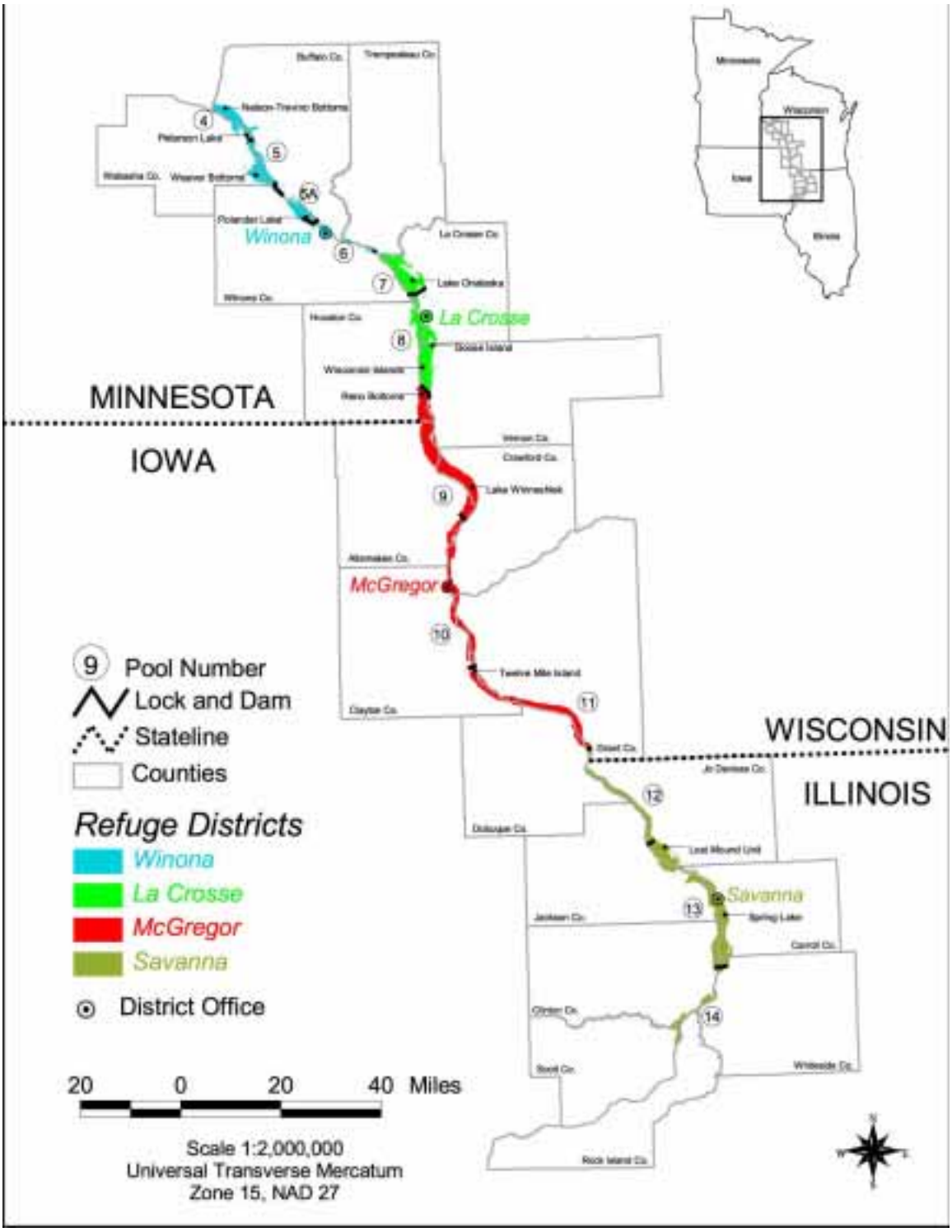
A Comprehensive Conservation Plan (CCP) is being prepared to guide the administration and management of the Upper Mississippi River National Wildlife and Fish Refuge (Refuge) for the next 15 years. The document integrates the components of a CCP, namely goals, objectives, and strategies; with the requirements of an Environmental Impact Statement (EIS), namely alternatives and consequences.

Comprehensive conservation plans are required by the National Wildlife Refuge System Improvement Act of 1997 to ensure that refuges are managed in accordance with their purposes and the mission of the National Wildlife Refuge System, which is part of the U.S. Fish and Wildlife Service (Service). The Refuge System is the largest collection of lands and waters in the world set aside for the conservation of wildlife, with over 540 units covering more than 95 million acres in the U.S. and its territories.

The Refuge was established by act of Congress in 1924 for the purpose of providing a refuge and breeding ground for migratory birds, fish, other wildlife, and plants. The Refuge encompasses approximately 240,000 acres in four states in a more-or-less continuous stretch of 261 miles of Mississippi River floodplain from near Wabasha, Minnesota to near Rock Island, Illinois (Figure A). The seemingly endless panorama of river, backwaters, marshes, islands, and forest, framed by steep bluffs, makes the Refuge a national scenic treasure.

The Refuge is perhaps the most important corridor of fish and wildlife habitat in the central United States, an importance which has increased over time as habitat losses or degradation have occurred elsewhere. Fish and wildlife is varied and generally abundant with 306 bird, 119 fish, 51 mammal, and 42 mussel species recorded. Up to 40 percent of the continent's waterfowl use the Mississippi Flyway during migration, and up to 50 percent of the world's canvasback ducks and 20 percent of the eastern United States population of Tundra Swans stop on the Refuge during fall migration. There were 167 active Bald Eagle nests in 2005 and up to 2,700 eagles can be on the Refuge during spring migration. Approximately 5,000 heron and egret nests can be found in up to 15 colonies.

Figure A: Location of Upper Mississippi River Refuge



With an estimated 3.7 million annual visitors, the Refuge is the most heavily visited in the Refuge System. It has interface with 4 states, 70 communities, 2 Corps of Engineers districts, 11 locks and dams which help maintain water depths for commercial navigation, and is represented in Congress by 8 senators and 6 representatives.

The Refuge has its headquarters in Winona, Minnesota, and district offices with managers and staff in Winona; La Crosse, Wisconsin; McGregor, Iowa; and Savanna, Illinois. There are currently 37 full-time permanent employees and a base annual budget of $3.1 million.

Participants in a scoping meeting identify priority issues. USFWS

Public Involvement and Decision Process

Internal scoping of issues began in March 2002 followed by 10 public scoping meetings held in August and September of that year. Day-long public workshops on issues and potential solutions were held in four locations in January and March 2003, and there were three special public meetings on Waterfowl Hunting Closed Areas the same year. Four Interagency Planning Team meetings involving the Corps of Engineers, and Minnesota, Iowa, Wisconsin, and Illinois departments of natural resources were held in 2001 to 2004; follow-up meetings were held with the St. Paul and Rock Island Districts, Corps of Engineers, and the Minnesota and Wisconsin departments of natural resources. Briefings with various commissions, associations, and Congressional offices occurred throughout the process, along with periodic news releases to 52 media outlets, and special CCP newsletters mailed to 2,600 citizens.

The Draft EIS/CCP was released May 1, 2005 for a 120-day comment period. During the comment period the Refuge hosted 21 public information meetings and workshops attended by 2,900 people. The workshops resulted in 87 workgroup reports with comments or recommendations on major issues. The Refuge also received 2,516 written comments, including 5 petitions with more than 3,000 signatures.

Due to high public interest, a new preferred alternative (Alternative E) was released as a Supplement to the Draft EIS/CCP on December 5, 2005 for a 60-day comment period that was extended to 90 days. The Refuge held nine public meetings during the comment period attended by 888 people. A total of 714 written comments were received during this comment period.

Meetings or conference calls with the Interagency Planning Team, individual states, Congressional members and staff, and organizations were held throughout both comment periods, and there were numerous news releases issued and media interviews.

Following a 30-day waiting period, a decision is made on which alternative in the Final CCP/EIS will be implemented. The public or agencies may provide additional information or comment during this time, although no public meetings will be held. The decision is documented in a formal Record of Decision, signed by the Regional Director, U.S. Fish and Wildlife Service, Twin Cities, Minnesota. The Record of Decision will be announced in the media and made available on the planning website or by request.

Refuge Vision and Goals

The Refuge Vision provides a simple statement of the desired, overall future condition of the Refuge. Goals provide the themes or framework for measurable objectives and strategies which are the heart of the CCP and the basic structure of the alternatives considered.

Turtles basking in the sun. Copyright Sandra Lines

Refuge Vision:

The Upper Mississippi River National Wildlife and Fish Refuge is beautiful, healthy, and supports abundant and diverse native fish, wildlife, and plants for the enjoyment and thoughtful use of current and future generations.

Refuge Goals:

Landscape	We will strive to maintain and improve the scenic qualities and wild character of the Upper Mississippi River Refuge.
Environmental Health	We will strive to improve the environmental health of the Refuge by working with others.
Wildlife and Habitat	Our habitat management will support diverse and abundant native fish, wildlife, and plants.
Wildlife-Dependent Recreation	We will manage programs and facilities to ensure abundant and sustainable hunting, fishing, wildlife observation, wildlife photography, interpretation, and environmental education opportunities for a broad cross-section of the public.
Other Recreational Use	We will provide opportunities for the public to use and enjoy the Refuge for traditional and appropriate non-wildlife-dependent recreation that is compatible with the purpose for which the Refuge was established and the mission of the Refuge System.
Administration and Operations	We will seek adequate funding, staffing, and facilities, and improve public awareness and support, to carry out the purposes, vision, goals, and objectives of the Refuge.

Planning Issues, Concerns and Opportunities

Scoping and public involvement helped identify numerous issues facing the Refuge and formed the basis for crafting the Final EIS/CCP. These issues are summarized below by related Refuge goal.

Landscape Issues

Refuge Boundary	Maintaining an accurate and clearly marked boundary is a critical basic need of resource protection.
Land Acquisition	Approximately 30,000 acres within the approved Refuge boundary has yet to be acquired. These lands and waters will fill habitat gaps between existing Refuge lands and benefit fish, wildlife, plants, and public use.
Bluffland Protection	The 1987 Master Plan identified 13 bluff areas with notable wildlife values, namely peregrine falcon nesting potential. None have been acquired, either fee or easement, to date.
Natural Areas and Special Designations	Management plans are needed for the four federally-designated Research Natural Areas within the Refuge, and the Refuge should be nominated as a "Wetland of International Importance."

Environmental Health Issues

Water Quality	Water quality related concerns include sedimentation which is filling backwaters and nutrient loads from land use in the Refuge watershed.
Water Level Management	A substantial loss of islands and marsh habitat has occurred due to stable water management for navigation and erosive actions of wind and waves. Fish and wildlife use and productivity has declined.
Invasive Plants and Animals	Invasive species like reed canary grass, Eurasian milfoil, zebra mussel, and various Asian carp pose a threat to native species and their habitat.

Wildlife and Habitat Issues

Environmental Pool Plans	This 50-year habitat vision for each of the pools on the Refuge seeks to reverse the long-term trend of habitat loss or degradation. Implementing the plans presents a challenge from both a priority-setting and funding perspective.
Guiding Principles for Habitat Projects	Guiding principles for habitat projects on the Refuge are needed to ensure adherence to policy and to help conserve the natural and scenic qualities of the Refuge.
Monitoring Fish, Wildlife, and Plants	Monitoring is a requirement of the Refuge Improvement Act, but meeting this requirement on the Refuge has been hampered by funding and staffing levels.
Threatened and Endangered Species	Increased attention is needed on listed species due to their often precarious population status and the need for special management consideration and protection.

Furbearer Trapping	The Refuge needs to update the 1988 Trapping Plan to reflect recent national policy and regulation changes governing compatibility of uses and economic uses.
Fishery and Mussel Management	The Refuge needs to play a larger role in fishery and mussel management in keeping with its mandated purposes, and because of the high intrinsic, recreational, and commercial value of these resources.
Commercial Fishing, Clamming and Turtle Harvest	Refuge oversight of these uses needs to be brought in line with current policy and regulations through cooperative work with the states.
Turtle Management	New and emerging information on the importance of the Refuge to a variety of turtle species calls for increased monitoring and research on turtle ecology and effects of certain public use.
Forest Management	The 51,000 acres of floodplain forest on the Refuge is even aged, growing old, and in many cases, not regenerating itself. Proactive management is needed to safeguard this important resource.
Grassland Management	The 5,700 acres of grassland on the Refuge, some of which is rare tallgrass prairie, needs to be monitored and actively managed to ensure its continued diversity and health.

Wildlife-Dependent Recreation Issues

General Hunting	Hunting is an important priority public use on the Refuge and a vital part of the cultural, social, and economic fabric of adjacent communities. The Refuge Hunting Plan needs to be updated to reflect land acquisitions and new policies.
Waterfowl Hunting Closed Areas	Established in 1958, the current closed area system is no longer providing a desirable distribution of feeding and resting areas or an equitable distribution of hunting and wildlife observation opportunities due to habitat decline. With birds predominantly using only a few areas, there is a risk of serious impacts from an environmental accident or crash in aquatic food resources.
Waterfowl Hunting Regulations	Due to continued high hunter numbers on the Refuge, there is a need to review current waterfowl hunting regulations to ensure continued hunt quality and fairness, and to minimize crippling loss.
Firing Line, Pool 7, Lake Onalaska	Crowding, hunter behavior, and crippling loss need to be addressed in this highly popular hunting area to help maintain a quality and equitable hunting experience.
Permanent Blinds and Decoy Sets on Savanna District	The use of permanent blinds for waterfowl hunting has led to increased debris. Blinds, along with leaving decoys in place, also lead to confrontations between hunters, private use of public land, and reduced hunting opportunities for many hunters. There is also an issue of consistency since permanent blinds and leaving decoys out overnight are not allowed on the other three districts of the Refuge.

Potter's Marsh Managed Hunt	This hunt has entailed high administrative and management costs, problems with permanent blinds as noted above, and a drawing process that has evolved into private exclusive use for some parties. Changes are needed to maintain a quality and equitable hunting experience in this popular area.
Blanding Landing Managed Hunt	This hunt, inherited with the transfer to the Refuge of the former Savanna Army Depot, Savanna District, needs to be reviewed for consistency with other Refuge hunts and to address permanent blind issues noted above.
General Fishing	Fishing is an important priority public use on the Refuge with over one million angler visits yearly. Attention to quality habitat and support facilities (boat ramps, other accesses, and fishing docks) is needed to maintain and improve this sport.
Fishing Tournaments	Tournament fishing continues to grow and is posing conflicts with other anglers and small craft users on the Refuge, and can cause habitat damage and fish and wildlife disruption in shallow backwater areas. Oversight is needed to help coordinate timing and spacing of tournaments with the states.
Wildlife Observation and Photography	Public interest in these activities on the Refuge continues to grow, and there is a need for additional facilities that foster these priority public uses while limiting wildlife and habitat disturbance.
Interpretation and Environmental Education	Demand for these priority public uses of the Refuge needs to be addressed through facilities and staffing levels.
Commercial Fish Floats	These private fishing platforms below locks and dams provide an important fishing option for visitors. However, administration of this commercial use has been expensive due to permit compliance issues. Also, new standards need to be developed to ensure adequate and safe operations.
Guiding Services	Guiding businesses are increasing on the Refuge and oversight has been inconsistent. The potential for conflicts with the general public and among competing guides is growing. Some guides are operating without the proper Coast Guard licensing.

Other Recreational Use Issues

Beach Use and Maintenance	Beach-related uses on the Refuge such as camping, social gatherings, recreational boating, picnicking, and swimming account for over one million visits and these uses continue to increase. There are concerns with Refuge regulation violations, human health and safety, officer safety in crowds, disturbance to other visitors, and wildlife and habitat disturbance. New policies and regulations are needed to ensure these popular uses remain compatible with the purposes of the Refuge.

Disturbance in Backwater Areas	Technology in the form of jet skis, air boats, bass boats, and shallow water motors have introduced more users, more noise, and more disturbance into backwater areas of the Refuge. Citizens have expressed concern over the declining opportunities to experience the quiet and solitude of these unique Refuge areas, while managers are concerned about the effects of disturbance on sensitive wildlife species.
Slow, No-Wake Zones	On a few areas, boat traffic levels and size of boats is creating a safety hazard due to blind spots in boating routes, or causing erosion to island and shoreline habitat. Creating slow, no-wake zones on these areas needs to be explored.
Dog Use Policy	The current regulation is causing confusion with the public and enforcement challenges for officers. The result is visitors letting dogs run free, posing a threat to other visitors and disturbance to wildlife. A clear policy on the use of dogs and other domestic animals is needed to protect visitors and the resource while taking into account the public's interest in training and exercising their dogs.
General Public Use Regulations	The current public use regulations for the Refuge were updated in 1999. A general update is needed to reflect changing use levels and patterns and to provide clear guidance to visitors and enforcement officers.

Administration and Operations Issues

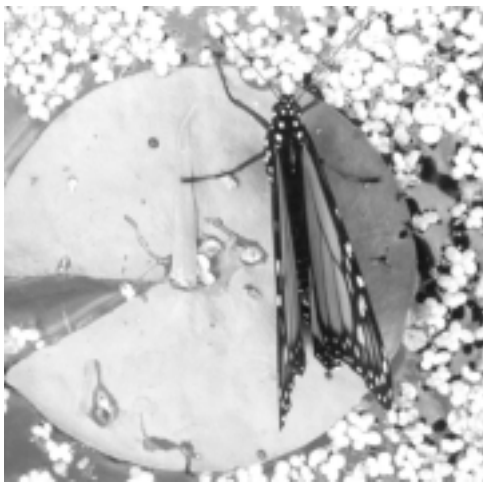
General	With approximately 240,000 acres over 261 miles and 3.7 million visitors, management and administration of the Refuge is a huge undertaking requiring staffing and funding for programs, facilities, and equipment. Current office and maintenance facilities are inadequate at most locations, both from an employee and public service standpoint. Public information efforts are inadequate to keep the public abreast of opportunities and issues. Public access to the Refuge needs to be increased where feasible to meet demand and distribute visitor opportunities.

Summary of Alternatives Considered

Five reasonable alternatives were developed to address the variety of issues and opportunities facing the Refuge now and during the 15-year horizon of the CCP. These alternatives are summarized below in terms of the actions that would be undertaken under each alternative. Alternative E is the Service's preferred alternative.

Alternative A: No Action (Current Direction)

Continue current level of effort on fish and wildlife and habitat management. Public use programs would remain virtually unchanged.



Monarch butterfly amidst duckweed. Copyright by S Lines

Alternative A Summary

Boundary issues would be addressed as time and funding for surveying allow. There would be a continuation of acquisition of lands at a modest rate within the approved boundary, or about 200 acres per year. No special effort would be undertaken to safeguard blufflands and manage Research Natural Areas. Guiding principles for habitat projects would not be established.

Existing programs and effort would address sedimentation and other water quality issues. Pool-scale drawdowns would continue at current, intermittent level. Control of invasive plant species would be modest, and control of invasive animals would be minimal, relying on the work of the states and other agencies. Environmental Pool Plans would be implemented on a strategic and opportunistic basis using the Environmental Management Program. Wildlife inventory and monitoring would remain unchanged with continued focus on waterfowl, colonial nesting birds, eagles, and aquatic invertebrate/vegetation sampling. Management of threatened and endangered species would focus on protection versus recovery. The furbearer trapping program would continue but be brought into compliance with policies by doing a new plan. There would continue to be limited emphasis on fishery and mussel management and commercial fishing oversight. Cooperation with the states and Corps of Engineers on turtle monitoring and research would continue, and a forest inventory on the Refuge would be completed in cooperation with the Corps of Engineers. Existing grassland habitat on the Refuge would be maintained and enhanced using fire and other tools.

Hunting and fishing opportunities would continue on a large percentage of the Refuge. The system of waterfowl hunting closed areas would remain the same except for minor boundary adjustments. Entry into closed areas for purposes other than hunting, trapping and camping would continue to be allowed, although the voluntary avoidance area on Lake Onalaska would remain in place. No action would be taken on the firing line issue north of the closed area in Lake Onalaska. No major changes would be made to current hunting regulations. Permanent blinds for waterfowl hunting and the Potter's Marsh and Blanding Landing managed hunts in the Savanna District would continue, although administrative changes would be made to promote fairness and efficiency. No action would be taken on regulating fishing tournaments.

There would be no increase in facilities or programming for wildlife observation, photography, interpretation and environmental education, with a focus on maintaining the status quo. There would be a modest increase in Refuge access through improvement of existing boat ramps, pull offs, and overlooks. Commercial fish floats or piers would be governed by current permit procedures and stipulations. Guiding on the refuge would continue with little oversight. Beach-related public use (camping, swimming, picnicking, social gatherings) would continue with little change and beach planning and maintenance would continue at low levels. One electric motor area would remain (Mertes Slough, Pool 6), and no new slow, no-wake zones established. Current regulations on the use of dogs would remain in place. There would be no substantive changes made to current public use regulations.

There would be no new offices or shops constructed for Headquarters or the Districts, with the exception of a new shop for the Winona and Savanna districts since they are already scheduled. Staffing levels for the Refuge would remain the same as current, as would public outreach and awareness efforts.

Alternative B: Wildlife Focus

Increase level of effort on fish and wildlife and habitat management. Some public use opportunities and programs would remain the same, others reduced in favor of wildlife and habitat protection.

Alternative B Summary

Boundary issues would be aggressively addressed and the entire Refuge boundary would be surveyed. The rate of land acquisition within the approved boundary would increase to complete 58 percent of the total, an average of 1,000 acres per year. All bluffland areas identified in the 1987 Master Plan would be protected by fee-title acquisition or easement, and there would be an increase in oversight and administration of Research Natural Areas. Guiding principles for habitat projects would be established.

Egrets wading. Copyright by Sandra Lines

There would be an increase in efforts to achieve continuous improvement in the quality of water flowing through the Refuge, including decreasing sedimentation. Pool-scale drawdowns would be accomplished by working with the Corps of Engineers and the states. Control of invasive plant species would increase, and there would be increased emphasis on the control of invasive animals. Environmental Pool Plans would be implemented on a strategic and opportunistic basis using the Environmental Management Program or other programs and funding sources. Wildlife inventory and monitoring would increase and include more species groups beyond the current focus of waterfowl, colonial nesting birds, eagles, and aquatic invertebrates/vegetation. Management of threatened and endangered species would focus on helping recovery, not just protection. The furbearer trapping program would continue but be brought into compliance with policies by doing a new plan. The Refuge would become much more active in fishery and mussel management, and provide commercial fishing oversight. The knowledge of turtle ecology would be increased through research, and there would be continued cooperation with the states and Corps of Engineers on turtle conservation efforts. A forest inventory on the Refuge would be completed in cooperation with the Corps of Engineers, leading to completion of a forest management plan and more active forest management. The existing 5,700 acres of grassland habitat on the Refuge would be maintained and enhanced using fire and other tools.

Hunting and fishing opportunities would continue on a large percentage of the Refuge. The system of waterfowl hunting closed areas would increase substantially with 14 new areas. Entry into closed areas would be prohibited during the respective state duck season, although the voluntary avoidance area on Lake Onalaska would remain in place. The firing line issue north of the closed area in Lake Onalaska would be addressed by expanding the closed area northward. Current Refuge-wide hunting regulations would be changed to include a 25 shotshell limit during waterfowl season and to address open water hunting in portions of Pools 9 and 11. Permanent blinds for waterfowl hunting would be eliminated Refuge- wide, including those used in the Potter's Marsh and Blanding Landing managed hunts in the Savanna District. The Potter's Marsh managed hunt would continue with administrative changes to promote fairness and efficiency. The Blanding Landing managed hunt would be eliminated, but the area would remain open to hunting. General fishing would continue to be promoted, although the Refuge would begin oversight of fishing tournaments in cooperation with the states and other agencies.

There would be no increase in facilities or programming for wildlife observation, photography, interpretation and environmental education. There would be a modest increase in Refuge access through improvement of existing boat ramps, pull offs, and overlooks, and a boat launch fee would be

initiated at Refuge-operated boat ramps. Commercial fish floats or piers below locks and dams 6, 7, 8, and 9 would be eliminated to reduce administrative and oversight costs. Commercial guiding on the Refuge would be prohibited. Areas open to beach-related public use (camping, swimming, picnicking, social gatherings) would be reduced under a "closed-until-open" policy, and beach planning and maintenance would not be allowed on Refuge lands. A total of 10 electric motor areas and 9 new slow, no-wake zones would be established. Current regulations on use of dogs would be changed to require that dogs and other domestic animals be leashed at all times except when used for hunting. General public use regulations would be reviewed annually and changed as needed. Existing offices would be maintained, but new maintenance facilities or shops would be constructed at the Winona, McGregor, and Savanna districts, and eventually, at the Lost Mound Unit. Public information and awareness efforts would be decreased 50 percent to focus on wildlife-related work. Staffing levels for the Refuge would increase by 17.5 full-time equivalents with the priority being biologists, a forester, other specialists, and maintenance persons.

Alternative C: Public Use Focus

Increase level of effort on public use opportunities and programs. Continue current level of effort on many fish and wildlife and habitat management activities, and decrease effort on others in favor of public use.

Alternative C Summary

Boundary issues would be addressed and the entire Refuge boundary would be surveyed. The rate of land acquisition within the approved boundary would increase to complete 58 percent of the total, an average of 1,000 acres per year, with priority given to tracts that also further public use access and opportunities. All bluffland areas identified in the 1987 Master Plan would be protected through fee-title acquisition or easement, and low-key oversight and administration of Research Natural Areas would continue. Guiding principles for habitat projects would be established, but they would not restrict any public use opportunities.

There would be increased effort to achieve continuous improvement in the quality of water flowing through the Refuge, including decreasing sedimentation. Pool-scale drawdowns would continue at current, intermittent level. Control of invasive plant species would be modest, and control of invasive animals would be minimal, relying on the work of the states and other agencies. Environmental Pool Plans would be implemented on a strategic and opportunistic basis using the Environmental Management Program or other programs and funding sources. Wildlife inventory and monitoring would decrease by reducing the number of species groups surveyed. Management of threatened and endangered species would focus on protection versus recovery. The furbearer trapping program would continue but be brought into compliance with policies by doing a new plan. There would continue to be limited emphasis on fishery and mussel management and commercial fishing oversight. Cooperation with the states and Corps of Engineers on turtle monitoring and research would continue, and a forest inventory on the Refuge completed in cooperation with the Corps of Engineers. The existing 5,700 acres of grassland habitat on the Refuge would be maintained and enhanced using fire and other tools.

Hunting and fishing opportunities would continue on a large percentage of the Refuge. The system of waterfowl hunting closed areas would remain the same except for minor boundary adjustments. Entry into closed areas for purposes other than hunting, trapping and camping would continue to be allowed, and the voluntary avoidance area on Lake Onalaska would remain in place. The firing line issue north of the closed area in Lake Onalaska would be addressed by moving the north boundary southward. Current Refuge-wide waterfowl hunting regulations would be changed to include a hunting party spacing requirement of 100 yards. No action would be taken in regards to open water hunting in Pools 9 and 11. Permanent blinds for waterfowl hunting would be eliminated Refuge-wide, including those used in the Potter's Marsh and Blanding Landing managed hunts in the Savanna District. The Potter's Marsh managed hunt would continue, but administrative changes

would be made to promote fairness and efficiency. The Blanding Landing managed hunt would be eliminated, but the area would remain open to hunting. General fishing would continue to be promoted, although the Refuge would begin oversight of fishing tournaments in cooperation with the states and other agencies.

Fishing on the Refuge. Cindy Samples, USFWS

There would be a major increase in facilities or programming for wildlife observation, photography, interpretation and environmental education. There would be some increase in Refuge access through new facilities and improvement of existing boat ramps, pull offs, and overlooks. A boat launch fee would be initiated at Refuge-operated boat ramps. Commercial fish floats or piers below locks and dams 6, 7, 8, and 9 would be retained if standards met, and a new fish float proposed in the Savanna District. Commercial guiding on the Refuge would be allowed, but with consistent policy and permit procedures. Areas open to beach-related public use (camping, swimming, picnicking, social gatherings) would remain virtually unchanged, although regulations would be changed to safeguard users, a policy on beach maintenance would be implemented, and an annual Refuge Recreation Use Permit and fee would be initiated to improve recreation management. A total of 15 electric motor areas and 8 new slow, no-wake zones would be established. Current regulations on use of dogs would be changed to allow dogs to be exercised and trained under certain conditions. General public use regulations would be reviewed annually and changed as needed.

New offices and maintenance facilities would be constructed at the Winona, La Crosse, McGregor, and Savanna Districts (shop only at Savanna), and eventually the office and shop facilities at Lost Mound Unit would be remodeled or replaced. A major new visitor center would be constructed in either Winona or La Crosse. Public information and awareness efforts would be increased 50 percent. Staffing levels for the Refuge would increase by 17.5 full-time equivalents with the priority being public use related positions.

Alternative D: Wildlife and Integrated Public Use Focus

Increase level of effort on fish and wildlife and habitat management. Take a more proactive approach to public use management to ensure a diversity of opportunities for a broad spectrum of users, both for wildlife-dependent uses and traditional and appropriate non-wildlife-dependent uses.

Alternative D Summary

Boundary issues would be aggressively addressed and the entire Refuge boundary would be surveyed. The rate of land acquisition would increase within the approved boundary to complete 58 percent of the total, an average of 1,000 acres per year. There would be more effort to protect through easements or fee-title acquisition all bluffland areas identified in the 1987 Master Plan, and an increase in oversight and administration of Research Natural Areas. The Refuge would be nominated as a “Wetland of International Importance” (Ramsar). Guiding principles for habitat projects would be established and stress an integrated approach.

There would be an increase in effort to achieve continuous improvement in the quality of water flowing through the Refuge, including decreasing sedimentation. Pool-scale drawdowns would be accomplished by working with the Corps of Engineers and the states. The control of invasive plant species would increase, and there would be increased emphasis on the control of invasive animals.

Environmental Pool Plans would be implemented on a strategic and opportunistic basis using the Environmental Management Program or other programs and funding sources. Wildlife inventory and monitoring would increase and include more species groups beyond the current focus of waterfowl, colonial nesting birds, eagles, and aquatic invertebrates/vegetation. The management of threatened and endangered species would focus on helping recovery, not just protection. The furbearer trapping program would continue but be brought into compliance with policies by doing a new plan. The Refuge would become much more active in fishery and mussel management, and provide commercial fishing oversight. Knowledge of turtle ecology through research would increase, as would turtle conservation efforts in cooperation with the states and Corps of Engineers. A forest inventory on the Refuge would be completed in cooperation with the Corps of Engineers, and a forest management plan prepared, leading to more active forest management. The 5,700 acres of grassland habitat on the Refuge would be maintained and enhanced using fire and other tools.

Duck hunting on the Upper Mississippi River Refuge. USFWS

There would be a continuation of hunting and fishing opportunities on a large percentage of the Refuge. The system of waterfowl hunting closed areas would change with some eliminated, some reduced in size, and several new areas added for a total of 21 closed areas. Motorized watercraft and entry into closed areas for fishing, along with hunting, trapping, and camping would be prohibited during the respective state duck season, although the voluntary avoidance area on Lake Onalaska would remain in place. The firing line issue north of the closed area in Lake Onalaska would be addressed by initiating the Gibbs Lake Managed Hunting Program involving a limit to the number of hunters through drawing, assigning hunters to areas, and charging a fee. The current Refuge-wide hunting regulations would be changed to include a 25 shotshell limit during the waterfowl season and a 100-yard waterfowl hunting party spacing requirement, and a provision to address open water hunting in portions of Pools 9 and 11. Permanent blinds for waterfowl hunting would be eliminated Refuge-wide, including those used in the Potter's Marsh and Blanding Landing managed hunts in the Savanna District. The Potter's Marsh managed hunt would continue with administrative changes to promote fairness and efficiency. The Blanding Landing managed hunt would be eliminated, but the area would remain open to hunting. General fishing would continue to be promoted, although the Refuge would begin issuing permits for fishing tournaments in cooperation with the states and other agencies.

There would be an increase in facilities and programming for wildlife observation, photography, interpretation and environmental education. There would be a modest increase in Refuge access through new facilities and improvement of existing boat ramps, pull offs, and overlooks. A boat launch fee would be initiated on Refuge-operated boat ramps. New standards for the commercial fish floats or piers below locks and dams 6, 7, 8, and 9 would be developed and implemented, with a phase out of floats which do not meet the standards. A consistent process for issuing permits for commercial guiding on the Refuge would be implemented. Areas open to beach-related public use (camping, swimming, picnicking, social gatherings) would be reduced to some degree under an "open-unless-closed" policy, new regulations would be implemented, and a beach maintenance policy established. Initiating a Refuge Recreation Use Permit and fee would be explored to defray costs of managing beach-related uses. A total of 16 electric motor areas and 9 new slow, no-wake zones would be established. Current regulations on the use of dogs would be changed to allow dogs to be exercised and trained under certain conditions. General public use regulations would be reviewed annually and changed as needed.

New offices and maintenance shops would be constructed at the Winona, La Crosse, and McGregor Districts, and at the Lost Mound Unit. The office would be expanded at the Savanna District and a new shop constructed. Public information and awareness efforts would be increased 50 percent. Staffing levels for the Refuge would increase by 19.5 full-time equivalents with a balance among biological, maintenance, visitor services, technical, and administrative staff.

Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)

Increase level of effort on fish and wildlife and habitat management. Take a proactive but balanced approach to public use management to ensure a diversity of opportunities for a broad spectrum of users, both for wildlife-dependent uses and traditional and appropriate non-wildlife-dependent uses.

Alternative E Summary

Boundary issues would be aggressively addressed and areas with greatest encroachment problems would be surveyed in cooperation with the Corps of Engineers. The rate of land acquisition would increase within the approved boundary to complete 58 percent of the total, an average of 1,000 acres per year. There would be more effort to protect through easements or fee-title acquisition all bluffland areas identified in the 1987 Master Plan, and an increase in oversight and administration of Research Natural Areas. The Refuge would be nominated as a Wetland of International Importance (Ramsar). Guiding principles for habitat projects would be established and would stress an integrated approach.

Mallard pair. Stan Bousson

There would be an increase in effort to achieve continuous improvement in the quality of water flowing through the Refuge, including decreasing sedimentation. Pool-scale drawdowns would be accomplished by working with the Corps of Engineers and the states. The control of invasive plant species would increase, and there would be increased emphasis on the control of invasive animals. Environmental Pool Plans would be implemented on a strategic and opportunistic basis using the Environmental Management Program or other programs and funding sources. Wildlife inventory and monitoring would increase and include more species groups beyond the current focus of waterfowl, colonial nesting birds, eagles, sensitive marsh birds, frogs and toads, and aquatic invertebrates/vegetation. The management of threatened and endangered species, including state-listed species, would focus on helping population recovery, not just protection. The furbearer trapping program would continue but be brought into compliance with policies by writing a new plan. The Refuge would become much more active in fishery and mussel management, and provide more input to the states on commercial fishing. Knowledge of turtle ecology through research would increase, as would turtle conservation efforts in cooperation with the states and Corps of Engineers. A forest inventory on the Refuge would be completed in cooperation with the Corps of Engineers, and a forest management plan prepared, leading to more active forest management. The 5,700 acres of grassland habitat on the Refuge would be maintained and enhanced using fire and other tools, and the Refuge would look at increasing grassland areas where appropriate due to its importance to grassland birds and other species.

There would be a continuation of hunting and fishing opportunities on a large percentage of the Refuge. The system of waterfowl hunting closed areas would change with some eliminated, some reduced in size, and several new areas added for a total of 20 closed areas and three sanctuaries. The public would be asked to practice Voluntary Avoidance in all closed areas from October 15 to the end

of the respective state duck hunting season, and no motorized watercraft would be permitted in eight small closed areas during the same time period. The firing line issue north of the closed area in Lake Onalaska (Gibbs Lake area) would be addressed by completing a management plan in collaboration with waterfowl hunters and the State of Wisconsin. There would be no new shotshell possession limit or spacing requirement between parties for waterfowl hunters, and the 200-yard hunting party spacing for the Illinois side of the Refuge in Pools 12-14 would remain in place. There would be a provision for no open water waterfowl hunting in a portion of Pool 11, Grant County, Wisconsin, approximate river miles 586-592. In the Savanna District (Pools 12-14), permanent blinds for waterfowl hunting would be eliminated, including the Potter's Marsh and Blanding Landing areas, and leaving decoy sets out overnight will not be allowed. The Potter's Marsh managed hunt would continue with administrative changes to promote fairness and efficiency. The Blanding Landing managed hunt would be eliminated, but the area would remain open to hunting. General fishing would continue to be promoted, and the Refuge would provide some oversight on fishing tournaments in collaboration with the states and other agencies.

There would be an increase in facilities and programming for wildlife observation, photography, interpretation and environmental education. There would be a modest increase in Refuge access through new facilities and improvement of existing boat ramps, pull offs, and overlooks. There would be no launch fee on Refuge-operated boat ramps. New standards for the commercial fish floats or piers below locks and dams 6, 7, 8, and 9 would be developed and implemented, and any floats phased out for noncompliance may be replaced based on a review of new proposals. A consistent process for issuing permits for commercial guiding on the Refuge would be implemented in cooperation with the states. Areas open to beach-related public use (camping, swimming, picnicking, social gatherings) would remain the same, although some new or modified regulations would be adopted. A beach management and maintenance policy would be established and the Refuge would work with the Corps of Engineers, states and the public to complete beach management plans for each river pool. The Refuge would explore a user fee to help defray costs of managing beach-related uses, although none is planned at this time. Any new fee proposals would be developed in coordination with other agencies and the public. A total of five Electric Motor Areas (1,852 acres) and eight Slow, No Wake Areas (9,720 acres) would be established, along with 14 new slow, no-wake zones. Current regulations on the use of dogs would be changed to allow dogs to be exercised under certain conditions. General public use regulations would be reviewed annually and changed as needed, and the Refuge would complete a step-down Law Enforcement Plan in coordination with the states and Corps of Engineers.

New offices and maintenance shops would be constructed at the Winona, La Crosse, and McGregor districts, and at the Lost Mound Unit. The office would be expanded at the Savanna District and a new shop constructed. Public information and awareness efforts would be increased 50 percent. Staffing levels for the Refuge would increase by 23.5 full-time equivalents over a 15-year period with a balance among biological, maintenance, visitor services, law enforcement, technical, and administrative staff.

Summary of Environmental Consequences

Consequences Common to All Alternatives

Under all alternatives, there would be no disproportionate adverse effect on minority or low-income populations. Cultural and historical resource preservation would be addressed in accordance with current laws, regulations, and policies. Prescribed fire would be used under all alternatives to maintain health and vigor of grassland habitat. Any negative effects would be short-term in nature and mitigated by long-term habitat improvements and higher grassland species populations. Landowners adjacent to the Refuge would not see a significant effect on the use or value of their property since none of the alternatives radically change land management direction. The economic

activity of marinas, other water-related businesses, and commercial navigation would not be affected by any of the alternatives, although marinas and private campgrounds could see some inconvenience during periodic pool drawdowns proposed in all alternatives. Commercial tree harvest on the Refuge is expected to be modest, selective, and restrictive across all alternatives once a Forest Management Plan is completed. This harvest will have a minor and local positive economic impact, and a long-term forest health and wildlife impact. All alternatives continue furbearer trapping without change until a new Trapping Plan is completed. A separate environmental assessment will be done for this plan.

Consequences, Alternative A: No Action (Current Direction)

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This alternative will cause little change in water quality, sedimentation rates, geomorphology of the floodplain, or river hydrology since current modest programs will continue. There will likely be a continued long-term decline in the scenic and wild qualities of the Refuge due to little land acquisition within the approved boundary and loss of lands to development.

Biologically, Alternative A would have a neutral impact on threatened and endangered species, reptiles and amphibians, mammals, wetlands, and upland habitat. Sport fish populations would likely increase due to specific habitat projects and pool drawdowns. Waterfowl, other migratory birds, other fish, and mussels would likely continue their long-term trend downward in terms of species diversity, use of the Refuge, or overall population. The floodplain forest would continue to decline in diversity and structure. Invasive species will likely continue to expand under this alternative, negatively impacting both species and habitat. Disturbance to wildlife and habitat disruption or loss is likely to increase under this alternative since no new restrictions will be placed on public uses of the Refuge.

Socioeconomic impacts under Alternative A will be mixed. All current uses will continue with an estimated $89.9 million in economic output. Hunting, fishing, commercial fish floats, interpretation, environmental education, wildlife observation, and photography will continue, although opportunities for certain user groups will continue to be limited. Keeping current policies or regulations will be favored by many long-term visitors, while others may be disappointed that issues are not being addressed, with a resulting decline in the quality of the experience. Recreational boating, camping, and other beach-related uses will not be affected since no major time and space restrictions or regulations will be implemented. This is likely to be viewed positively by this user group and visits should continue to increase. Likewise, fishing tournaments and commercial guiding will not be subject to new Refuge oversight and sponsors/operators will benefit. However, the general public is likely to face continued frustration with disturbance from these activities. Staffing levels and facilities will continue to be inadequate and negatively impact wildlife and habitat monitoring, habitat improvements, interagency coordination, and personal contact, programs, and facilities for the public.

Consequences, Alternative B: Wildlife Focus

This alternative should result in improvements in water quality, sedimentation rates, floodplain geomorphology, and river hydrology due to increased effort on private lands in watersheds and an emphasis on habitat projects and pool drawdowns. There will likely be a long-term improvement in

the scenic and wild qualities of the Refuge due to increased emphasis on finishing land acquisition within the approved boundary of the Refuge, management plans for Research Natural Areas, and increased effort on floodplain forest management.

Sandhill Cranes and chicks. Copyright by Sandra Lines

Biologically, Alternative B would have a positive impact on threatened and endangered species, reptiles and amphibians, mammals, wetlands, and upland habitat. Sport fish populations would likely increase due to specific habitat projects and pool drawdowns. Waterfowl, other migratory birds, other fish, and mussels would improve in terms of use of the Refuge or overall population. The floodplain forest should improve in terms of sustainability, diversity of species, and structure. Invasive plant species would likely stabilize or decline under more aggressive management. Invasive animals may increase, decrease, or stabilize depending on the outcome of interagency initiatives, biological or technological solutions, and funding. Disturbance to wildlife and habitat disruption or loss is likely to decrease markedly under this alternative due to a more restrictive approach to managing public uses on the Refuge.

Socioeconomic impacts under Alternative B will be the greatest of all alternatives considered. Although most current uses will continue, many will be subject to new regulations and restrictions, resulting in an estimated loss of $7.5 million, or 8 percent, in economic output due to decreased visitation. However, opportunities for hunting, fishing, wildlife observation, and photography will remain abundant, while interpretation and environmental education programs will likely decline. Time, space or other restrictions in some areas and for some uses will be viewed negatively by many long-term users, while others will welcome the diversity of opportunity provided. Commercial fish floats and guides will be severely impacted since these uses would be phased out. Camping and other beach-related recreational opportunities would decline as many areas would be closed to these uses to protect wildlife and habitat. Fishing tournaments would be subject to Refuge permitting requirements which could reduce the number of tournaments, improve the quality of tournaments, and reduce impacts to others using the Refuge for recreation. Staffing levels and facilities would be better suited to meet the demands for wildlife and habitat monitoring, habitat improvements, and interagency coordination, and eventually, improve personal contact and programs for the public.

Consequences, Alternative C: Public Use Focus

This alternative should result in improvements in water quality, sedimentation rates, floodplain geomorphology, and river hydrology due to increased effort on private lands in watersheds. There will likely be a long-term improvement in the scenic and wild qualities of the Refuge due to increased emphasis on finishing land acquisition within the approved boundary of the Refuge and management plans for Research Natural Areas. However, this effect will be negated by no increased emphasis in forest management or pool drawdowns, and an overall emphasis on recreation benefits of projects versus fish and wildlife benefits.

Biologically, impacts of this alternative are similar to Alternative A. However, disturbance to wildlife and habitat disruption or loss is likely to increase above levels in Alternative A due to a more liberal approach to regulations and policy.

Socioeconomic impacts under Alternative C will be mixed. All current uses will continue, and likely increase, resulting in an estimated gain of $5.6 million, or 6 percent, in economic output. Opportunities for hunting and fishing will remain virtually unchanged, while opportunities for commercial fish floats, interpretation, environmental education, wildlife observation, and photography will increase through new facilities and programs. Changes in current policies or regulations (for example electric motor areas and elimination of permanent hunting blinds) will be opposed by many long-term area users, while others will welcome the increase in diversity of opportunity. Camping and other beach-related uses will not be measurably affected, although boaters will be restricted in electric motor areas. Commercial guides will be impacted since Refuge permits will be required which could limit the number of qualified guides. This may be viewed positively by the general public who views guides as competition for public hunting and fishing. Fishing tournaments would be subject to Refuge permitting requirements which could reduce the number of tournaments, improve the quality of tournaments, and reduce impacts to others using the Refuge for recreation. Staffing levels and facilities would be better suited to meet the demands for public information and programs, but at some expense to wildlife and habitat monitoring, habitat improvements, and interagency coordination.

Cindy Samples, USFWS

Consequences, Alternative D: Wildlife and Integrated Public Use Focus

Physical environment impacts of Alternative D would be similar to Alternative B. However, there would be more improvement in conserving the scenic and wild values of the Refuge through the implementation of guiding principles for habitat projects which include a principle for considering esthetics in project design.

This alternative would have similar positive impacts to fish, wildlife, and habitat as in Alternative B. Disturbance to wildlife and habitat disruption or loss is also likely to decrease under this alternative due to a more balanced approach to fish and wildlife conservation and public use.

Socioeconomic impacts under Alternative D will also be mixed. All current uses will continue, and likely show modest increases, resulting in an estimated gain of $3.5 million, or 4 percent, in economic output. Opportunities for hunting and fishing will remain abundant, but methods or seasonal restrictions in some areas will change long-standing expectations and practices. Opportunities for commercial fish floats will remain the same depending on operator compliance with new guidelines, while interpretation, environmental education, wildlife observation, and photography will increase through new facilities and programs. Change in current policies or regulations (for example electric motor areas and elimination of permanent hunting blinds) will be opposed by many long-term area users, while others will welcome the increase in diversity of opportunity. Camping and other beach-related uses will continue, but restricted on certain areas important for wildlife. Impacts to recreational boating, commercial guiding, and fishing tournaments will be similar to impacts in Alternative C. Staffing levels and facilities would be better suited to meet the needs of an overall program balanced between fish and wildlife monitoring, habitat management, and public use.

Consequences, Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)

Physical environment impacts of Alternative E would be similar to Alternatives B and D.

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The overall effects of Alternative E on threatened and endangered species, waterfowl production and use-days, other migratory birds, sport fish, other fish, mussels, reptiles and amphibians, invertebrates, mammals, aquatic vegetation, floodplain forest, and terrestrial habitat/grasslands is positive and virtually the same as Alternative D. Waterfowl may experience some increase in disturbance in Waterfowl Hunting Closed Areas due to a change to voluntary avoidance and/or no motors entry restrictions versus closed to fishing as proposed in Alternative D. However, establishing a threshold of disturbance in Alternative E and taking more restrictive action as needed should minimize any increase in disturbance long-term. The Alternative E objective dealing with threatened and endangered species expands monitoring and management consideration to state-listed species which could have a positive impact on the conservation of additional rare or declining fish and wildlife species compared to Alternative D. Grasslands could increase under Alternative E, which would increase the benefits compared to Alternatives B and D.

Socioeconomic impacts under Alternative E would also be mixed. All current uses will continue, and likely show modest increases, resulting in an estimated gain of $3.5 million, or 4 percent, in economic output. The overall effects of Alternative E on hunting, fishing, fishing tournaments, commercial fishing, fishing floats, interpretation and environmental education, wildlife observation and photography, recreational boating, camping and other beach-related uses; commercial guiding and tours; refuge access; control of dogs; property taxes; and refuge administration and operations should be similar to Alternative D or slightly more positive in impact for some of the parameters. However, changes in current policies or regulations (for example changes to Waterfowl Hunting Closed Areas, Electric Motor Areas, Slow, No Wake Areas, and elimination of permanent blinds) will be opposed by many long-term area users, while many others will welcome the increase in diversity of options and opportunities.

In Alternative E, changes in Waterfowl Hunting Closed Area entry regulations and a marked reduction in Electric Motor Areas will eliminate most impacts to commercial fishing compared to Alternative D. Commercial fish float operations may still be impacted by new guidelines, but the planned replacement of any floats lost should negate any economic or public recreation impacts. Alternative E proposes four additional law enforcement officers in the staffing proposal compared to Alternative D, and this staff increase would have a corresponding minor positive impact on economic output due to salary and operations expenditures. Alternative E identifies a need for annual maintenance of existing and proposed habitat projects, and if funded, these expenditures would have a minor positive economic impact.

Cumulative Impacts

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Cumulative impacts to the physical and biological environment should be positive in the action Alternatives B, C, D, and E compared to Alternative A, no action. The action alternatives increase land acquisition and improve water quality which can help to improve hypoxia in the Gulf of Mexico. Sediment reduction and habitat restoration projects will help reverse a trend to a more-or-less static geomorphology, with a resulting increase in habitat diversity and thus species diversity. Actions to maintain the integrity of the Refuge boundary and conserve the scenic beauty of the area may influence land use decisions adjacent to the Refuge. Biologically, Alternatives B, D, and E will positively affect a host of fish and wildlife species due to increased habitat restoration, increase in habitat quality, and more effective management through increased monitoring and research. This should help to stabilize or increase overall populations, especially those species which depend on the Refuge for part or all of their annual life cycle.

A variety of objectives in Alternatives B through E will have varying degrees of impact on recreational use of the Refuge. The alternatives and objectives will have cumulative impacts given that demand for nearly all recreation is expected to grow while the amount of Refuge space and natural resources is relatively finite. Alternatives D and E attempt to strike that reasonable balance between uncontrolled public use and reasonable restrictions that also safeguard fish and wildlife resources. If successful, the integrated approach in these alternatives may prove more sustainable and have positive, long-term social and economic impacts on the Refuge and beyond.

Irretrievable and Irreversible Commitment of Resources

All alternatives identify various levels of investment in habitat, land acquisition, facilities, and staffing. About 78 percent of this investment, which is estimated at $227.8 million in Alternative E over the 15-year life of the CCP, is targeted to habitat restoration and land acquisition, which are generally considered irretrievable and irreversible costs. Funding for public use facilities, offices and visitor contact areas, and general operations and maintenance (including staff) accounts for about 20 percent of the total investment and is generally considered reversible to varying degrees.

Short-term Uses and Long-term Productivity

Habitat protection and restoration actions across all alternatives entail short-term negative impacts to ensure long-term productivity of the Refuge. Impacts are generally site-specific and relatively short duration, and offset by increases in productivity of fish and wildlife on a larger scale, both on and off the Refuge. Changes in public use management across Alternative B through E will cause short-term disruption in current means, locations, and timing of various recreational uses. However, in the long-term, especially in the balanced approach in Alternatives D and E, these changes may help sustain the greatest diversity of opportunity for the greatest number of people.

Unavoidable Adverse Impacts

Unavoidable impacts vary between alternatives, but include short-term disturbance during habitat and facility construction, changes in habitat types from management practices, and loss of local tax revenue from land acquisition. All alternatives will also have adverse impacts to a certain segment of the public opposed to changes in public use regulations and areas. All of the action alternatives include strategies that seek to minimize or mitigate adverse environmental and socioeconomic impacts, and this is especially true in Alternative E which was developed after substantial public input.

Chapter 1: Introduction, Purpose and Need, and Planning Background

Entrance sign at Upper Mississippi River Refuge.

1.1 Introduction

This document is an integrated Draft Comprehensive Conservation Plan (CCP) and Environmental Impact Statement (EIS) for the Upper Mississippi River National Wildlife and Fish Refuge (Refuge). It will follow the basic and accepted format for an EIS and each alternative presented will contain the core of a CCP, namely goals, objectives, and strategies. Since it is an integrated document designed to meet the requirements for both an EIS and a CCP, some sections in the EIS format were expanded (notably Chapter 1, Planning Background) to meet this dual function. In addition, various referenced appendices relate to either the EIS, CCP, or both, as applicable.

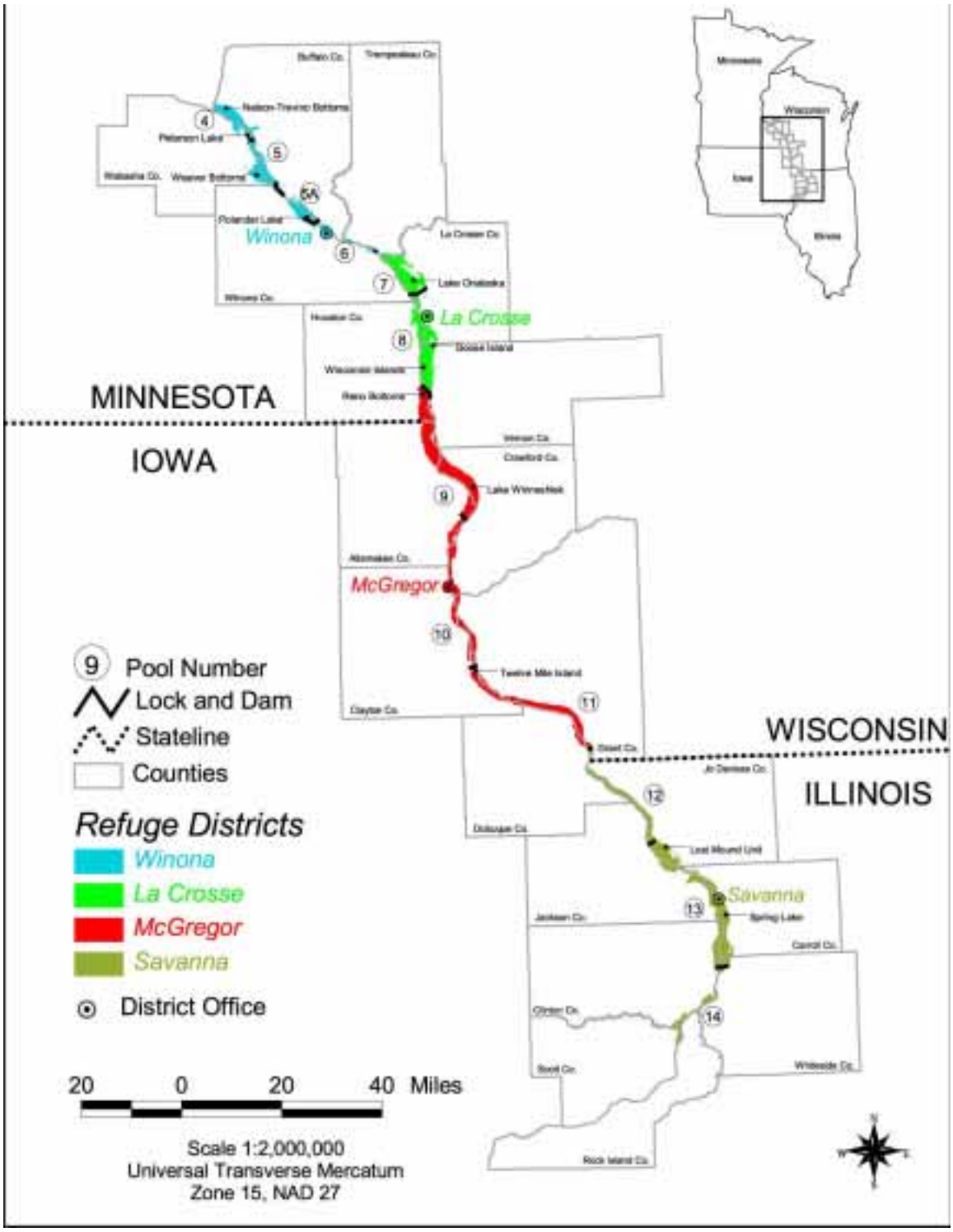
The Refuge was established by an Act of Congress on June 7, 1924, as a refuge and breeding place for migratory birds, fish, other wildlife, and plants. The Refuge encompasses approximately 240,000 acres of Mississippi River floodplain in a more-or-less continuous stretch of 261 river-miles from near Wabasha, Minnesota to near Rock Island, Illinois. See Appendix C for the legislation establishing the Upper Mississippi River National Wildlife and Fish Refuge.

The location and surrounding area of the Refuge is shown in Figure 1.

The Refuge is an invaluable natural legacy in a complex geopolitical landscape:

- A national scenic treasure – river, backwaters, islands, and forest framed by 500-foot high bluffs;
- Interface with four states, 70 communities, and two Corps of Engineers districts;
- A series of 11 navigation locks and dams within overall boundary;
- Represented by eight U.S. Senators and six U.S. Representatives;
- National Scenic Byways on both sides;
- 3.7 million annual visits, the most of any national wildlife refuge;
- Diverse wildlife: 306 species of birds, 119 species of fish, 51 species of mammals, and 42 species of mussels;
- Designated a Globally Important Bird Area;

Figure 1: Location of Upper Mississippi River NWFR



- Up to 40 percent of the continent's waterfowl use the river flyway during migration;
- Up to 50 percent of the world's Canvasback ducks stop during fall migration;
- Up to 20 percent of the eastern United States population of Tundra Swans stop during fall migration;
- 167 active Bald Eagle nests in recent years;
- A peak of 2,700 Bald Eagles during spring migration;
- Approximately 5,000 heron and egret nests in up to 15 colonies.

The Refuge is a part of the National Wildlife Refuge System, which includes more than 540 refuges and more than 3,000 waterfowl production areas, a total of 95 million acres of lands set aside for wildlife habitat. The Refuge System is administered by the U.S. Fish and Wildlife Service, Department of the Interior.

The Refuge is divided into four districts for management, administrative, and public service effectiveness and efficiency. The Refuge is also divided geographically by river pools that correspond with the navigation pools created by the series of locks and dams on the Upper Mississippi River. District offices are located in Winona, Minnesota (Pools 4-6), La Crosse, Wisconsin (Pools 7-8), McGregor, Iowa (Pools 9-11) and Savanna, Illinois (Pools 12-14). The Refuge currently has 37 permanent employees and an annual base operations and maintenance budget of $3.1 million.

The Refuge has an overall Headquarters in Winona, Minnesota which provides administrative, biological, mapping, visitor services, planning, and policy support to the districts. District managers are supervised by the refuge manager located in Winona. Two other national wildlife refuges, Trempealeau and Driftless Area, are also part of the Refuge Complex and are coordinated by the refuge manager in Winona. Separate CCPs are also being prepared, or are completed, for Trempealeau NWR and Driftless NWR, although scoping was done concurrently with scoping for this CCP and EIS.

1.2 Purpose and Need for Action

1.2.1 Purpose

The purpose of this Environmental Impact Statement (EIS) is to adopt and implement a Comprehensive Conservation Plan (CCP) for Upper Mississippi River National Wildlife and Fish Refuge. The Service is considering a range of alternatives of how best to manage the Refuge. A second purpose of the EIS is to present and adopt a Fire Management Plan for the Refuge.

Comprehensive conservation plans are designed to guide the management and administration of national wildlife refuges for a period of 15 years and help ensure that each refuge meets the purpose for which it was established and contributes to the overall mission of the Refuge System. The CCP helps describe a desired future condition of the refuge, and provides both long-term and day-to-day guidance for management actions and decisions. It provides both broad and specific policy on various issues, sets goals and measurable objectives, and outlines strategies for reaching those objectives. A CCP also helps communicate to other agencies and the public a management direction for a refuge to meet the needs of both wildlife and people.

The Refuge Improvement Act of 1997 mandates that the Secretary of the Interior, and thus the Service, prepare CCPs for all units of the National Wildlife Refuge System by October 2012. In addition to this mandate, there are other reasons why preparation of a CCP is needed at this time.

The last comprehensive plan (known as a Master Plan) was completed in 1987. Since then, the river environment has undergone change affecting habitat and wildlife, new laws and policies have been put in place, new scientific information is available, and levels of public use and interest have increased. The planning process is also an excellent way to inform and involve the general public, state and federal agencies, and non-government groups who have an interest, responsibility, or authority in the management or use of certain aspects of the Upper Mississippi River and the Refuge.

Lesser Scaup
Copyright by Sandra Lines

Finally, the National Environmental Policy Act of 1969 requires that federal agencies, and thus the Service, follow basic requirements for major actions significantly affecting the quality of the human environment. These requirements are: 1) consider every significant aspect of the environmental impact of a proposed action; 2) involve the public in its decision-making process when considering environmental concerns; 3) use a systematic, interdisciplinary approach to decision making; and 4) consider a reasonable range of alternatives. This EIS documents those requirements and provides the necessary information and analysis to the decision-maker or responsible official.

1.2.2 Need

The CCP that ultimately arises from this Draft CCP and EIS will help ensure that management and administration of the Refuge meets the mission of the Refuge System, the purpose for which the Refuge was established, and the goals for the Refuge. The mission, purpose, and goals are considered the needs or benchmarks for defining reasonable alternatives presented in Chapter 2, and along with an evaluation of consequences in Chapter 4, will form the basis for a decision. These three needs are summarized below. More detail on issues related to these needs can be found in Section 1.4.5.

Need 1: Contribute to the Mission

The mission of the National Wildlife Refuge System set forth in the Refuge Improvement Act of 1997 is:

"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."

Need 2: Help Fulfill the Purposes

The 1924 Refuge act set forth the purposes of the Refuge, which remain valid to this day, and guide planning, management, administration, and use of the refuge:

"a. as a refuge and breeding place for migratory birds included in the terms of the convention between the United States and Great Britain for the protection of migratory birds, concluded August 16, 1916, and

b. to such extent as the Secretary of Interior may by regulations prescribe, as a refuge and breeding place for other wild birds, game animals, fur-bearing animals, and for the conservation of wild flowers and aquatic plants, and

c. to such extent as the Secretary of Interior may by regulations prescribe as a refuge and breeding place for fish and other aquatic animal life."

Need 3: Help Achieve Refuge Goals

1. Landscape. We will strive to maintain and improve the scenic qualities and wild character of the Upper Mississippi River Refuge.

Related needs are to:
a. maintain the integrity of the refuge boundary
b. complete acquisition within approved boundary
c. protect blufflands for scenic qualities and migratory birds
d. ensure integrity of designated Research Natural Areas
e. seek designation as a Wetland of International Importance.

2. Environmental Health. We will strive to improve the environmental health of the Refuge by working with others.

Related needs are to:
a. reduce sediment, nutrient, and contaminants in water
b. restore aquatic vegetation in navigation pools on the Refuge
c. understand and reduce invasive species

3. Wildlife and Habitat. Our habitat management will support diverse and abundant native fish, wildlife, and plants.

Related needs are to:
a. improve habitat on all pools within Refuge
b. provide guidance for habitat management projects
c. monitor status and trends of key fish and wildlife
d. protect and enhance federally listed threatened, endangered and candidate species
e. evaluate and update furbearer trapping program
f. improve fishery and mussel conservation efforts
g. improve management and oversight of commercial fishing
h. improve understanding and management of turtles
i. evaluate and manage forest resources
j. maintain and enhance grassland habitat

4. Wildlife-Dependent Recreation. We will manage programs and facilities to ensure abundant and sustainable hunting, fishing, wildlife observation, wildlife photography, interpretation, and environmental education opportunities for a broad cross-section of the public.

Related needs are to:
a. ensure diverse and abundant hunting and fishing opportunities

b. improve effectiveness of Closed Area system to meet the food and rest needs of waterfowl
c. ensure consistency and efficiency of hunting programs
d. reduce user conflicts and ensure equitable hunting opportunities for a broad cross-section of the public
e. reduce environmental and social impacts from competitive sporting activities
f. improve opportunities for wildlife observation and photography
g. improve opportunities for interpretation and environmental education
h. bring all commercial fish floats/piers into compliance with safety and administrative guidelines
i. improve management and oversight of growing number of commercial guide services

5. Other Recreational Use. We will provide opportunities for the public to use and enjoy the Refuge for traditional and appropriate non-wildlife-dependent recreation that is compatible with the purpose for which the Refuge was established and the mission of the Refuge System.

Related needs are to:
a. reduce environmental and social impacts from beach-related uses and develop beach maintenance policy
b. address fish and wildlife disturbance and user conflicts in backwater areas
c. reduce safety and erosion problems on some boating corridors
d. clarify domestic animal use regulations
e. update public use regulations for clarity and effectiveness

6. Administration and Operations. We will seek adequate funding, staffing, and facilities, and improve public awareness and support, to carry out the purposes, vision, goals, and objectives of the Refuge.

Related needs are to:
a. provide adequate staff to meet resource and public challenges and opportunities
b. provide staff with adequate office and maintenance facilities
c. provide adequate information to the public on recreational opportunities and resource challenges
d. improve access to the Refuge for public enjoyment
e. identify operational and maintenance shortfalls

1.3 Decision Framework

There is a 30-day waiting period before a decision is made on which alternative in the Final CCP/EIS will be implemented. The public or agencies may provide additional information or comment during this time, although no public meetings will be held. The decision is documented in a formal Record of Decision, signed by the Regional Director, U.S. Fish and Wildlife Service, Twin Cities, Minnesota.

The Record of Decision is generally 8-10 pages in length and documents the decision, the alternatives considered, a summary and response to any comments received on the Final CCP/EIS, and a discussion of the factors considered in making the decision. The Record of Decision will be announced in the media and made available on the planning website or by request.

1.4 Planning Background

1.4.1 Legal and Policy Framework

The Upper Mississippi River National Wildlife and Fish Refuge is managed and administered as part of the National Wildlife Refuge System within a framework of organizational setting, laws, and policy. Key aspects of this framework are outlined below. A list of other laws and executive orders that have guided preparation of the CCP and EIS, and guide future implementation, are provided in Appendix D.

U.S. Fish and Wildlife Service

The Refuge is administered by the U.S. Fish and Wildlife Service, Department of the Interior. The Service is the primary federal agency responsible for conserving and enhancing the nation's fish and wildlife populations and their habitats. Although the Service shares this responsibility with other federal, state, tribal, local, and private entities, the Service has specific trust responsibilities for migratory birds, threatened and endangered species, certain interjurisdictional fish and marine mammals, and the National Wildlife Refuge System. The mission of the Service is:

"Working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people."

1.4.1.1 The National Wildlife Refuge System

The Refuge System had its beginning in 1903 when President Theodore Roosevelt used an Executive Order to set aside tiny Pelican Island in Florida as a refuge and breeding ground for birds. From that small beginning, the Refuge System has become the world's largest collection of lands specifically set aside for wildlife conservation. The administration, management, and growth of the Refuge System are guided by the following goals (Director's Order, January 18, 2001):

- To fulfill our statutory duty to achieve Refuge purpose(s) and further the System mission.
- To conserve, restore where appropriate, and enhance all species of fish, wildlife, and plants that are endangered or threatened with becoming endangered.
- To perpetuate migratory bird, interjurisdictional fish, and marine mammal populations.
- To conserve a diversity of fish, wildlife, and plants.
- To conserve and restore where appropriate representative ecosystems of the United States, including the ecological processes characteristic of those ecosystems.
- To foster understanding and instill appreciation of native fish, wildlife, and plants, and conservation, by providing the public with safe, high-quality, and compatible wildlife-dependent public use. Such use includes hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

1.4.1.2 The National Wildlife Refuge System Improvement Act of 1997 and Related Policy

The Improvement Act of 1997 amended the National Wildlife Refuge System Administrative Act of 1966 and became a true organic act for the System by providing a mission, policy direction, and management standards. Below is a summary of the key provisions of this landmark legislation, and subsequent policies to carry out the Act's mandates.

Established Broad National Policy for the Refuge System:

- Each refuge shall be managed to fulfill the mission and its purposes.
- Compatible wildlife-dependent recreation is a legitimate and appropriate use.
- Compatible wildlife-dependent uses are the priority public uses of the System.
- Compatible wildlife-dependent uses should be facilitated, subject to necessary restrictions.

Directed the Secretary of the Interior to:

- Provide for the conservation of fish, wildlife, and plants within the System.
- Ensure biological integrity, diversity, and environmental health of the System for the benefit of present and future generations.
- Plan and direct the continued growth of the System to meet the mission.
- Carry out the mission of the System and purposes of each refuge; if conflict between, purposes takes priority.
- Ensure coordination with adjacent landowners and the states.
- Assist in the maintenance of adequate water quantity and quality for refuges; acquire water rights as needed.
- Recognize compatible wildlife-dependent recreational uses as the priority general public uses of the System.
- Ensure that opportunities for compatible wildlife-dependent recreation are provided.
- Ensure that wildlife-dependent recreation receives enhanced consideration over other uses of the System.
- Provide increased opportunities for families to enjoy wildlife-dependent recreation.
- Provide cooperation and collaboration of other federal agencies and states, and honor existing authorized or permitted uses by other federal agencies.
- Monitor the status and trends of fish, wildlife, and plants in each refuge.

Provide Compatibility of Uses Standards and Procedures:

- New or existing uses should not be permitted, renewed, or expanded unless compatible with the mission of the System or the purpose(s) of the refuge, and consistent with public safety.
- Wildlife-dependent uses may be authorized when compatible and not inconsistent with public safety.
- The Secretary shall issue regulations for compatibility determinations.

Planning:

- Each unit of the Refuge System shall have a Comprehensive Conservation Plan completed by 2012.
- Planning should involve adjoining landowners, state conservation agencies, and the general public.

Compatibility Policy

No use for which the Service has authority to regulate may be allowed on a unit of Refuge System unless it is determined to be compatible. A compatible use is a use that, in the sound professional judgment of the refuge manager, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the national wildlife refuge. Managers must complete a written compatibility determination for each use, or collection of like-uses, that is signed by the manager and the Regional Chief of Refuges in the respective Service region.

Biological Integrity, Diversity, and Environmental Health Policy

The Service is directed in the Refuge Improvement Act to “ensure that the biological integrity, diversity, and environmental health of the Refuge System are maintained for the benefit of present

and future generations of Americans…" The biological integrity policy helps define and clarify this directive by providing guidance on what conditions constitute biological integrity, diversity, and environmental health; guidelines for maintaining existing levels; guidelines for determining how and when it is appropriate to restore lost elements; and guidelines in dealing with external threats to biological integrity, diversity and health.

1.4.1.3 Research Natural Area Policy

The Refuge currently has four Research Natural Areas (Nelson-Trevino, 3,740 acres, Wisconsin, Winona District; Reno Bottoms, 1,980 acres, Minnesota, McGregor District; Twelve Mile Island, 900 acres, Iowa, McGregor District; and Thomson-Fulton Sand Prairie, 321 acres, Illinois, Savanna District). The Service's Refuge Manual, Section 8 RM 10, provides guidance for management, administration, and public use of Research Natural Areas, and lists the following objectives of the designations:

- To participate in the national effort to preserve adequate examples of all major ecosystem types or other outstanding physical or biological phenomena;
- To provide research and educational opportunities for scientists and others in the observation, study, and monitoring of the environment; and
- To contribute to the national effort to preserve a full range of genetic and behavioral diversity for native plants and animals, including endangered and threatened species.

Waterfowl. Stan Bousson

1.4.2 Brief Refuge History and Purposes

The creation of the Refuge was largely the result of the Izaak Walton League, and in particular, the efforts of its founder and leader, Will Dilg. Dilg, an advertising executive in Chicago and an avid angler and lover of the outdoors, formed the Izaak Walton League in 1922. For nearly two decades, Dilg had spent much of the summer fishing and enjoying the Upper Mississippi River. In the summer of 1923, he learned of a plan to drain a large portion of the river backwaters and came up with an ambitious solution to the drainage scheme: turn the entire stretch of river into a federal refuge. Remarkably, one year later, due to Dilg's determination, Congress passed the Upper Mississippi River Wild Life and Fish Refuge Act on June 7, 1924. The act authorized the acquisition of land for a refuge between Rock Island, Illinois and Wabasha, Minnesota.

The Refuge name was changed administratively to the Upper Mississippi River National Wildlife and Fish Refuge in 1983 by adding the word "National" and changing the two-word Wild Life to the accepted and widely-used single-word "Wildlife" (Regional Director Bulletin, February 28, 1983). The new name was affirmed legislatively by Congress in 1998 through amendment to the original act (Public Law 105-312, October 30, 1998).

The 1924 act set forth the purposes of the Refuge as follows:

- "...as a refuge and breeding place for migratory birds included in the terms of the convention between the United States and Great Britain for the protection of migratory birds, concluded August 16, 1916, and

to such extent as the Secretary of Agriculture[1] may by regulations prescribe, as a refuge and breeding place for other wild birds, game animals, fur-bearing animals, and for the conservation of wild flowers and aquatic plants, and

to such extent as the Secretary of Commerce[1] may by regulations prescribe as a refuge and breeding place for fish and other aquatic animal life."

The 1924 Act also had stipulations that would prove to have management implications to this day. First, the states of Minnesota, Wisconsin, Iowa, and Illinois had to give their consent before land acquisition could occur. This consent was granted, with varying conditions, by all the states in 1925. Second, the act specifically prohibited any interference with the operations of the War Department in carrying out any project now or in the future for the improvement of the river for navigation. Both of these stipulations are discussed more fully in section 1.4.3.

Land acquisition proceeded rapidly beginning in 1925 using funds appropriated by Congress, and from the withdrawal of public domain or federally-owned islands and other lands in the floodplain. Approximately 90,000 acres were acquired. In 1930, Congress authorized the 9-foot navigation project on the Upper Mississippi River, and the Bureau of Biological Survey (precursor to the Fish and Wildlife Service) soon suspended most acquisition. The Corps of Engineers acquired approximately 106,000 acres within the generally accepted boundary of the Refuge that was needed for the construction of a series of locks and dams and subsequent raising of water levels. Management jurisdiction over much of the Corps of Engineers-acquired land was transferred to the Service, with reservations, through a series of cooperative agreements in 1945, 1954, and 1963. The agreement was simplified and language updated in a 2001 amendment. The agreement is discussed more fully in section 1.4.3.1.

Spanning 80 years, the history of the Refuge is varied, storied, and complex, and shaped by organizational, political, and social influences. Surprisingly, there is no consolidated history of the Refuge and historic information remains a mostly disjointed collection of notes, memos, files, and reports. The most complete legal history is contained in a report done by law intern Michael Fairchild in 1982 titled "The Legal and Administrative History of the Upper Mississippi River Wild Life and Fish Refuge." This report is available at Refuge headquarters in Winona.

Today, the Refuge encompasses nearly 240,000 acres of land and water as determined by Geographic Information System, or GIS, analysis. The Refuge remains perhaps the most important corridor of fish and wildlife habitat in the central United States, an importance which has increased over time as habitat losses or degradation have occurred elsewhere.

1.4.3 Relationship to Corps of Engineers and the States, and Other Conservation Initiatives

1.4.3.1 Corps of Engineers

The Corps of Engineers, Department of the Army, has played an active role in the physical and environmental changes on the Mississippi River, and thus the Refuge, for more than 100 years. In 1871, Congress approved funding for the Corps of Engineers to improve the river for navigation, mainly through the removal of snags and occasional dredging. By 1878, the Corps of Engineers was maintaining a 4-foot deep navigation channel on the river and in 1910, Congress authorized a 6-foot navigation channel. The channel was maintained mainly by directing more river current to the main channel of the river through wing dams and backwater closing structures. Demand for greater river shipping capacity and reliability led to Congress in 1930 authorizing and funding a 9-foot navigation

1.Changed to Secretary of the Interior pursuant to reorganization and transfer of functions in 1939 (16 USC 721-731).

channel, and eventually, a series of 29 locks and dams between St. Louis, Missouri and Minneapolis, Minnesota (11 are within the generally accepted boundary of the Refuge). With the Refuge already established, the 9-foot channel would forever link the fate of the Refuge with the Corps of Engineers.

First, acquisition of land for the Refuge by the Bureau of Biological Survey (now the Service) was suspended since the Corps of Engineers had more funding and needed to move quickly to keep the 9-foot project on track. The planned locks and dams would flood thousands of acres of floodplain that needed to be acquired. It also made sense to not have two federal agencies competing for the same land. The Corps of Engineers thus acquired approximately 106,000 acres within the generally accepted boundary of the Refuge. Some of the Corps of Engineers-acquired land was transferred to the Service via Executive Orders in 1935 and 1936. Locks and dams were completed on the stretch of the river designated for the Refuge between 1935 (Lock and Dam 4 and 5) and 1939 (Lock and Dam 13).

However, it did not take long for conflicts to emerge since the Service and the Corps of Engineers acquired land under different authorities for markedly different purposes: fish and wildlife conservation versus commercial navigation. To help clarify agency roles and responsibilities, cooperative agreements were negotiated and signed in 1945, 1954, 1963, and 2001 (amended the 1963 agreement), each time bringing more clarity to who managed what within the Refuge. An excellent and thorough history of the cooperative agreements is found in the CCP for Mark Twain National Wildlife Refuge Complex, Chapter 3, available on-line at http://midwest.fws.gov/planning/marktwain/index.html.

In summary, the cooperative agreement, with some reservations, grants to the Service the rights to manage fish and wildlife and its habitat on those lands acquired by the Corps of Engineers. These lands are managed by the Service as a part of the Refuge and the National Wildlife Refuge System. The Corps of Engineers retained the rights to manage as needed for the navigation project, forestry, and Corps of Engineers-managed recreation areas, and all other rights not specifically granted to the Service. A copy of the cooperative agreement can be found in Appendix F. As part of the planning process, the Refuge initiated efforts with the Corps of Engineers to amend the current agreement to clarify language on the responsibility and authority of each agency, especially in regard to recreational uses. These discussions will continue.

Other conflicts over the years between navigation, fish and wildlife conservation, and recreation influenced Refuge and Corps of Engineers cooperative working arrangements. In the 1950s and 1960s, there was growing concern over the common practice of placing dredged material from navigation channel maintenance in the marshes and backwaters of the river. These concerns were heightened with talk of a 12-foot navigation channel in the mid-1960s; new studies on dredging impacts; and new national environmental laws such as the Water Resources Planning Act of 1962, National Environmental Policy Act of 1969, and the Federal Water Pollution Control Act of 1972. In 1973, the State of Wisconsin sought a preliminary injunction against the Corps of Engineers to prevent the disposal of dredged material on Crosby Island and vicinity (Pool 8), and in 1974 filed another injunction for disposal at several other sites in Pools 4-8 and one further down-river. The State of Minnesota joined Wisconsin in the 1974 injunction. These legal actions were the impetus for more structured cooperation.

In 1974, the Corps of Engineers and the Service began work on a long-range management strategy for the Upper Mississippi River. A broad-based task force representing five states and several federal agencies was formed under the auspices of the Upper Mississippi River Basin Commission, and became the Great River Environmental Action Teams (GREAT). The Great River Study was authorized by Congress in 1976 and called upon the Corps of Engineers, in concert with other agencies and the states, to develop a management plan that looked at the needs of navigation, barge traffic, fish and wildlife, recreation, watershed management, and water quality. The resulting

GREAT studies not only provided a comprehensive look at all aspects of the Upper Mississippi River, but provided the institutional framework for the Service, Corps of Engineers, states and other agencies to work together to meet often divergent needs and mandates.

In 1978, Congress mandated that the Upper Mississippi River Basin Commission complete a comprehensive master plan for the Upper Mississippi River, which includes the Refuge. The plan was completed in 1982 and encompassed many of the recommendations developed in the GREAT studies for dredge material disposal, fish and wildlife conservation, and recreation management.

In 1983, the Service and the Corps of Engineers (St. Paul District), in cooperation with Minnesota, Wisconsin, and Iowa, completed a Land Use Allocation Plan for Refuge- and Corps of Engineers-acquired lands in Pools 1-10 (Pools 4-10 affect the Refuge). The plan, through policy statements and detailed maps, provided a clear, practical, and balanced plan to guide future federal land use actions. In effect, the plan was a zoning plan for federal lands, allocating lands in the floodplain for wildlife management, navigation project operations, low-density recreation, intensive recreation, and natural areas. A similar plan for Pools 11-14 was completed with the Corps of Engineers (Rock Island District), in cooperation with Wisconsin, Iowa, and Illinois in 1986 as part of the Refuge Master Plan process completed in 1987. Both Land Use Allocation Plans remain important references for day-to-day operations and project planning for the Refuge and the Corps of Engineers, although updates are needed to reflect new acquisitions and changing resource needs.

In 1986, Congress authorized the Corps of Engineers to carry out an Environmental Management Program (EMP) as part of the Water Resource Development Act of the same year. The EMP is composed of two elements: 1) planning, construction and evaluation of fish and wildlife habitat rehabilitation and enhancement projects, or HREPs, and 2) long-term resource monitoring including analysis and applied research, known as LTRMP. To date, the EMP has completed 40 habitat projects with many under construction or in various stages of design with a total affected area of 140,000 acres. Many of these projects are on the Refuge as well as the other Upper Mississippi River refuges of Trempealeau, Mark Twain Complex, and Illinois River Complex. The LTRMP element has provided critical information on the status and trends of fish, wildlife, and aquatic plants; GIS habitat analysis; and other useful scientific information used in refuge management and planning.

In 2005, the Corps of Engineers released a Final Upper Mississippi River-Illinois Waterway System Navigation Feasibility Study after nearly 10 years of effort. The Service and the Refuge have been involved in review and comment of the study at virtually every stage. The study recommends a dual-purpose approach of improving both navigation efficiency and river ecosystem restoration, the latter at a scale that would be many times larger than the current EMP, and more comprehensive in terms of the floodplain affected and the scope of projects that could be undertaken. Although action by Congress is uncertain, the study may hold great promise in reversing decades of habitat decline on the Upper Mississippi River and the Refuge.

Ongoing Refuge coordination with the Corps of Engineers and the states is accomplished at several levels. One of the long-standing coordination frameworks is the interagency teams organized by each of the three Corps of Engineers Districts on the Upper Mississippi River. These teams provide field-level coordination for dredging and other navigation operations, habitat project planning, pool habitat plans, monitoring efforts, recreation planning, water level management (pool drawdowns), forestry, and education and outreach programs. Teams include the River Resources Forum (St. Paul District, Pools 1-10), River Resources Coordination Team (Rock Island District, Pools 11-22), and the River Action Team (St. Louis District, Pools 24 to open river). The Refuge is active on the St. Paul and Rock Island district teams, and their various subteams and workgroups.

1.4.3.2 The States

The Refuge has always enjoyed a unique relationship with the four states of Minnesota, Wisconsin, Iowa, and Illinois. As noted earlier, the Act which created the Refuge in 1924 had a specific stipulation which said:

> "No such area shall be acquired … until the legislature of each State in which is situated any part of the areas to be acquired under this Act has consented to the acquisition of such part by the United States for the purposes of this Act …"

Consent from the state legislatures was granted in 1925, and each state had varying conditions for their consent. In Minnesota, the legislature granted consent March 19 without condition and ceded all state-owned overflow lands to the United States. The ceded lands provision was later rescinded in 1943.

Iowa gave their consent March 31 provided that acquisitions were first approved by various state conservation boards and officials. An additional condition by Iowa granted the United States exclusive jurisdiction over the lands acquired, a condition that would later be reduced in scope to just "jurisdiction" in 1943.

Wisconsin granted consent on May 19 with several conditions. First, their consent was conditioned on the other three states granting consent and that acquisition of tracts be approved by the Governor on the advice of the Conservation Commission. Secondly, the state and its agents reserved the rights of access for fish-related conservation work such as fish rescue in backwaters and operation of hatcheries. Third, Wisconsin retained title to, and custody and protection of, the fishery in the river and adjacent waters. And lastly, their approval was on the condition that:

> "the navigable waters leading into the Mississippi and the carrying places between the same, and the navigable lakes, sloughs and ponds within or adjoining such areas, shall remain common highways for navigation and portaging, and the use thereof, as well to the inhabitants of this state as to the citizens of the United States, shall not be denied."

See Chapter 7, "Public Comment on Draft EIS and Response" for more detailed discussion of this condition.

Illinois granted consent June 30 with the condition that the state retained concurrent jurisdiction over the areas acquired.

Due to often overlapping and shared responsibilities and authorities for fish and wildlife resources between the states and the Refuge, cooperation and coordination have been standard practice since the Refuge was established. The Refuge generally adopts or defers to state regulations and license requirements for the use and enjoyment of fish and wildlife resources. Refuge law enforcement efforts are coordinated with respective state conservation officers. The states are also closely involved in the efforts outlined in the preceding Corps of Engineers section, and often provide the lead for interjurisdictional issues such as pool drawdowns. The Refuge Improvement Act of 1997 also solidified the role of the states in coordinating Refuge management plans and activities.

The states also manage some important and often magnificent wildlife management areas, parks, and forests adjacent to the Refuge, both in and outside the floodplain. Coordination of similar land management needs and programs is regular and ongoing since fish and wildlife, and at times the public, do not distinguish between administrative boundaries. Notable state resource lands are summarized in Chapter 3, Section 3.2.3.

Structured coordination with the states is provided through the Upper Mississippi River Basin Association and the Upper Mississippi Conservation Committee. Both are key coordination and communication links with the states for conservation efforts on the Mississippi and the Refuge.

The Basin Association was formed by a joint resolution of the Governors of Missouri, Illinois, Wisconsin, Iowa, and Illinois in 1981 to replace the former federally-authorized Upper Mississippi River Basin Commission. Several federal agencies, including the Service, are non-voting advisory members, but never-the-less, the Basin Association provides an important regional forum to discuss major policy and management issues that affect the Mississippi River and the Refuge.

The Conservation Committee is also a state-sponsored organization with executive board delegates from Minnesota, Wisconsin, Iowa, Illinois, and Missouri. However, its membership since establishment in 1943 has grown to more than 200 resource managers from both state and federal agencies. The manager of the Refuge is a recognized, but non-voting, participant at board meetings, and the Service's LaCrosse Fishery Resources Office provides a coordinator.

1.4.3.3 Other Conservation Initiatives

The Refuge's location in the floodplain of the Mississippi River makes it an important component of a host of conservation initiatives, plans, and reports. Several of these efforts are outlined below and contain important guidance and direction for preparation of this Final CCP and EIS.

Ecosystem Approach

The Service has adopted an ecosystem approach to conservation which stresses a landscape perspective and cooperation across Service programs and with the wide variety of partners and stakeholders. The Refuge is part of the Service's Upper Mississippi River and Tallgrass Prairie Ecosystem and strives to contribute to these five team goals:

- Protect, restore, and enhance populations of native and trust species and their habitats.
- Restore natural ecosystem processes, including hydrology and sediment transport to maintain species and habitat diversity.
- Promote environmental awareness of the ecosystem and its needs with emphasis on sustainable land use management.
- Identify water quality problems affecting native biodiversity and habitat of trust species.
- Reduce conflicts between fish and wildlife needs and other uses.

Migratory Bird Conservation Initiatives

Blueprint for Migratory Birds (USFWS, 2004)*:* The U.S. Fish and Wildlife Service is responsible for the conservation and management of more than 800 species of migratory birds that occur in the country. In 2004, the Service released the Migratory Bird Program's ten-year strategic plan entitled: "A Blueprint for the Future of Migratory Birds." It calls for cooperation from all governments and partners to ensure the continued survival of migratory birds. The Blueprint identifies three priorities for the Migratory Bird Program: 1) address the loss and degradation of migratory bird habitat; 2) improve scientific information on bird populations; and 3) increase partnerships to achieve bird conservation. Refuge management activities stemming from the CCP will complement these priorities by addressing needs of some Birds of Management Concern listed in the Blueprint.

North American Waterfowl Management Plan (USDOI and EC, 1986): This plan is a partnership effort to restore waterfowl populations to historic levels through habitat conservation. The plan outlines several geographic areas, called joint venture areas. The Refuge is a part of the Upper Mississippi River and Great Lakes Region Joint Venture. The goal of the joint venture is to increase

populations of waterfowl and other wetland wildlife by protecting, restoring, and enhancing wetland and associated upland habitat. Objectives for the joint venture are 1.54 million breeding ducks and 773 million use-days during migration.

Partners in Flight (Pashley et al. 2000): This initiative seeks to conserve songbirds by identifying priority species, important habitats, and management strategies. Conservation plans have been developed for different regions across the continent and the Refuge lies within the Upper Great Lakes Plain, also known as Physiographic Area 16.

U.S. Shorebird Conservation Plan. (Manomet, 2001)*:* This plan seeks to conserve shorebirds by identifying priority species and important breeding and migration areas, and outlining strategies. The Refuge is included in the Upper Mississippi Valley/Great Lakes Regional Shorebird Conservation Plan.

North American Waterbird Conservation Plan: Volume One of this plan focuses on 165 species of seabirds and colonial nesting birds such as herons, egrets, and terns. Volume Two focuses on 44 species of non-colonial marsh birds. The plan outlines species' population status, habitat needs, and strategies for conservation.

North American Bird Conservation Initiative (http://www.bsc-eoc.org/nabci.html): This initiative is a continental effort to bring all migratory bird conservation programs together to optimize conservation objectives and strategies. The goal is to facilitate the full spectrum of bird conservation through regionally-based, biologically-driven, landscape-oriented partnerships.

Globally Important Bird Area (American Bird Conservancy, 2004): The Refuge was designated a "Globally Important Bird Area" by the American Bird Conservancy in 1997 due to its national and international importance for migratory birds. The designation helps protect the Refuge through recognition and awareness.

State Comprehensive Wildlife Conservation Plans

All states are responsible for developing and implementing a comprehensive wildlife conservation plan/strategy as a condition of receiving federal funding through the Service-administered Wildlife Conservation and Restoration Program and State Wildlife Grant Program. To date, Illinois, Minnesota, and Wisconsin have completed such plans and Iowa is near completion. States developed these plans in cooperation with many agencies, organizations, and individuals. These plans address a full array of wildlife (including fish and many invertebrates) but must focus on wildlife "Species of Greatest Conservation Need." The Refuge can play a role, through cooperative implementation of conservation actions and resource monitoring efforts, in fulfilling state goals to enhance key habitats (especially floodplain and grasslands) essential to conservation of target species.

Regional Resource Priorities

In 2002, Region 3 of the Service assembled a list of 243 species in the greatest need of attention under the Service's full span of authorities. The priorities are linked to key habitats, concerns, desired outcomes, obstacles, and broad strategies. The priorities help direct human and fiscal resources and are a useful reference and guide when preparing CCPs.

Partners for Fish and Wildlife Program

Since 1987, the Service has worked beyond the boundaries of refuges with landowners and other partners to improve habitat on private land for fish and wildlife. The program is voluntary, relies heavily on a partnership approach, and leverages both ideas and funding from a variety of sources. Through the Partners program, the Service in Region 3 has restored or enhanced 24,780 wetland basins, nearly 189,000 acres of uplands, and nearly 200 miles of streams and riparian areas. Cost sharing agreements and technical assistance are an important part of the program. The Partners

program remains an effective tool in influencing land use off-refuge to improve water quality and quantity on-refuge, as well as meeting the landscape needs of fish and wildlife.

Interagency Reports and Assessments

Over the years, there have been scores of reports, studies, assessments, and action plans done by federal and state agencies, commissions, and workgroups, either singly or as cooperative efforts. Below is a summary of recent works which have been important guides for the preparation of this Draft CCP and EIS. Many are referenced in various sections of this document, and many other important works are listed in the references section, Chapter 8.

FINAL Integrated Feasibility Report and Programmatic Environmental Impact Statement for the UMR-IWW System Navigation Feasibility Study (USACE, 2004): This report and study provides a long-term plan for ensuring navigation efficiency and environmental sustainability on the Upper Mississippi and Illinois Rivers. Of particular interest to the Refuge is the $5.3 billion long-term ecosystem restoration plan to be accomplished by the Corps of Engineers in cooperation with the Service, the five states, and private non-profit groups to improve the natural resources of the river through projects for habitat creation, water level management, fish passage, and floodplain restoration.

Ecological Status and Trends of the Upper Mississippi River System 1998(USGS, 1999): This report of the Long Term Resource Monitoring Program examines and summarizes data collected in the monitoring program since the late-1980s, provides historical observations, and other scientific findings. The report, along with unpublished updates since 1998, provides invaluable science in the areas of river geomorphology and floodplain habitats, watershed relations and changes, hydrology, water and sediment quality, submersed aquatic vegetation, floodplain forest, macroinvertebrates, freshwater mussels, fishes, and birds.

A River That Works and a Working River (UMRCC, 2000): Completed by the Upper Mississippi River Conservation Committee in 2000, the report presents a strategy for the natural resources of the Upper Mississippi River System. The report lists 9 objective areas and discusses tools and measures, or strategies, for achieving. The 9 objective areas are:

- Improve water quality
- Reduction in erosion, sediment and nutrient impacts
- Return of natural floodplain to enable more habitat diversity
- Seasonal flood pulse and periodic low flow conditions
- Restore backwater/main channel connectivity
- Management of sediment transport, deposition and side channels
- Manage dredging and channel maintenance
- Sever pathways for exotic species
- Provide opportunities for native fish passage at the dams

Habitat Needs Assessment (USACE, 2000): This assessment was prepared by the Corps of Engineers in 2000 under the Environmental Management Program in cooperation with the states and federal agencies involved in Upper Mississippi River management. The assessment provides a system-wide analysis of historical and existing habitat conditions, and desired future habitat conditions. It is an important guide to ongoing and future habitat restoration projects.

Environmental Pool Plans (River Resources Forum, 2004)*:* Completed by the interagency Fish and Wildlife Workgroup for Pools 1-10 in 2004, and underway by the River Resources Coordinating Team for Pools 11-22, the Environmental Pool Plans provide a detailed desired future condition of each

pool in a 50-year planning framework. These plans have been adopted as the desired future habitat conditions for the Refuge in the Draft CCP and EIS (see Appendix O for an example of Environmental Pool Plans) .

Upper Mississippi and Illinois River Floodplain Forests (UMRCC 2002)*:* This report was issued in 2002 by the Upper Mississippi River Conservation Committee, Wildlife Technical Section. It provides a historic context, current status and future outlook for the expansive floodplain forest of the Upper Mississippi River System, and recommended actions to sustain and improve the forest habitat on the river and the Refuge.

Conservation Plan for Freshwater Mussels of the Upper Mississippi River System (UMRCC, 2004b)*:* This report was released in 2004 by the Upper Mississippi River Conservation Committee, Mussel Ad Hoc Subcommittee. The plan outlines the history of harvest, biology, status, concerns, and numerous strategies for the conservation, including restoration, of the freshwater mussels in the Mississippi and other rivers.

1.4.4 Refuge Vision and Goals

The vision for the Refuge provides a simple statement of the desired, overall future condition of the Refuge. From the vision flow more specific goals which in turn provide the framework to craft more detailed and measurable objectives which are the heart of the CCP. The vision and goals are also important in developing alternatives, and are important reference points for keeping objectives and strategies meaningful, focused, and attainable.

1.4.4.1 Refuge Vision

The Upper Mississippi River National Wildlife and Fish Refuge is beautiful, healthy, and supports abundant and diverse native fish, wildlife, and plants for the enjoyment and thoughtful use of current and future generations.

1.4.4.2 Refuge Goals

Landscape	We will strive to maintain and improve the scenic qualities and wild character of the Upper Mississippi River Refuge.
Environmental Health	We will strive to improve the environmental health of the Refuge by working with others.
Wildlife and Habitat	Our habitat management will support diverse and abundant native fish, wildlife, and plants.
Wildlife-Dependent Public Use	We will manage public use programs and facilities to ensure abundant and sustainable hunting, fishing, wildlife observation, wildlife photography, interpretation, and environmental education opportunities for a broad cross-section of the public.
Other Recreational Use	We will provide opportunities for the public to use and enjoy the Refuge for traditional and appropriate non-wildlife-dependent recreation that is compatible with the purpose for which the Refuge was established and the mission of the Refuge System.
Administration and Operations	We will seek adequate funding, staffing, and facilities, and improve public awareness and support, to carry out the purposes, vision, goals, and objectives of the Refuge.

1.4.5 Planning Issues, Concerns and Opportunities

White-tailed deer. Manley Dahl

Issues, which are often synonymous with concerns and opportunities, were identified through the scoping and public involvement process described in Chapter 6. The issues below represent input from the public, other agencies and organizations, and Refuge managers and staff, as well as the mandates and guidance reflected in earlier sections of this chapter. This Final CCP and EIS is issue-driven, and as such, each issue is defined and discussed below. More details pertaining to each issue can be gleaned from Chapter 3, Affected Environment.

The issues were critical in framing the objectives and strategies for the various alternatives, and form the basis for evaluating the environmental consequences of each alternative. Care has been taken to ensure these issues track through the document, recognizing that required formats and contents for CCPs and EISs do not always present a perfect crosswalk to and from issues.

Also, these issues do not represent every issue which faces the Refuge and the Upper Mississippi River as a whole, as issues had to be pared to a reasonable level in terms of planning horizon, implementation practicalities, and jurisdictional realities. However, they do represent a reasonable and comprehensive set of issues, which, when converted to measurable objectives in Chapter 2, Alternatives, create a meaningful plan of action to help meet the mission of the Refuge System and the purposes and goals of the Refuge.

1.4.5.1 Landscape Issues

Refuge Boundary: In many areas of the Refuge, a visitor can locate the Refuge boundary by recognizing where the natural vegetation of the floodplain stops and human development begins. This presence of the Refuge in the floodplain has played a crucial role in protecting the natural and wild character of the river for 80 years. However, there is constant pressure to the integrity of the Refuge from development that encroaches upon Refuge land via tree cutting, dumping, construction, and mowing along the Refuge boundary. Maintaining an accurate and clearly marked Refuge boundary is a critical basic need of resource protection.

Land Acquisition: Acquisition of land remains a key conservation tool for the well being of fish and wildlife resources, for providing public use opportunities, and for maintaining the wild and scenic character of the Refuge and the Upper Mississippi River as a whole. It is also cost effective to acquire key lands before they are developed, both from a land-cost perspective and from the cost of dealing with negative impacts associated with development adjacent to a national wildlife refuge.

The 1987 Refuge Master Plan identified approximately 36,000 acres of additional lands to be acquired to meet various resource needs. Goal acres by state were: Minnesota – 6,770 acres; Wisconsin – 9,130 acres; Iowa – 7,000 acres; and Illinois – 13,100 acres. Many of these areas are gaps in floodplain habitat between what the Service originally acquired through 1934, and what the Corps of Engineers acquired for the navigation project. Approximately 6,800 acres have been acquired since 1987, or 19 percent of the Refuge Master Plan objective. In addition to Master Plan goals, the Service has previously approved acquisition of approximately 900 acres in the Halfway Creek area of the La Crosse District as part of a water quality and sediment control partnership. To date, about 146 acres have been acquired in this area. A previous proposal to acquire approximately 5,800 acres

in the lower Root River floodplain, La Crosse District, is not being carried forward at this time, mainly because the Minnesota Department of Natural Resources has been actively pursuing acquisition in this area. Collectively, there are approximately 25,000 acres remaining to be acquired within the approved boundary of the Refuge (see maps, Appendix G).

In September 2003, the Service and the Department of the Army signed an agreement to add 9,404 acres of the former Savanna Army Depot to the Refuge. An amendment to the agreement in August 2004 added another 311 acres, for a total of 9,715 acres. Approximately 3,000 acres of this total was transferred outright with the September 2003 agreement, with the remaining 6,715 acres to be managed as part of the Refuge and transferred as clean-up is completed. This sizeable addition is known as the Lost Mound Unit of the Refuge. In October 2004 another 143 acres (Apple River Island) was added to the Lost Mound Unit by including it in the Cooperative Agreement between the Corps of Engineers and the Service, for a total of 9,858 acres.

There are also a few Refuge tracts intermingled with state wildlife management areas. It would benefit both the Refuge and the states to consolidate ownerships through land exchanges. Examples include tracts within the Whitman Dam Wildlife Management Area (Pool 5) and Van Loon Wildlife Management Area (Pool 7), Wisconsin. Consolidation would provide consistent management and regulations and reduce confusion by visitors to these areas.

Bluffland Protection: The stunning bluffs which frame the 261-mile long Refuge are a key component of its scenic and wild character, and critical to the entire viewshed of the river valley. Most of the bluffs are in private ownership, while some are protected by state and local parks, forests, and wildlife management areas. The 1987 Master Plan identified 13 bluff land areas for acquisition, primarily to protect potential nesting sites for the peregrine falcon, an endangered species at that time. These areas contain bluffs, rock outcrops, dry “goat” prairies, and other relatively inaccessible features that contribute to the wild and scenic qualities of the river corridor, and harbor a stunning plant and wildlife diversity. However, bluff areas are increasingly being developed for private residences or other uses which threaten these values.

Natural Areas and Special Designations: The Refuge currently contains four federally-designated Research Natural Areas totaling 6,946 acres. Some of the biological values which led to the designation of these areas are threatened by habitat changes. Management plans are needed to ensure the future integrity of these areas and to increase public awareness and appreciation.

There is also an opportunity to add the Refuge to the list of Internationally Important Wetlands under provisions of the Ramsar Convention. The treaty resulting from the convention, ratified by the U.S., maintains a global registry in Switzerland of wetlands designated as internationally significant for migratory birds and other natural and cultural values. An attempt to get the Refuge designated fell short in the 1990s.

1.4.5.2 Environmental Health Issues

Water Quality: The Refuge Improvement Act of 1997 called upon the Secretary of the Interior to administer the Refuge System in a way that will “ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations” and “assist in the maintenance of adequate water quantity and quality to fulfill the mission of the System and the purposes of each Refuge.” Water quality is a key to the overall health of the food chain which drives and sustains the multitude of fish, wildlife, and plant species which rely on the Refuge for critical parts, or all, of their life cycle requirements. Although pollution from urban centers has been drastically reduced, and certain toxic chemicals such as DDT have been banned, several water quality concerns remain. These include sediment which is filling main pools,

channels and backwaters; toxic substances in both the water and sediment which pose direct and indirect threats to animals and humans; and nutrient loads from land use practices or inadequate waste treatment.

Water Level Management: Completion of the current 9-foot navigation project with its series of low head dams had a tremendous ecological impact on the Upper Mississippi River, and the Refuge. This system of locks and dams (11 on the Refuge) changed the previously free flowing river to a series of shallow reservoirs from St. Louis, Missouri to Minneapolis, Minnesota.

For several decades, the newly created "pools" supported a wealth of fish, wildlife, and aquatic habitats. However, typical of dammed river systems, the initial productivity of the pools diminished significantly over time. Although water level management of the pools changed some over the years, the defining purpose for water level management was, and is, to ensure navigation pool water depths for a defined commercial navigation channel. The result is a deeper, relatively stabilized water system, especially during the summer. Over time, stable water levels have adversely affected many of the biological resources of the river, and thus the Refuge. Among the principal results have been a reduction in seasonal mudflat/sandbar areas; loss of islands; and a significant decline in aquatic plant community abundance, diversity, and distribution. Fish and wildlife dependent on these plant communities have also declined and/or moved elsewhere. Recent efforts to reverse this resource decline through pool-wide summer drawdowns show great promise, but funding levels or sources remain a limiting factor for broader application.

Invasive Plants: Invasive plants continue to pose a major threat to native plant communities on the Refuge and beyond. Invasive plants displace native species and often have little or no food value for wildlife. The result is a decline in the carrying capacity of the Refuge for native fish, wildlife, and plants. Control of invasive plants on a predominantly floodplain environment is extremely challenging due to difficulty of access and the rapid dispersal of plants. In addition, control has been hampered by staff and funding limits for basic inventory, direct control, and research into species-specific biological controls.

Invasive Animals: Invasive animal species can often be a biological storm which wreaks havoc on native plants and animals in a matter of years. Zebra mussels swept through the Upper Mississippi River incredibly fast, decimating many native mussel beds. A variety of Asian carp are poised to make a similar assault and are perhaps of most concern since they may compete directly with a large number of native fish species through direct food competition. In some areas where Asian carp have taken hold they represent 98 percent of the animal biomass. Direct control of invasive animal species is difficult in a large riverine system due to the mobility of the animals and the rich nutrient base which provides abundant food.

1.4.5.3 Wildlife and Habitat Issues

Environmental Pool Plans: As noted earlier in Section 1.4.3.3, Environmental Pool Plans detail the desired future habitat conditions of each navigation pool of the Mississippi River. The challenge is to mesh the purposes and goals of the Refuge with these interagency plans, and to set priorities for the 15-year planning framework in the CCP within the 50-year vision of the pool plans (see Appendix O for an example of Environmental Pool Plans) .

Guiding Principles for Habitat Projects: Virtually all habitat improvement projects undertaken on the Refuge are interagency in nature due to shared and overlapping jurisdictions, responsibilities, and interests. Guiding principles for projects on the Refuge are needed to provide consistency throughout the Refuge, help communicate to cooperating agencies and citizens our needs and standards for project design, and help ensure that Refuge System policy is reflected.

Monitoring Fish, Wildlife, and Plant Populations: One of the directives in the Refuge Improvement Act of 1997 was to monitor the status and trends of fish, wildlife, and plants on each national wildlife refuge. Although monitoring has been a part of managing the Refuge for decades, gaps remain in baseline population data for a large number of species. A Refuge Wildlife Inventory Plan was completed in 1993 but needs updating to reflect changes in habitat, the status of many species, and new policies and procedures for monitoring. In addition, management in a changing river environment must be adaptive in nature which requires ongoing monitoring and nimble investigative capability as issues arise and change. Meeting these needs have been hampered by biological staffing and funding levels.

Threatened and Endangered Species: There are currently two federally-listed threatened or endangered species (Bald Eagle and Higgins eye pearlymussel) and two candidate species (massasauga rattlesnake and sheepnose mussel) confirmed on the Refuge. One candidate species, the spectaclecase mussel, may occur on the Refuge but there are no recent records. Threatened and endangered species are issues due to their often precarious population status, and the need for special considerations and protection which influences Refuge use and management activities.

Furbearer Trapping: Furbearer trapping on the Refuge has a long-standing tradition and has been a useful tool in maintaining balance between furbearers and habitat, and safeguarding Refuge infrastructure. The Refuge has regulated trapping within its boundaries since 1929. The existing trapping program is regulated by issuing Special Use Permits to state-licensed individuals who may use a maximum of 40 traps (all marked with Refuge tags) per day during the state season. The final day of trapping on the Refuge is no later than March 15. All trappers must submit a Fur Catch Report following the season. The 1988 Trapping Plan needs to be updated to reflect recent national policy and regulation changes governing compatibility of uses, commercial uses on Refuges, the latest furbearer population and Refuge habitat information, and new management needs.

Fishery and Mussel Management: The fishery and mussel resources of the Mississippi River are an important aspect of both federal and state management efforts due to their recreational and/or commercial value. Even prior to establishment of the Refuge in 1924, federal and state governments were actively involved in fish rescue operations in isolated backwaters, returning millions of fish to the main channel during low flow periods. Agencies were also involved in mussel propagation, and eventually regulations, due to a thriving button-making industry using mussel shells. Congressional hearings on the establishment of the Refuge included abundant testimony on the value of the area to fish, and especially the black or largemouth bass due to its sportfishing value. After Refuge establishment, the Refuge and states were still heavily involved in fish rescue operations. These efforts were curtailed after the locks and dams went into operation and higher water levels reduced the entrapment of fish in backwaters.

Changes in river ecology have had a dramatic impact on fishery and mussel resources. Many fish species dependent on a free-flowing river declined with the construction of navigation improvements, while others increased under stable pool conditions. Mussels have been impacted by pollution, harvest, sedimentation, loss of free-flowing habitat, reduction in species-specific host fish, and zebra mussels. Asian carp pose an increasing threat to both fish and mussels. Of the 35 mussel species in the Service's Region 3 Conservation Priority list, 19 are found in the Upper Mississippi River ecosystem. Several species are listed as either federally listed threatened, are candidates for federal listing, or are on state threatened and endangered species lists.

Fish and other aquatic life conservation is one of the major purposes of the Refuge. It also accounts for one of the highest public use activities on the Refuge, with more than a million fishing visits per year. However, the Refuge has played a relatively minor role in fishery management, deferring to the states for most monitoring, management, and regulations. In 1981, the Service established a Fishery Resources Office in Winona, which was moved to La Crosse in 1995. Staff at this office are an important resource for addressing Refuge fishery questions and needs, as well as assisting other

Refuges, tribes, military bases, and the states. But the La Crosse Fishery Resources Office covers a large geographic area, and with multiple responsibilities, cannot limit its activities to the needs of the Refuge. The Genoa National Fish Hatchery, located along the Mississippi River and established in 1932, also provides assistance to the Refuge primarily through limited stocking of panfish and work on threatened and endangered mussels.

The Refuge should play a larger role in fishery and mussel management in keeping with its mandated purposes and the high intrinsic, recreational, and commercial values of the resource. A Fishery and Mussel Management Plan should be in place to help communicate to the states and public the Refuge and Service perspective on fishery and mussel management issues and needs, and to help set common goals, objectives, and means of collecting and sharing information. The plan would be programmatic in nature, as the states should rightly continue to be the main lead for fishery and mussel management and regulations. The Refuge is currently hampered by having no fishery biologist on staff for full time coordination of fishery and mussel monitoring and management efforts with other Service offices, the states, and the Corps of Engineers. A fishery biologist would help ensure that fishery and mussel considerations are integrated with Refuge habitat, biological, and public use decisions.

Commercial Fishing, Clamming, and Turtle Harvest: Commercial fishing on the Refuge is an important economic use for scores of people and communities along the river. Besides its economic value, commercial fishing has strong cultural and social ties for many. In 1998, 6.27 million pounds of fish of 17 species were reported caught. Carp, buffalo, drum, channel catfish, carpsucker, and redhorse and sucker make up the bulk of the catch by pound. Commercial fishing is a viable use of a renewable resource, and it can be an important tool in reducing populations of some invasive species. However, there can be some impact to non-target species such as paddlefish, sturgeon, and diving ducks, and disturbance to rafts of waterfowl in the fall from commercial fishing activities in closed areas.

Mussel harvest, or clamming, has enjoyed a colorful history on the Mississippi River, first with a thriving button industry from the late 1800s to the 1930s, and secondly, beginning in the 1950s, with harvest to provide mussel shell “seeds” for the Japanese cultured pearl industry. The states regulate the harvest of mussel and have been moving toward standardizing regulations and reporting. Mussel harvest can be a concern due to often incomplete population information, continued environmental stressors on mussels, threatened and endangered status for some species, and enforcement challenges.

New information on turtle ecology and populations has raised questions about the effects of commercial harvest, for both the food and pet trade, on turtle populations. In 1998, the states reported a commercial catch of nearly 10,000 pounds of unspecified species on the Mississippi River.

The number of commercial operators harvesting fish, mussels, and turtles on the Refuge is not known since records kept by the states do not distinguish by pool number. However, in 1998 the total number of commercial fishermen on the Refuge was 576 and their total catch had an estimated value of nearly $8.5 million.

The Refuge has provided little to no oversight of the commercial fish, mussel, and turtle harvest on the Refuge, deferring to the states’ expertise and experience. However, federal regulations state that “fishery resources of commercial importance on wildlife refuge areas may be taken under permit in accordance with federal and state law and regulations” as long as such economic use “contributes to the achievement of the national wildlife refuge purposes” and is determined to be compatible (50 CFR 31.13 and 29.1). Some Refuge oversight is thus required to ensure compliance with regulations and policy.

Turtle Management: The Refuge provides important and often critical habitat for a variety of turtle species, some of which are listed as threatened or endangered by the states. Recent surveys in the Weaver Bottoms area of Pool 5 revealed that the area harbors one of the largest and most diverse turtle assemblages in the U.S. (8 species). There are numerous potential negative and positive impacts from activities on the Refuge since turtles nest on sand areas that are also important for navigation channel maintenance and used heavily by recreationists. Marsh and backwater areas also provide important food and cover for young turtles. More rigorous monitoring and research is needed to understand turtle populations and ecology on the Refuge, and to guide a coordinated approach to population monitoring and harvest regulations.

Forest Management: The Refuge includes approximately 51,000 acres of floodplain forests, one of the largest contiguous areas of floodplain forest in the Midwest. This habitat is critical to the river ecosystem, providing habitat for a variety of wildlife including songbirds, Wood Ducks, Bald Eagles, Red-shouldered Hawks, herons, egrets, and numerous mammals and amphibians. It also provides scenic beauty, a welcome place for recreation, protects soils, and improves water quality.

The floodplain forest of the Refuge has undergone a series of changes since Refuge establishment. A more diverse forest gave way to a more monotypic forest dominated by silver maple. The current forest is even aged, growing old, and in many cases, not regenerating itself. In many areas, reed canary grass is replacing former forest areas by choking tree regeneration. If current trends continue, there could be a marked loss of forest within the Refuge and elsewhere in the river floodplain. A baseline forest inventory plan needs to be completed as a first step in developing a management plan, or prescription, for forest health. Despite the size and importance of the forest resource on the Refuge, there are currently no foresters on staff.

Grassland Management: Although mainly a river floodplain, the Refuge does contain 5,700 acres of scattered grassland habitat important to numerous species of grassland birds and other wildlife. Some of these grasslands are tallgrass native prairie, one of the rarest ecosystems in the United States. Active management is critical to safeguard and maintain these grassland areas. Management tools include prescribed or controlled fire to setback the natural succession of shrubs and trees, and the control of invasive species.

Waterfowl hunters. Copyright Sandra Lines

1.4.5.4 Wildlife-Dependent Recreation Issues

General Hunting: Hunting remains an important and popular form of wildlife-dependent recreation on the Refuge. In 2003, an estimated 285,000 visits were recorded for hunting, with waterfowl hunting accounting for 87 percent. Hunting is one of the priority public uses of the Refuge System, and remains a vital part of the cultural, social, and economic fabric of the communities along the Refuge. The Refuge Hunting Plan needs revision to reflect land acquisitions and new policies.

In recent years, six administrative "No Hunting Zones" totaling 1,073 acres were established (5 on Pool 13 and 1 on Pool 7) for public safety, to reduce potential user group conflicts, and provide opportunities for wildlife observation. In addition, approximately 2,400 acres of the recently established Lost Mound Unit remains closed to all entry because of contaminant issues. These areas

need to be reviewed in light of new acquisitions, and changes in public use facilities and use levels. There are several specific issues related to hunting outlined below.

Waterfowl Hunting Closed Areas: Portions of the Refuge currently designated as closed areas are actually areas closed only to hunting, furbearer trapping and camping during the duck hunting season and to migratory bird hunting at all times. They are generally open for other uses, including recreational boating and sport and commercial fishing. The only exceptions are the Spring Lake Closed Area (Pool 13) which is a sanctuary and closed to all public entry October 1 to the end of the duck hunting season, and the Goose Island No Hunting Zone (Pool 8) which is closed to hunting at all times.

The core of the current Refuge closed area system was established in 1957-58 after nearly 10 years of coordination. The system began with 14 closed areas, including Trempealeau National Wildlife Refuge, and encompassed about 41,600 acres. Considering the dominant role of the Refuge in the Mississippi Flyway migration corridor, the closed area system was established to provide migrating waterfowl with a network of feeding and resting areas, and to disperse waterfowl hunting opportunities on the Refuge. These goals were initially met.

After nearly 45 years, changes have occurred in the closed area system, including the amount and quality of habitat available, the number and species of waterfowl using the system, and the size and number of closed areas. Fewer islands and acres of plants are generally available to provide shelter, food, and cover. More diving ducks, tundra swans, and Canada Geese are now present, but fewer puddle ducks. For example, because of habitat decline, fewer mallards are using closed areas today compared to the early years of the closed area system. In addition, some waterfowl (e.g., Canvasbacks) are now concentrated in a few functioning closed areas rather than dispersed throughout the Refuge. Up to 50 percent of the continent's canvasback duck population utilizes the Refuge, however, the vast majority of these birds are found only on Pools 7-9. An environmental accident or crash in submergent vegetation or other food sources in these pools could have serious impacts to the canvasback population.

The impact of human-caused disturbance to waterfowl concentrated in closed areas is also being reviewed. The public can motor through closed areas and fish in them during the fall migration, and new shallow water boating technology makes most areas accessible. As a result, not all closed areas are fully functional, that is, they are not providing food and rest for migrating waterfowl. Human disturbance disrupts feeding activities of waterfowl and potentially could reduce the quality of staging sites. To waterfowl, the energy cost of disturbance may be appreciable in terms of disruption of feeding, displacement from preferred habitat, and the added energy expended to avoid disturbance. One tool currently being used by the Refuge to address human-caused disturbance during fall migration is the Lake Onalaska Voluntary Waterfowl Avoidance Area (Pool 7). This program has been operational each year from October 15 through mid-November since 1986. Although the program has reduced disturbance, disturbance still occurs. It is also a costly and challenging program to administer in terms of buoy placement and maintenance, especially given the ice conditions that form late in the waterfowl season.

Besides providing sanctuary for waterfowl, the closed area system was also designed to provide better hunting opportunities to more people through the length of the Refuge. However, with habitat decline in many closed areas, birds are being concentrated in fewer and fewer areas, thus creating gaps in hunting opportunity. Hunters tend to congregate near concentrations of waterfowl. As a result, "firing lines" have developed along some sections of closed area boundaries. Firing lines have an increased incidence of waterfowl crippling loss. Also, firing lines create a climate of competition which fosters poor hunter behavior reducing the quality of the experience for many.

The need for modifying the closed area system was recognized as early as 1978, when the Upper Mississippi River Conservation Committee issued proposed changes to several of the Refuge closed areas (in Pools 4, 5A,8, 9, 10, 13, and 14). However, some of these changes would not be appropriate under today's habitat conditions.

Waterfowl Hunting Regulations: The Refuge provides outstanding public waterfowl hunting opportunities and is very popular with the public. Annual visits for waterfowl hunting are approximately 250,000. Competition for birds and hunting spots can lead to disruptive and unethical behavior among some hunters, affecting the quality of the hunt for many and having a direct impact on birds through crippling losses. There is a need to review current Refuge waterfowl hunting regulations to ensure continued hunt quality and fairness, and to minimize crippling loss.

Firing Line, Pool 7, Lake Onalaska: Hunters tend to congregate near concentrations of waterfowl. Some sections of the closed area boundary, particularly those that bisect emergent marsh, are popular and can attract large concentrations of hunters who pass shoot as waterfowl leave closed areas. One such area is the so-called Barrel Blinds area just north of the Lake Onalaska Closed Area.

Unfortunately, "skybusting," or shooting at birds out of range, often results in increased crippling loss. For example, 63 of 141 (44.7 percent) hunting parties observed by law enforcement personnel during the 1991-93 seasons hunting along firing lines in Pool 7 skybusted at least once during the time they were observed. Skybusting was defined as shooting at waterfowl at distances of 50 yards or more. The number of shots required to retrieve one bird was 11. During the 1992 hunting season, these same observers working Pool 7 firing lines and other areas, found that hunters who did not skybust had a crippling loss rate of about 27 percent for the ducks or coots they downed. The crippling loss rate for ducks and coots downed through skybusting increased to nearly 57 percent.

Hunter behavior can also deteriorate in crowded, competitive situations. Behavior observed or reported along the Barrels Blinds area includes people claiming preferred sites by spending the night, handing-off sites to friends or co-workers after a party's hunt is over, verbal confrontations, late arriving hunters disrupting those set-up, flaring birds before they can work decoy sets, failure to retrieve birds, and increased littering.

These behaviors are not in keeping with guidance in the Refuge Manual which helps set the standard for hunting on refuges: "Refuge hunting programs should be planned, supervised, conducted, and evaluated to promote positive hunting values and hunter ethics such as fair chase and sportsmanship. In general, hunting on refuges should be superior to that available on other public or private lands and should provide participants with reasonable harvest opportunities, uncrowded conditions, fewer conflicts between hunters, relatively undisturbed wildlife, and limited interference from or dependence on mechanized aspects of the sport. This may require zoning the hunt unit and limiting the number of participants."

Permanent Blinds and Decoy Sets on Savanna District: Permanent hunting blinds are wooden (dimensional lumber) structures built by waterfowl hunters and placed along some areas of the Refuge for a dry, stable hunting platform. The blind does not have to be removed at the end of the hunt season, thus it is considered a permanent structure.

In some Mississippi River areas, permanent blinds have been part of the waterfowl hunting tradition for many decades. In other Mississippi River areas, permanent blinds have been eliminated due to management problems associated with the permanent structures. In 2000, the northern Districts (Pools 4-11) of the Refuge eliminated permanent blinds and now only allow blinds to be made out of natural vegetation. Presently, only the Savanna District still allows permanent blinds.

The placement of wooden structures within the river eventually results in those materials being deposited in the river due to deterioration, floods, and ice or wind/wave action. These materials may become safety hazards for boaters.

Most permanent blinds sites are claimed year after year by the same group of individuals. This regulation promotes private exclusive use, which is inconsistent with Refuge objectives to allow equal opportunity for public recreation.

Permanent blinds limit hunting opportunities due to: a) the 200 yard spacing requirement, even for boat blinds, regardless if the blind is empty; b) no shoreline jump-shooting allowed; and c) the best hunting sites are taken year after year.

Due to an increase in new hunters to the Savanna District, confrontations and incidents related to permanent blinds have increased. Incidents include verbal threats, physical confrontations, assaults, blind burnings, and guns being pointed in a threatening manner.

Related to permanent blinds is the issue of leaving duck hunting decoys on Refuge waters in Pools 12-14 (Savanna District). This is an exception to Refuge-wide regulations which state that decoys may not be in place one-half hour after the close of legal shooting hours and 1 hour before the start of legal shooting hours. Hunters who leave decoys out overnight, and in some instances multiple days or the entire season, are in effect practicing private, exclusive or proprietary use of public waters by tying up a hunting area. This has the effect of limiting places for the general public to hunt.

Potter's Marsh Managed Hunt: Since 1980, the Savanna District has conducted a lottery drawing for waterfowl hunting blind sites on 1,923 acres of Potter's Marsh in Pool 13. Applicants pay a $10 non-refundable application fee, and successful applicants pay an additional $100 fee for one of the 49 blind sites. Successful applicants construct blinds for the season using materials in the guidelines provided. Over 500 persons apply for a blind permit annually. In 2002, hunter bag checks showed that hunters using Potter's Marsh blinds averaged 3.8 birds/day compared to 2.9 birds/day on other areas in Pool 13.

This hunt requires more than 400 hours of staff time, annually, to answer inquiries, accept applications, collect and process fees, conduct two drawings, inspect blinds for compliance, and post the area. The time spent on this hunt detracts from other resource projects and needs. In addition, 90 percent of the hunters selected hunt less than 10 days, which is not a very high public use return for the effort involved.

The fees collected do not cover the total expenses incurred for administering and managing the hunt due to the amount of staff time required. Additionally, under new national policy implemented in 2003, only 80 percent of fees are returned to the Refuge, compared to 100 percent returned in previous years.

The random drawing process has been manipulated to the point that it is no longer an equal opportunity program. Some hunting parties hunt from the same blind year after year and the program has evolved into private exclusive use of public lands and waters.

Blanding Landing Managed Hunt: Blanding Landing is an area within the former Savanna Army Depot that is now part of the Lost Mound Unit of the Refuge. The Illinois Department of Natural Resources conducts a managed hunt on the area with 15 hunting sites. This hunt, now on the Refuge, needs to be reviewed for consistency with other Refuge hunts and hunting issues associated with permanent blinds and administrative costs, as noted previously.

General Fishing: Fishing is an important, traditional use of the Refuge enjoyed by nearly a million visitors each year and contributes substantially to many local economies. Fishing is also one of the priority wildlife-dependent uses of the Refuge System that is to be encouraged when compatible with Refuge purposes.

Fishing on Upper Mississippi River Refuge. Cindy Samples, USFWS

The Refuge has made great improvements in facilities that promote fishing including the rehabilitation of numerous boat ramps and parking areas, dock facilities, and accessible fishing piers. In 2003 alone, work was started on five fishing piers. Maintaining fish habitat and fishing opportunity remains an important issue for anglers, businesses, and the general public.

Fishing Tournaments: Fishing tournaments, particularly for bass and walleye, are growing recreational, commercial, and fund-raising events on the Refuge. To date, the Refuge has deferred to the states for management and permitting of these events and has provided little to no oversight or review. Exact numbers of fishing tournaments are unknown since each state or other authority often has different permit and reporting requirements, or, may not issue permits at all.

There is growing concern about the impacts of fishing tournaments on other users of the Refuge. Large boats, high speeds, and the competition involved in tournaments disturb other anglers and small craft users, and can churn-up vegetation and sediment in backwaters, thus impacting fish and wildlife habitat. Increased wake action can accelerate shoreline erosion. There is some concern about the impacts of handling, holding, and later release of fish caught in tournaments, both on individual fish and overall populations.

Wildlife Observation and Photography: Wildlife observation and photography are becoming increasingly popular activities for visitors, and a source of economic growth for many communities. As two of the six priority public uses of the Refuge system, these uses are to be encouraged when compatible with the purposes of the Refuge. The Refuge provides outstanding wildlife viewing opportunities due to the abundance of eagles, swans, ducks, warblers, pelicans, herons and other birds people find unique and interesting. The National Scenic Byways which border the Refuge for hundreds of miles, and the relatively open access to lands and waters of the Refuge, make the Refuge one of the premier wildlife viewing and photography areas in the nation. The public and communities desire more opportunities for these uses, while managers must balance opportunities with the need to limit disturbance.

Interpretation and Environmental Education: Interpretation and environmental education are also priority public uses as outlined in the Refuge Improvement Act of 1997. Interpreting the resources and challenges of the Refuge to the general public and incorporating these topics into school curricula is a service welcomed by the general public, communities, and schools. The major issue facing the Refuge is how to meet the demand for these staff-intensive services, a demand which is expected to grow.

Commercial Fish Floats: Fish floats are private businesses which provide very popular fishing opportunities to the public for a fee. Operators pick up customers via boat and transport them to the fishing facility (float) below a lock and dam where fishing can be excellent. The Refuge currently allows four fish floats through an annual permit and annual fee of $100. At least one fishing float has been in operation since 1937. However, administration and enforcement of fish float operations greatly exceeds the permit fees collected. There is also a history of permit noncompliance with some operations which has increased the staff time needed to oversee the use. In 2003, three of the four fish float operations were not in compliance with one or more permit requirements. Other concerns

include the condition and safety of the fish floats and compliance with policies and regulations governing for-profit concessions on a national wildlife refuge.

Guiding Services: Guiding businesses are on the rise and promise to become an increasingly common activity on the Refuge. Without proper oversight, this activity could lead to disturbance to sensitive areas and wildlife, and increase conflict with individuals or other guides as volume and frequency increases. In addition, some guides are not in compliance with regulations designed to safeguard clients, such as Coast Guard regulations governing licensing of persons transporting the public.

1.4.5.5 Other Recreational Use Issues

Beach Use and Maintenance: There is a long history of beach use on the Upper Mississippi River as the public took advantage of beach areas created by side-channel placement of dredged sand during navigation channel maintenance operations. The creation of new beaches and additions to existing beaches came to a virtual end following a lawsuit on dredge placement by the State of Wisconsin and the subsequent Great River Environmental Action Team (GREAT) reports and recommendations.

There are basically three types of manmade or natural beach areas on the Refuge:

- Remnant channel maintenance islands and shore areas formed by the side-casting of dredged sand material. These are used for a variety of day uses and the majority of camping. Some sites remain relatively open while others are nearly covered with woody vegetation.
- Permanent dredged sand placement sites traditionally used by multiple boats for day and overnight mooring, camping, and other uses. These are often called “bathtubs” when in empty or part-empty state, and designated Project Operations (9-foot navigation project) in the Land Use Allocation Plan (LUAP).
- Natural sand bars and shorelines which are scattered throughout the Refuge, both along the main river channel and in and around backwater areas, and used predominantly for day use and overnight mooring. Seasonal water levels often determine the number and size of these natural sand shorelines and their attractiveness to users.

The 1983 and 1987 Land Use Allocation Plans by the Corps of Engineers and the Fish and Wildlife Service identified existing beach areas as “low density recreation.” This designation was in deference to the GREAT report on recreation even though on many areas beach use is very high density.

The 1987 Master Plan for the Refuge took a low-key, status quo approach to beach uses and maintenance. The objective in the Master Plan was to “provide non-wildlife traditional recreation – swimming, camping, picnicking, sunbathing,” and the level was described as “maintain at levels that can be accommodated at existing beaches and at low density recreation allocation areas established by LUAPs.” The Master Plan deferred to the beach plan process with the Corps of Engineers and others for exactly how the objective and level would be met.

Over the years, beach planning through interagency teams (e.g. the Recreation Work Group of the River Resources Forum) has continued with starts and stops, and rehabilitation of some beaches completed in several pools. New beach issues have emerged. These include permanent dredged material placement sites, which when emptied, create high density use areas with concerns for human-caused water quality issues and visitor safety. In addition, new information on wildlife use of beach areas, especially turtles, has raised the issue of how to balance the needs of wildlife with recreation and channel maintenance activities.

Non-wildlife-dependent recreation continues to increase on the Mississippi River and the Refuge. It is estimated that 1.3 million persons per year use the Refuge for camping, recreational boating, picnicking, swimming, social gatherings, and other uses not dependent on the presence of fish and wildlife. Proper regulation and control of these uses has been relatively absent for decades, leading to unlawful and unruly behavior, increased concern for public and Refuge Officer safety, and a general decline in the refuge experience for many users. Litter and human waste are increasing, and a lack of a clear intoxication standard has hampered law enforcement efforts, putting both individuals and others who share river traffic at risk. In addition, the Refuge does not receive specific funding for managing non-wildlife-dependent recreation, and there are no user fees to defer the costs of law enforcement, signing, planning, and access development and maintenance.

More specific problems and issues related to current beach-related uses on the Refuge include:

- Refuge regulation violations can be high: dogs running loose, intoxication, illegal drugs, firearm use, fireworks, noise, human waste, littering, interference with other users, private structures, large parties, loud boats, and habitat destruction.
- Public use of beaches requires a very high law enforcement effort and takes away from resource-related enforcement. There is concern for officer safety in large crowds, especially when alcohol use is involved.
- Wildlife disturbance and displacement can be a problem in some areas, especially as uses move to backwater areas.
- High peaks of use, both seasonally and site-specific, contribute to the above problems.
- Current use may not match intended use (e.g. areas originally designed for family or small group use have become large, party areas, or, areas originally set aside for wildlife now receive heavy public use).
- Many beach uses on the Refuge are non-wildlife-dependent uses and not allowed on most national wildlife refuges. Thus, these uses are inconsistent with the norm in the Refuge System. (Note: The Refuge Manual of 1982 (8 RM 9) included a special policy statement which acknowledged unique cases of non-wildlife-dependent uses on refuges, and cited the Upper Mississippi River National Wildlife and Fish Refuge as an example. The policy stated that Master Plans, or CCPs, should contain specifics on how these traditional non-wildlife-dependent activities will be managed. The compatibility standard still applies, however).

Disturbance in Backwater Areas: When the Refuge was established in 1924, the Mississippi River floodplain was a braided maze of backwater channels and sloughs. Much of this unique habitat disappeared when the locks and dams went into operation. However, in the upper reaches of many pools, this unique bottomland habitat remains and offers fish, wildlife, and people a refuge from the sights and sounds of a modern and mechanized world. Many backwater areas are preferred breeding and nesting areas for species sensitive to certain human disturbance. Also, these more remote areas of the Refuge are an important component of the river experience to many.

Technology in the form of jet skis, bass boats, shallow water motors such as Go-Devils™, airboats, and hovercraft has made the shallow backwaters of the Refuge accessible to more and more people, and introduced more and more noise, wildlife disturbance, and user conflict. The declining opportunity to experience the quiet and solitude of the backwaters was cited by citizens during scoping meetings.

Slow, No-Wake Zones: On a few areas of the Refuge, boat traffic levels and size of boats is leading to erosion of island and shoreline habitat. Some areas also present a safety hazard for boaters due to level of use and blind spots in the channel. The addition of slow, no-wake zones needs to be reviewed to protect visitors and the environment.

Dog Use Policy: Unless specifically authorized, national wildlife refuges are closed to dogs, cats, livestock and other animals per federal regulations (50 CFR 26). Domestic animals can harass and kill wildlife, and at times become a direct threat to other persons engaged in recreation. Current regulations have been confusing since they prohibit unconfined domestic animals, but the term unconfined was never well-defined in the regulation, leading to various interpretations by the public and inconsistent enforcement by the Refuge.

However, there is a strong tradition of people using the waters of the Refuge for working and exercising dogs, especially retrievers. The size, configuration of lands and waters, and relative remote nature of the Refuge lends itself to considering a reasonable approach to dog use. The public desires a new regulation that will ensure public safety and minimal disturbance to wildlife, while providing the option of working with dogs, especially hunting dogs, which are often an integral part of the traditions and enjoyment of hunting.

General Public Use Regulations: The current public use regulations were last reviewed and updated in 1999. Regulations need to be reviewed to address new laws and policy and to help correct problems or circumstances unique to the Refuge and not specifically or sufficiently covered in current regulations or the regulations governing the National Wildlife Refuge System (50 CFR, subchapter C part 26). Refuge law enforcement officers, and the public, need to understand clearly what is and is not allowed on the Refuge.

1.4.5.6 Administration and Operations Issues

Administration, Operations, and Public Awareness: With approximately 240,000 acres over 261 miles and 3.7 million annual visits, managing and administering the refuge is a huge undertaking requiring staff and funding for programs, facilities, and equipment. Plans and planning need to articulate these needs and ensure they are represented in databases and other documents which are used in budget decision-making at the national and regional level. Current staffing levels are below essential staffing standards and reflect gaps between what should be done and what can be done.

There is a lack of adequate office, maintenance, and visitor contact facilities. Office facilities at the Headquarters of the Refuge, and on some of the Districts, are woefully inadequate to meet the needs of employees and the visiting public. The Headquarters and Winona District offices are located in a quaint but ancient building with unreliable heat, plumbing problems, inadequate parking, inadequate disabled access, and no public information or interpretive facilities. The McGregor District has a tiny office with unsafe access off a major highway, and limited onsite parking. Some staff offices, files, and a makeshift conference/meeting room at McGregor are in a surplus trailer adjacent to the existing building, and a small maintenance facility is crammed on the same lot. The La Crosse District has an excellent rented office/garage, but space is limited and it is located in a dense retail business area some distance from the Refuge. Savanna District has a new office but expansion is needed for environmental education. New maintenance shops are scheduled to be built at Winona and Savanna, but others are needed at McGregor and La Crosse. Eventually, an office and shop will need to be constructed at the Lost Mound Unit, Savanna District.

The future well-being of the Refuge is tied to the public's awareness of its existence and significance. Many river visitors do not know they are on a national wildlife refuge, and the public as a whole is not aware of the ecological and social significance of the Refuge. As public lands and waters, the public desires information on opportunities their national wildlife refuge provides them, as well as the challenges to be addressed.

Chapter 2: Alternatives, Including the Proposed Action

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2.1 Introduction

The Service proposes to adopt and implement a CCP to guide the management and administration of the Refuge for the next 15 years. This Chapter presents and compares a range of reasonable alternatives for this proposed action, including a preferred alternative. It also includes information on the development of the alternatives, alternatives or components considered but dropped from further analysis, and elements or actions common to all alternatives. Table 1 on page 173, Table 2 on page 192, and Table 3 on page 195 summarize, compare, and contrast each alternative.

2.2 Development of Alternatives

Initial alternatives were developed in spring 2003, after eight months of initial scoping and public involvement. These alternatives were no action, protection, conservation, and multiple-use. These draft alternatives, with general descriptions, were presented to the public through a newsletter in July 2003. After further internal review, the themes or titles of these alternatives were changed to provide clarity and reduce overlap.

Four alternatives (A through D) were included in the Draft EIS/CCP released for public review May 1, 2005 for a 120-day comment period ending August 31, 2005. The Refuge hosted 21 public meetings and workshops attended by 2,900 persons and received 2,438 written comments. Due to the high level of input and concern with some aspects of the preferred alternative, the Refuge announced in July 2005 its intent to issue a new preferred alternative after the comment period ended. The supplement to the Draft EIS/CCP was issued December 5, 2005 for a 60-day comment period which was extended to 90 days. The supplement was known as Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative) and brought to five the total number of alternatives.

The five alternatives are listed below and described in detail in Section 2.4.

A: No Action (Current Direction)	Continue current level of effort on fish and wildlife and habitat management. Public use programs would remain virtually unchanged.
B: Wildlife Focus	Increase level of effort on fish and wildlife and habitat management. Some public use opportunities and programs would remain the same, others reduced in favor of wildlife and habitat protection.
C: Public Use Focus	Increase level of effort on public use opportunities and programs. Continue current level of effort on many fish and wildlife and habitat management activities, and decrease effort on others in favor of public use.
D: Wildlife and Integrated Public Use Focus	Increase level of effort on fish and wildlife and habitat management. Take a more proactive approach to public use management to ensure a diversity of opportunities for a broad spectrum of users, both for wildlife-dependent uses and traditional and appropriate non-wildlife-dependent uses.
E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)	Increase level of effort on fish and wildlife and habitat management. Take a proactive but balanced approach to public use management to ensure a diversity of opportunities for a broad spectrum of users, both for wildlife-dependent uses and traditional and appropriate non-wildlife-dependent uses.

These alternatives represent broad, thematic approaches to management and administration of the Refuge, recognizing the latitude managers have in focusing human and fiscal resources within the framework of Refuge System laws and policy.

The alternatives reflect direction in the Refuge Improvement Act of 1997, Service policy for administration and management of refuges, and a host of ongoing conservation initiatives affecting the Mississippi River. The alternatives were also developed to address a suite of issues, and indeed, are structured to track the issues, challenges, and opportunities presented in Chapter 1. As an integrated EIS and CCP, the details of the alternatives are described in terms of the main components of a CCP, namely measurable objectives and strategies to achieve those objectives.

Most importantly, these alternatives are designed to help the Refuge contribute to the mission of the Refuge System; meet the purposes for which Congress established the Refuge in 1924; and help achieve the Refuge vision, goals, and related needs. The degree to which each alternative meets these needs (Table 3 on page 195), along with the environmental consequences of each alternative (Chapter 4), will provide the basis for a final decision and a CCP for the Refuge.

2.3 Alternative Components Not Considered for Detailed Analysis

The wide range of issues, high public and agency interest, and complexities of the river environment provide fertile ground for a diversity of management approaches. During scoping, public involvement, and the development of the objectives which make up each alternative, many different ideas and solutions were presented, explored, and debated. The following alternative components were considered but not selected for further analysis in this Draft CCP and EIS for the reason(s) described.

Expansion of the Refuge: The approved Refuge boundary was expanded during the 1987 Master Plan process and subsequent expansion proposals for special resource areas at Halfway Creek near Onalaska, Wisconsin and the former Savanna Army Depot near Savanna, Illinois. Given the current rate of acquisition, the 15-year time frame of the CCP, and the approximately 30,000 acres yet to be acquired, an expansion of the Refuge was not included in the alternatives.

Expand Research Natural Areas and Establish Wilderness: It is a requirement in Service policy to review a refuge for special designation during the planning process. No areas were deemed suitable for either additional Research Natural Areas (there are currently four) or Wilderness status due to habitat conditions, the overlapping navigation project, and current development and use. Thus, this alternative component was not analyzed further.

Establish Fish Sanctuaries on the Refuge: Iowa, Wisconsin, and Illinois have implemented seasonal closures and/or size limits below locks and dams 11, 12, and 13 to protect walleye and sauger from overharvest during vulnerable times of the year. This alternative component was considered, but since data on these areas is still being collected, impacts are yet uncertain, and not all states or fishery biologists agree on the need for or effectiveness of fish sanctuaries, this alternative was not explored further. However, it could be considered during future reviews of this plan.

Establish Turtle Sanctuaries on the Refuge: The importance of the Refuge to many species of turtles is beginning to be understood. Many beach areas on the Refuge are used extensively by turtles for nesting and used extensively by the public for recreation. Delineating sanctuary or no entry areas to protect turtle nests was explored. However, there is not enough information on turtle nesting ecology and human impacts at this time to establish turtle sanctuaries. The alternatives do, however, address the needs of turtles and do explore other alternatives for addressing human impacts.

Prohibit Non-Wildlife-Dependent Recreation on the Refuge: This alternative component would ban public uses such as swimming, camping, waterskiing, and picnicking. It was not deemed realistic given the various jurisdictions and authorities, enforcement practicalities, and commercial and social considerations. However, more proactive management of these uses is proposed in some alternatives.

Limit Watercraft Types on the Refuge: During scoping and public involvement, concerns were expressed about airboats, jet skis and other modern watercraft disturbing wildlife and other Refuge user groups. Banning any type of watercraft on the entire Refuge was not deemed a reasonable alternative due to the mix of jurisdictions and authorities within the Refuge. The issue of disturbance from these types of craft is, however, addressed in other ways in the alternatives.

2.4 Alternatives Carried Forward for Detailed Analysis

2.4.1 Elements Common to All Alternatives

Interagency Coordination and Collaboration: The Refuge is situated in a complex geopolitical landscape involving four states and two Corps of Engineers Districts, each with varying missions, authorities, and constituencies. Interagency coordination was discussed in Chapter 1, Section 1.4.3 and is an important element common to all alternatives, and indeed, will be critical to carrying out the CCP which emerges from the Final EIS. Existing plans and agreements such as the Land Use Allocation Plan and Service-Corps of Engineers Cooperative Agreement will continue to serve as guides for day-to-day Refuge decisions and implementation of the CCP. Also critical will be the continued involvement of various established interagency forums, committees, and associations.

Agency Access to Restricted Public Use Areas (Waterfowl Hunting Closed Areas, Slow, No Wake Areas, and Electric Motor Areas): Special area regulations are general public use regulations and not intended to apply to state, federal, and local agencies or offices engaged in bona fide fish and wildlife management, monitoring, and enforcement. However, it is hoped that all agencies use discretion and good judgment when working in areas or with equipment the general public is restricted from using. This is important from both a wildlife disturbance and public perception standpoint.

National Environmental Policy Act (NEPA) Compliance: Since this EIS and CCP are programmatic in many issue areas, it may not contain the necessary detail on every future action outlined to adequately present and evaluate all physical, biological and socioeconomic impacts. For example, although the EIS and CCP alternatives may show the number and location of constructed features such as trails, overlooks, boat ramps, and offices, exact sites, size, design, and other features would be determined at a later date depending on funding and implementation schedules. Another example is the various sub or “step-down” plans required for various management actions such as forestry, biological monitoring, fishery and mussel resources, hunting, and trapping. Thus, before certain objectives or actions are implemented, a decision will be made in coordination with the Regional NEPA Coordinator on whether this EIS was adequate for each specific construction, planning, or other action, or whether separate step-down NEPA compliance (categorical exclusions or environmental assessments) is needed.

Threatened and Endangered Species Protection: Although different levels of monitoring for threatened and endangered species is proposed in the alternatives, protection of these species is common across all alternatives. The protection of federally-listed species is the law of the land through the Endangered Species Act of 1973. It is also Service policy to give priority consideration to the protection, enhancement, and recovery of these species on national wildlife refuges (7 RM 2). To ensure adequate protection, the Refuge is required to review all activities, programs, and projects occurring on lands and waters of the Refuge to determine if they may affect listed species. If the determination is “may affect,” the Refuge does a formal consultation with the responsible Ecological Services office of the Service.

Archeological and Cultural Resource Protection: Cultural resources on federal lands receive protection and consideration that would not normally apply to private or local and state government lands. This protection is through several federal cultural resources laws, executive orders, and regulations, as well as policies and procedures established by the Department of the Interior and the Service. The presence of cultural resources including historic properties cannot stop a federal undertaking since the several laws require only that adverse impacts on historic properties be considered before irrevocable damage occurs. However, the Refuge will seek to protect cultural resources whenever possible.

During early planning of any projects, the Refuge will provide the Regional Historic Preservation Officer (RHPO) a description and location of all projects and activities that affect ground and structures, including project requests from third parties. Information will also include any alternatives being considered. The RHPO will analyze these undertakings for potential to affect historic properties and enter into consultation with the State Historic Preservation Officer and other parties as appropriate. The Refuge will also notify the public and local government officials to identify any cultural resource impact concerns. This notification is generally done in conjunction with the review required by the National Environmental Policy Act or Service regulations on compatibility of uses.

Fire Management: The suppression of wildfires and the use of prescribed or controlled fire are a long-standing part of resource protection, public safety, and habitat management on national wildlife refuges. In 2002, a comprehensive Fire Management Plan was approved for the Refuge and provides detailed guidance for the suppression or use of fire. The plan outlines wildfire response and prescribed fire objectives, strategies, responsibilities, equipment and staffing; burn units; implementation; monitoring; and evaluation. A section on the environmental consequences of prescribed fire is included in Chapter 4. The complete Fire Management Plan and Burn Unit Maps are available at the Winona Headquarters Office, or on-line at http://midwest.fws.gov/planning/uppermiss/index.html.

Prescribed fire will be used every 3-5 years on approximately 5,700 acres of Refuge grassland. This area is divided into approximately 40 burn units, most of which range in size from 1 to 125 acres. These units are scattered throughout the Refuge and include islands and natural rises or terraces in the floodplain, and former agricultural fields in or adjacent to the floodplain. Units are generally isolated from private dwellings or other development and they are generally flat or gradually sloping. During a recent 10-year period, the yearly average was eight prescribed burns on a total of 160 acres. Most burns occurred during the April-May time period. The annual average acreage burned is expected to increase due to the 2001 addition of the Lost Mound Unit, Savanna District, which includes approximately 4,000 acres of native prairie, a fire-dependent ecosystem.

Each prescribed burn is governed by a specific prescribed burn plan which dictates the criteria or prescription for air temperature, fuel moisture, wind direction and velocity, soil moisture, relative humidity, and other environmental factors. Burns are not conducted unless these prescriptions are met, and possible impacts to archaeological resources or endangered species avoided or mitigated. Each plan also outlines required staffing and equipment including contingency actions for smoke management and escaped fire. Coordination with local and state fire management officials, as well as adjacent landowners, is done prior to conducting a burn. A strict chain-of-command and “burn-no burn” protocol is followed.

General Water-Based Recreation: Due to the Refuge’s overlap with varied jurisdictions, navigable waters, and a major commercial navigation project, existing uses related to water recreation will not be eliminated and their continuation is common to all alternatives. These water-based uses include, but are not limited to, powerboating, waterskiing, jetskiing or other personal watercraft use, sailing, swimming, picnicking, and social gatherings. However, these uses will continue to be subject to applicable Refuge, state, Corps of Engineers, and Coast Guard regulations, and may be restricted in terms of location and/or season in some elements of some of the alternatives presented.

Mosquito Management: Although not specifically raised as an issue during scoping and public involvement, the management of mosquito populations may emerge as a future concern given the increased incidence of mosquito-borne illnesses in parts of the Midwest. Due to the possible harmful effects, mosquito population control will only be allowed in cases of a documented health emergency by state departments of health or similar disease control agencies. Control efforts would be species and location specific, based on population sampling and identified population thresholds, and use the least intrusive means possible.

Fish and Wildlife Disease Control: Periodically, the Refuge may experience threats to fish and wildlife from a variety of ongoing or sporadic outbreaks of diseases or ailments such as Chronic Wasting Disease in deer and avian botulism, trematode infestations, or avian cholera in waterfowl. Regardless of alternative, appropriate control efforts will be undertaken if warranted, feasible, and effective to limit the impacts on fish and wildlife populations. The Refuge will cooperate and coordinate with the states in these efforts. The Refuge has prepared a Chronic Wasting Disease monitoring and surveillance plan which details efforts with the states on this disease.

Volunteers and Friends Groups: The Refuge currently has an active volunteer program involving dozens of citizens. These volunteers contribute over 8,000 hours annually, assisting with a full-range of administrative, biological monitoring, invasive species control, and visitor services tasks. The nurturing and use of volunteers will continue and is a vital component of many of the objectives outlined in the Draft CCP and EIS. The Refuge also has an active friends group called the Friends of the Upper Mississippi River Refuges (FUMRR). This citizen-based support group raises funds for needed projects, conducts special programs which support the goals of the Refuge and the mission of the Refuge System, and serves as an advocate for the Refuge at various levels of government. Like volunteers, FUMRR will play an important role in the strategies to achieve many of the objectives outlined in this document.

2.4.2 Alternative A: No Action (Current Direction)

Alternative A Summary

Boundary issues would be addressed as time and funding for surveying allow. There would be a continuation of acquisition of lands at a modest rate within the approved boundary, or about 200 acres per year. No special effort would be undertaken to safeguard blufflands and manage Research Natural Areas. Guiding principles for habitat projects would not be established.

Existing programs and effort would address sedimentation and other water quality issues. Pool-scale drawdowns would continue at current, intermittent level. Control of invasive plant species would be modest, and control of invasive animals would be minimal, relying on the work of the states and other agencies. Environmental Pool Plans would be implemented on a strategic and opportunistic basis using the Environmental Management Program. Wildlife inventory and monitoring would remain unchanged with continued focus on waterfowl, colonial nesting birds, eagles, and aquatic invertebrate/vegetation sampling. Management of threatened and endangered species would focus on protection versus recovery. The furbearer trapping program would continue but be brought into compliance with policies by writing a new plan. There would continue to be limited emphasis on fishery and mussel management and commercial fishing oversight. Cooperation with the states and Corps of Engineers on turtle monitoring and research would continue, and a forest inventory on the Refuge would be completed in cooperation with the Corps of Engineers. Existing grassland habitat on the Refuge would be maintained and enhanced using fire and other tools.

Hunting and fishing opportunities would continue on a large percentage of the Refuge. The system of waterfowl hunting closed areas would remain the same except for minor boundary adjustments. Entry into closed areas for purposes other than hunting, trapping, and camping would continue to be allowed, although the voluntary avoidance area on Lake Onalaska would remain in place. No action would be taken on the firing line issue north of the closed area in Lake Onalaska. No major changes would be made to current hunting regulations. Permanent blinds for waterfowl hunting and the Potter's Marsh and Blanding Landing managed hunts in the Savanna District would continue, although administrative changes would be made to promote fairness and efficiency. No action would be taken on regulating fishing tournaments.

There would be no increase in facilities or programming for wildlife observation, photography, interpretation and environmental education, with a focus on maintaining the status quo. There would be a modest increase in Refuge access through improvement of existing boat ramps, pull offs, and overlooks. Commercial fish floats or piers would be governed by current permit procedures and stipulations. Guiding on the refuge would continue with little oversight. Beach-related public use (camping, swimming, picnicking, social gatherings) would continue with little change and beach planning and maintenance would continue at low levels. One electric motor area would remain (Mertes Slough, Pool 6), and no new slow, no-wake zones established. Current regulations on the use of dogs would remain in place. There would be no substantive changes made to current public use regulations.

There would be no new offices or shops constructed for Headquarters or the Districts, with the exception of a new shop for the Winona and Savanna districts since they are already scheduled. Staffing levels for the Refuge would remain the same, as would public outreach and awareness efforts.

Goal 1: Landscape. We will strive to maintain and improve the scenic qualities and wild character of the Upper Mississippi River Refuge.

Objective 1.1: Maintain the integrity of the Refuge boundary. Each year, request survey of problem boundary areas to curb encroachment issues.

Rationale: Current funding and surveying capabilities limit a systematic surveying of the Refuge boundary. This objective would address problems on a case-by-case basis as they occur.

Strategies

Conduct yearly surveillance of problem boundary areas which are normally those which border private lands.

Work with Corps of Engineers on those boundary issues affecting Corps of Engineers-acquired lands that are part of the Refuge.

Objective 1.2. Land Acquisition: By 2021, acquire from willing sellers 12 percent of the lands identified for acquisition in the 1987 Master Plan and subsequent approvals, as identified on the maps in Appendix G (approximately 200 acres/ year).

Rationale: Land acquisition can be a cost effective tool to ensure protection of important fish and wildlife habitat and to close gaps between existing parts of the Refuge. On the Service's Land Acquisition Priority System, the Refuge ranks 6th nationally due to its resource importance. This objective represents the current modest and opportunistic land acquisition program of about 200 acres per year to achieve goals set in the 1987 Master Plan and other approved acquisition documents.

Strategies

Seek consistent Land and Water Conservation Fund appropriations to meet the objective (approximately $300,000 per year at $1,500 per acre).

Explore land exchanges with the states to remove intermingled ownerships. Continue to work with the Department of the Army to transfer title of tracts as they are cleaned of contaminants at the Lost Mound Unit (former Savanna Army Depot).

Objective 1.3

Bluffland Protection: By 2021, acquire from willing sellers protective easements or fee-title interest in at least 1 of 13 bluffland areas within the approved boundary of the Refuge as identified in the 1987 Master Plan. (See maps, Appendix G.)

Rationale: There have been no acquisitions of bluffland areas since first identified in the 1987 Master Plan, so current efforts are minimal, as represented by this objective. Blufflands are an important part of maintaining the scenic quality of the Refuge landscape and harbor unique and diverse plants and animals. In recent years, peregrines have once again started nesting on the rock faces of some bluffs. Peregrines, at one time an endangered species, were the main rationale for including the 13 areas in the acquisition boundary.

Strategies

Seek consistent acquisition funding as noted in Objective 1.2. Work with the states, local governments, and various private land trusts to protect bluffland habitat and scenic values.
Work with local units of government to encourage zoning regulations which protect bluffland scenic qualities.
Educate the public on the values of blufflands for birds and unique plant communities.

Objective 1.4

Research Natural Areas and Special Designations: Conduct yearly visits to the Refuges' four federally-designated Research Natural Areas and document condition, check boundary signing, and conduct ongoing wildlife surveys. No new Natural Areas would be established. (See maps, Appendix P and Table 7 on page 229.)

Rationale: This objective represents the current level of management which is expected to continue under this alternative. No areas of the Refuge are deemed suitable for new Natural Area designation. Designating the Refuge a Wetland of International Importance would raise its stature in line with previously designated national wildlife refuges including Horicon National Wildlife Refuge in Wisconsin and Sand Lake National Wildlife Refuge in South Dakota.

Strategies

Ensure yearly visits remain a part of annual work plans in each Refuge District containing Research Natural Areas.

Goal 2: Environmental Health. We will strive to improve the environmental health of the Refuge by working with others.

Objective 2.1:

Water Quality: Working with others, seek a continuous improvement in the quality of water flowing through and into the Refuge in terms of parameters measured by the Long Term Monitoring Program of the Environmental Management Program (dissolved oxygen, major plant nutrients, suspended material, turbidity, sedimentation, and contaminants).

Rationale: The quality of water on the Refuge is one of the most important factors influencing fish, wildlife, and aquatic plant populations and health,

which in turn influence the opportunity for public use and enjoyment. Water quality is also beyond the Refuge's ability to influence directly given the immense size of the Refuge's watershed and current funding levels and staffing. This objective recognizes these limitations, but highlights the advocacy role the Refuge can play in supporting the myriad of agencies which together can influence water quality.

Strategies

Continue conservation assistance agreements with Soil and Water Conservation Districts.
Use the Service's Partners for Fish and Wildlife Program to restore and enhance wetland and riparian habitat off-refuge.
Consider water quality aspects in all habitat enhancement projects, especially habitat projects which reduce sediment in backwaters.
Link planning and projects for tributary watersheds to Pool Plan implementation.
Support cooperative water quality monitoring and improvement efforts through the Upper Mississippi River Conservation Committee and other groups and agencies.

Objective 2.2: Water Level Management: By 2021, complete drawdowns of all Refuge pools during the summer growing season in cooperation with the Corps of Engineers and the state.

Rationale: Lowering the water levels in impoundments during the growing season is a proven management practice to dramatically increase emergent vegetation. Improved vegetation results in more food and cover for a wide range of fish and wildlife species. Much of the emergent vegetation on the Refuge has been lost due to stable water regimes created for navigation, and this objective seeks to restore productive marsh habitat to thousands of acres. All pools would benefit from drawdowns. However, Pool 14 does not appear to be feasible in the 15-year horizon of this plan.

Strategies

Continue to work in partnership with the interagency water level management taskforce to plan and facilitate drawdowns.
Inform and involve citizens through public meetings, workshops, and citizen advisory groups.
Seek all available funding sources to carry out needed recreational access dredging to lessen social and economic impacts during drawdowns (proposals in Corps of Engineers Navigation Study released in 2004 includes funding for drawdowns).

Objective 2.3: Invasive Plants: Each year, conduct at least one biological control effort on purple loosestrife and/or leafy spurge on each District of the Refuge, and continue ongoing education and outreach efforts on the effects of invasive plants.

Rationale: This objective represents the current program of invasive plant control by the Refuge due to the restraints of funding for invasive plant work. Biological control consists of release of insects which prey directly on purple

loosestrife or leafy spurge plants or disrupt part of their life cycle, and is a more long-term and cost efficient solution compared to herbicide spraying. Biological control methods are not yet readily available for other invasive plant species. Education and outreach is ongoing as a part of regular displays, programs, and media work.

Strategies

Continue to work with the Department of Agriculture, other agencies, the states, and other refuge field stations in securing insects and beetles for release in high-infestation areas.
Take advantage of periodic invasive species grants, cost-sharing, or special funding opportunities offered through the Service or other agencies and foundations.
Continue to provide information and education to the public through the media, brochures, signage, and programs.

Objective 2.4: Invasive Animals: Continue ongoing information and education efforts on the issue of invasive animal species and their impact on the resources of the Refuge.

Rationale: This objective represents the current direction of the Refuge in regards to invasive animals and is difficult to measure and minimal at best. It represents basic limitations of resources, but perhaps just as important, the reality that invasive animal species do not lend themselves to direct control in a large river system and that addressing invasive animals is dependent on political and management actions beyond the boundary of the Refuge.

Strategies

Continue to support the efforts of other agencies and groups in the monitoring, research, and control of invasive animals.
Continue to provide information and education to the public through the media, brochures, signage, and programs

Goal 3: Wildlife and Habitat. Our habitat management will support diverse and abundant native fish, wildlife, and plants.

Objective 3.1 Environmental Pool Plans: By 2021, implement at least 30 percent of the Refuge-priority Environmental Pool Plan actions and strategies in Pools 4-14 as summarized in Table 4 on page 196 at the end of this Chapter (see Appendix N for examples of Environmental Pool Plan maps).

Rationale: Environmental Pool Plans represent a desired future habitat condition developed by an interagency team of resource professionals, including Refuge staff. The Pool Plans represent what is necessary to reverse the negative trends in habitat quality and quantity on the Upper Mississippi River. The Refuge represents a sizeable subset of the habitat vision presented in each Pool Plan. The Refuge also has different resource mandates and responsibilities than the Corps of Engineers and the states. Thus, the Refuge prioritized various actions to meet these needs as represented in Table 4 on page 196. The objective of 30 percent represents a reasonable rate of implementing priority actions given current funding levels (mainly through the Environmental Management Program, Corps of

Engineers) for habitat conservation work, and the 15-year horizon of this CCP versus the 50-year horizon of the Pool Plans. Some of the actions and strategies in the Table overlap with other objectives in this plan (e.g. forest management, land acquisition, watershed work, and water level drawdowns).

Strategies

Continue to coordinate with the River Resources Forum's Fish and Wildlife Workgroup, and the River Resources Coordinating Team's Fish and Wildlife Interagency Committee, to implement pool plan priorities.
Continue to work for full and expanded funding of the Environmental Management Program through public and Congressional information and outreach.
Take advantage of any new funding sources that emerge, such as appropriations from Congress for implementing the Navigation Study ecosystem restoration recommendations.

Objective 3.2.

Guiding Principles for Habitat Management Programs: Do not adopt any formal guiding principles for habitat management programs.

Rationale: Guiding principles for habitat restoration or enhancement projects would provide consistency between the four Districts of the Refuge and help communicate to cooperating agencies and the public standards from which we will design projects. Formal guiding principles do not now exist, so not adopting any represents no action. However, the Refuge would continue to rely on existing goals, objectives, and policies in seeking projects that benefit a diversity of fish and wildlife while taking into account public use needs and issues.

Strategies

None warranted for this alternative.

Objective 3.3.

Monitor and Invesigate Fish and Wildlife Populations and Their Habitats: Continue yearly monitoring of aquatic invertebrates, submerged aquatic vegetation, waterfowl, colonial nesting birds, bitterns and rails, breeding songbirds, Bald Eagle nesting, and frogs and toads in accordance with the 1993 Wildlife Inventory Plan.

Rationale: Monitoring is essential to understanding the status and trends of selected species groups and habitats. This in turn provides some indication of overall biological integrity, diversity, and environmental health of the Refuge, and is critical in planning habitat management and public use programs. This objective represents a modest or "sampler" inventory program, using standardized protocols, in line with current funding and staffing levels. It is also skewed toward migratory birds and their aquatic foods in keeping with the federal responsibilities for these species. The Refuge would continue to rely on monitoring done by others to help fill the gaps in status and trends information for fish, mussels, reptiles, forests and other land cover, and environmental factors such as water chemistry and sedimentation.

Strategies

Review and amend as needed the Wildlife Inventory Plan to ensure the latest protocols are being followed, but do not expand species or habitats being monitored.
Continue to work with the states, U.S. Geological Survey, and Corps of Engineers in the sharing of data on other species and habitats.
Continue to use volunteers for certain monitoring efforts such as the breeding bird survey point counts.
Complete a Habitat Management Plan which integrates species status and trends with the Environmental Pool Plans (Objective 3.1).

Objective 3.4. Threatened and Endangered Species Management: Continue ongoing protection of federally listed threatened, endangered and candidate species and conduct yearly survey of bald eagle nesting.

Rationale: As noted in an earlier section of this chapter, it is Service policy to give priority consideration to the protection, enhancement, and recovery of these species on national wildlife refuges. This objective represents the continuation of a minimum threatened and endangered species program, mainly through the protection of habitat and review and consultation of management actions in light of possible impacts to these species. The only species actively monitored by the Refuge are bald eagles due to public interest and their symbolic stature.

Strategies

Consider the needs of threatened, endangered and candidate species in all habitat and public use management decisions.
Continue to consult with the Service's Ecological Services Offices on all actions which may affect listed species.
Continue monitoring bald eagle nesting populations and success.
Continue assistance to other offices and agencies with Higgins eye pearlymussel recovery efforts.

Objective 3.5. Furbearer Trapping: Update the Refuge trapping plan by June 2007, continuing the existing trapping program until the update is completed.

Rationale: Furbearer trapping has a long history on the Refuge and can be an important management tool in reducing furbearer disease and habitat impacts, and in safeguarding certain Refuge infrastructure such as dikes, islands, and water control structures. The current trapping plan is dated by time (1988), new furbearer ecology and population information, and by new policies governing compatibility of uses and commercial uses on national wildlife refuges.

Strategies

The Refuge wildlife biologists, in consultation with Refuge district managers and state furbearer biologists, will develop a revised trapping plan for approval by the Refuge manager.
Afford the public an opportunity for review and comment on the plan.

Complete a new compatibility determination for public review and comment.

Objective 3.6. Fishery and Mussel Management: Continue to defer fishery and mussel management on the Refuge to the states and the Service's Fishery Resource Office in La Crosse, Wisconsin.

Rationale: This objective reflects the current and projected Refuge involvement in fishery and mussel management given current funding and staffing restraints.

Strategies

Continue to gather information from state and other Service offices on the status of fish and mussels on the Refuge.

Rely on fisheries status and trends provided by the Long Term Resource Monitoring Program of the Environmental Management Program administered by the Corps of Engineers.

Objective 3.7. Commercial Fishing and Clamming: Continue to defer to state departments of natural resources to monitor, regulate, and permit commercial fishing and clamming.

Rationale: This objective reflects the current and projected Refuge involvement in commercial fishing and mussel harvest given current funding and staffing restraints.

Strategies

Continue to gather information from the states and the Upper Mississippi River Conservation Committee on harvest levels.

Conduct license and permit compliance on an opportunistic basis during routine Refuge law enforcement efforts.

Objective 3.8. Turtle Management: Continue to cooperate with state departments of natural resources and the Corps of Engineers in monitoring turtle populations on certain Refuge areas, but continue to defer to the states on commercial harvest management of certain turtle species.

Rationale: This objective reflects the current and projected Refuge involvement in turtle management and harvest given current funding and staffing restraints. The Refuge has contributed funds and staff to monitoring and study efforts, but availability is unpredictable from year to year.

Strategies

Work in partnership with the states and Corps of Engineers on monitoring and research efforts for turtles.

Seek funding for research into turtle ecology and population status through grants.

Increase public awareness of the importance of the Refuge and river to turtles.

Consider the needs of turtles in habitat and public use planning and projects.

Objective 3.9. Forest Management: Complete by the end of 2008, in cooperation with the Corps of Engineers, a forest inventory of the Refuge.

Rationale: A baseline forest inventory of the approximately 51,000 acres of floodplain forest on the Refuge is the first step in addressing concerns for the long-term health of this important resource. The Corps of Engineers has been actively working on a forest inventory for several years on Corps of Engineers-acquired lands, and it makes fiscal and efficiency sense to partner with the Corps of Engineers on this objective.

Strategies

As Refuge funding allows, continue to fund seasonal technicians to help with the Corps of Engineers' inventory project on Service-acquired lands.
Continue to work with the Corps of Engineers and other partners on forest rejuvenation and research projects.
Continue small scale reforestation, especially mast-producing hardwoods, on suitable Refuge lands.

Objective 3.10. Grassland Management: Maintain 5,700 acres of grassland habitat on the Refuge through the use of various management tools including prescribed fire, haying, grazing, and control of invasive plants.

Rationale: Many species of wildlife, particularly birds, are dependent on grassland habitat. In addition, some of these grasslands are remnant tallgrass native prairie, a diverse and rare ecosystem throughout the Midwest and home to rare or declining plant and animal species. Active management is needed to curb loss of grasslands to forest succession or invasive species, and to maintain species diversity and health.

Strategies

Implement the Refuge's Fire Management Plan.
Use haying, rotational grazing, and control of invasive plants as appropriate to maintain grasslands.
Restore native prairie where feasible using a combination of rest, fire, farming, and reseeding as appropriate to the site.
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Goal 4: Wildlife-Dependent Recreation. We will manage public use programs and facilities to ensure abundant and sustainable hunting, fishing, wildlife observation, wildlife photography, interpretation, and environmental education opportunities for a broad cross-section of the public.

Objective 4.1. General Hunting: Maintain a minimum of 192,219 acres (80.0 percent) of land and water of the Refuge open to all hunting in accordance with respective state seasons, and make no changes to the current 8 administrative No Hunting Zones (3,555 acres). (See Table 2 and Table 7 in Appendix H and maps in Appendix P.)

Rationale: This objective represents the current areas open to hunting during all respective state seasons. In addition, Waterfowl Closed Areas re-open to some hunting after the duck season. Administrative No Hunting Zones are generally closed year-round to hunting for visitor safety or to

reduce user conflict. No change represents the no action or current direction of this alternative. Hunting is one of the priority uses of the Refuge System and is to be facilitated when compatible with the purposes of the Refuge and the mission of the Refuge System.

Strategies

Continue yearly review of Refuge Hunting Regulations to ensure clarity and to address any emerging issues or concerns, and give public opportunity to review and comment on any changes.
Continue to publish the Refuge Hunting Regulations brochure to inform the public of hunting opportunities and Refuge-specific regulations.
Continue to improve the hunting experience by ongoing improvements to habitat and enforcement of regulations.
Review the 1989 Refuge Hunting Plan and modify as needed to comply with new regulations and policies.

Objective 4.2.

Waterfowl Hunting Closed Areas: Continue current system of 14 Closed Areas (40,858 acres) and 1 Sanctuary Area (3,686 acres) and current regulations, but make boundary adjustments to clarify boundary or address operation and maintenance needs. (See Table 5 on page 208 and maps, Appendix P.)

Rationale: Closed Areas are designed to provide relatively undisturbed fall resting and feeding areas for the length of the Refuge, and to more evenly distribute waterfowl hunting opportunities. This objective represents the current direction of the Closed Area system. Minor boundary adjustments have been made to some areas over the years and are needed periodically to address physical changes in the environment (such as island erosion) and to reduce confusion or annual signing concerns.

Strategies

Improve habitat in Closed Areas by ongoing programs such as pool drawdowns, Environmental Management Program projects, and other agency initiatives and regulations.
Continue Voluntary Avoidance Area program for the Lake Onalaska (Pool 7) closed area, and seek to expand to other Closed Areas where feasible.
Continue to monitor waterfowl use of closed areas through weekly aerial surveys in the fall.
As funding allows, monitor frequency and effect of disturbance by commercial, public, and agency entry into Closed Areas.

Objective 4.3

Waterfowl Hunting Regulation Changes: Make no major changes to current Refuge-specific regulations governing the means and methods of waterfowl hunting on the Refuge (see Appendix I for current regulations).

Rationale: This objective represents the current direction of waterfowl hunting regulations on the Refuge, recognizing that periodic minor changes are needed to clarify language, or to address an emerging issue or changes in state regulations. These minor changes are published in the Federal Register for public review and comment prior to implementation.

Strategies

Continue to publish and distribute the Refuge Hunting Regulations brochure.

Issue news releases to local media in the event any minor changes are to be published in the Federal Register since most of the interested public is not aware of, or has access to, the Federal Register.

Objective 4.4. Firing Line – Pool 7, Lake Onalaska: Make no changes in boundaries or methods of hunting that would affect the waterfowl hunting fire line that has developed at the north end of the Pool 7 Closed Area ("The Barrels"). (See map, Appendix P, La Crosse District.)

Rationale: This objective represents the no action alternative to address hunter behavior issues and crippling loses from long-range pass shooting at waterfowl.

Strategies

Continue to educate the waterfowl hunting public about the issues and seek self-regulation of behavior.

Work with the La Crosse County Conservation Alliance and other conservation organizations in the education effort.

Increase law enforcement presence and contacts in the Barrels Area and more aggressively enforce violations.

Objective 4.5. Permanent Hunting Blinds on Savanna District: Continue allowing permanent waterfowl hunting blinds on the Savanna District. (See maps, Appendix P, Savanna District.)

Rationale: This objective represents taking no action on issues surrounding the use of permanent blinds at the Savanna District. These issues include unsafe and unsightly debris, private exclusive use of public lands, conflicts between users, reduction in overall hunting opportunity, and inconsistency with regulations on other districts of the Refuge.

Strategies

Continue to educate the waterfowl hunting public about the issues and seek self-regulation of behavior.

Work with local and area waterfowl conservation organizations on the education effort.

Increase law enforcement presence and contacts to ensure compliance with regulations governing blind use.

Objective 4.6. Potter's Marsh Managed Hunt on Savanna District: Continue current Potter's Marsh Managed Hunt with permanent blinds, but implement the following application and drawing changes: (See Table 17 in Appendix H and maps in Appendix P, Pool 13.)

1.) Accept applications and hold drawing for blind area on same day, generally on a Saturday in July.

2.) Applicant must be present at drawing.

3.) Applicant must have current Firearm Owners Identification if Illinois resident and current year license and state and federal duck stamps.
4.) Applicants must be 16 years of age by date of drawing.
5.) Applications accepted 10 a.m. to 2 p.m. with drawing at 2 p.m.
6.) Successful applicant receives blind site for entire season.
7.) Application fee $10 plus $100 fee for successful applicants.

Rationale: Allowing the continued use of permanent blinds for this hunt represents the no action alternative. However, reducing staff time and administrative costs, while making the drawing process more equitable, makes good management sense and represents the current direction.

Strategies

Continue to educate the waterfowl hunting public about the issues and seek self-regulation of behavior in regard to permanent blind use with this hunt.
Work with local and area waterfowl conservation organizations on the education effort.
Increase law enforcement presence and contacts to ensure compliance with regulations governing the hunt.
Ensure that information on administrative changes is provided to the public well in advance of changes.

Objective 4.7.

Blanding Landing Managed Hunt: Continue the current program and administrative procedures (drawing for permanent blinds) for the Blanding Landing Managed Hunt on the Lost Mound Unit, Savanna District. (See Table 17 in Appendix H and maps, Appendix P, Pool 12.)

Rationale: This hunt is managed by the Illinois Department of Natural Resources on the former Savanna Army Depot. This area has now been transferred to the Refuge as part of the Lost Mound Unit. This objective represents no action from the current managed hunt, namely use of permanent blinds and a yearly drawing for limited blind locations.

Strategies

Continue to educate the waterfowl hunting public about the issues and seek self-regulation of behavior in regard to permanent blind use with this hunt.
Work with local and area waterfowl conservation organizations on the education effort.
Increase law enforcement presence and contacts to ensure compliance with regulations governing the hunt.
Ensure that information on the change of hunt administration from the Illinois Department of Natural Resources to the Refuge is made available to the public, along with any Refuge-specific regulations that apply.
Use news releases and other means to disseminate information.

Objective 4.8

General Fishing: Provide and enhance year-round fishing on 140,545 acres of surface water within the Refuge, and an additional 2,736 acres in Waterfowl Closed Areas (Spring Lake, Pool 13) in spring, summer, and winter. (Note: Iowa, Wisconsin, and Illinois regulations maintain fish "refuges" below lock and dams 11,12, and 13, December 1 through March 15). Maintain 15 accessible fishing piers or docks. (Table 7 and Table 14 in Appendix H and maps, Appendix P.)

Rationale: This objective represents the current areas available and open to fishing and the area currently closed to fishing from October 1 to the end of the duck hunting season to limit disturbance to waterfowl (Spring Lake, Pool 13). Fishing is one of the priority uses of the Refuge System and is to be facilitated when compatible with the purposes of the Refuge and the mission of the Refuge System. Enhanced fishing opportunities are also a reflection of river and Refuge health. Maintaining the existing 14 accessible fishing piers assumes continued funding for staff and maintenance.

Strategies

Enhance fishing opportunities on suitable areas of the Refuge through habitat, access, and facility improvements as outlined in other plan objectives.
Continue to promote fishing through Fishing Days and other outreach and educational programming.
Cooperate with the states in their ongoing fishery management programs.
Schedule yearly inspection and maintenance of fishing piers.

Objective 4.9.

Fishing Tournaments: Continue current "hands-off" approach to regulating fishing tournaments on the Refuge, deferring to the individual state's permit procedures and regulations (and Corps of Engineers for Corps of Engineers-managed landings used for tournaments).

Rationale: This objective represents the no action or current direction alternative on the issue of Refuge involvement in fishing tournament permits and oversight.

Strategies

None since there is no action under this alternative.

Objective 4.10.

Wildlife Observation and Photography: Maintain the following existing facilities to foster wildlife observation and photography opportunities: 15 observation decks and areas, 6 hiking trails, 4 canoe trails, 3 biking trails, and 1 auto tour route. (See Table 3, Table 4, Table 5, Table 15 and Table 19 in Appendix H and maps, Appendix P.)

Rationale: Wildlife observation and photography are two of the six priority public uses of the Refuge System and are to be facilitated when compatible. This objective represents the current direction of the wildlife observation and photography program on the Refuge and assumes continuing funding and staffing for operations and maintenance.

Strategies

Schedule annual inspection and maintenance of the facilities.

Ensure adequate signing and information in brochures, websites, and maps so the public is aware of the facilities.

Continue to promote the wildlife observation and photography opportunities of the Refuge through public education, outreach, special programs, and partnerships with the states, Corps of Engineers and private conservation groups.

Enhance observation and photography opportunities on suitable areas of the Refuge through habitat, access, and facility improvements as outlined in other plan objectives.

Objective 4.11.

Interpretation and Environmental Education: Maintain and update 59 interpretive signs (see Table 16 in Appendix H, and maps in Appendix P for details). Continue to print and distribute Refuge General Brochure, and update websites quarterly. Continue to sponsor at least one major annual interpretive event on each Refuge District, and continue environmental education efforts at Districts with visitor services staff (Savanna and La Crosse).

Rationale: Interpretation and environmental education are two of the six priority public uses of the Refuge System and are to be fostered if compatible with the Refuge purpose and Refuge System mission. Interpreting the resources and challenges of the Refuge to the general public and incorporating these topics into school curricula are important ways to influence the future well-being of the Refuge and the river. Only through understanding and appreciation will people be moved to personal and collective action to ensure a healthy Refuge for the future. Interpretation and environmental education are also key to changing attitudes and behavior which affect the Refuge through off-Refuge land use decisions and on-Refuge conduct and use.

This objective reflects the current interpretation and environmental education program on the Refuge, a level which is expected to continue. Environmental education is labor intensive since it is curriculum-based, so efforts are generally limited to those Districts with public use staff.

Strategies

Participate in national interpretive events such as National Wildlife Refuge Week or Migratory Bird Day for efficiency and effectiveness.

Schedule quarterly review of kiosks and interpretive signs and conduct maintenance and sign replacement as needed.

Cooperate with existing interpretive and environmental education programs offered by the states, Corps of Engineers, other agencies and private conservation groups, and continue to seek grants to fund events and programs.

Objective 4.12.

Commercial Fish Floats: Continue to permit 4 commercial fish floats or floating piers below locks and dams and make no major changes to current fee schedule and permit stipulations. (See Table 12 in Appendix H and maps, Appendix P.)

Rationale: This objective represents the current and long-standing low-key management and administration of commercial fishing floats on the Refuge. Fishing floats remain very popular with a segment of the public which does not own boats or desires not to use boats below the locks and dams. The floats help provide fishing opportunities for young and old, able or less able, and facilitate one of the priority public uses of the Refuge System. The floats also provide economic benefit to the owners/operators and an economic stimulus for nearby businesses.

Strategies

Continue yearly coordination meeting with float owners and operators to address concerns and permit conditions.
Continue enforcement of permit stipulations and suspend permits of those operations not meeting the stipulations.
Inspect facilities for safety at least once yearly.

Objective 4.13. Guiding Services: Continue inconsistent, low-key approach to issuing permits for commercial hunting, fishing, and wildlife observation guiding.

Rationale: This objective represents the no action or current direction alternative for this use.

Strategies

Continue to defer to the states for any licensing or regulatory oversight.
Continue to ignore or apply haphazardly Refuge System regulations governing commercial uses on national wildlife refuges.

Goal 5: Other Recreational Use. We will provide opportunities for the public to use and enjoy the Refuge for traditional and appropriate non-wildlife-dependent recreation that is compatible with the purpose for which the Refuge was established and the mission of the Refuge System.

Objective 5.1. Beach Use and Maintenance: Continue current open policy for beach-related uses such as camping, mooring, picnicking, and social gatherings in accordance with existing public use regulations (see Appendix J). Continue to use the following interim beach maintenance criteria when requests are made for beach maintenance:

1.) Only on beach areas classified as low-density recreation on Land Use Allocation Plans.
2.) Only on former or existing dredge material disposal sites.
3.) No maintenance on active dredge disposal sites (including sites recently emptied, known locally as “bathtubs”).
4.) No maintenance of beaches in Waterfowl Hunting Closed Areas.
5.) Time maintenance work to lessen impacts to turtles and other wildlife.

Rationale: This objective represents the no action or current direction alternative that was set in the 1987 Master Plan. Interim beach maintenance criteria were developed in response to work in Pool 4 in cooperation with the Wisconsin Department of Natural Resources in 2003 using Wisconsin recreation boating fuel tax revenues.

Strategies

Continue to coordinate with the states and the Corps of Engineers through established interagency workgroups such as the Recreation Workgroup of the River Resources Forum.

Complete beach inventory for all Districts and use information for interagency beach planning effort.

Continue to use the principles and components of the "Leave No Trace" program.

Continue to print and distribute Refuge Public Use Regulations, and continue law enforcement effort to address visitor behavior and physical impacts associated with beach-related uses.

Objective 5.2. Electric Motor Areas: Maintain the one current electric motor area of 222 acres (Mertes Slough, Pool 6, Winona District). (See Table 13 in Appendix H, and maps, Appendix P.)

Rationale: The Mertes Slough electric motor area was established to protect from disturbance the northernmost heron rookery on the Refuge. Entry into the area by personal watercraft had become more common due to the proximity to Winona, Minnesota and other non-Refuge recreation sites.

Strategies

Continue to inform the public of this electric motor area by signing and providing information at the Mertes Slough boat landing.

Continue to conduct periodic enforcement of the restriction.

Objective 5.3. Slow, No-Wake Zones: Maintain the 2 existing Refuge-administered slow, no-wake zones and assist local or other units of government in the enforcement of 44 other slow, no-wake zones. (See Table 18, Appendix H, and maps, Appendix P.)

Rationale: This objective represents the current number of slow, no-wake zones on the Refuge. The zones were established for safety at high congestion areas or in narrow, blind corner channels, or to lessen the amount of shoreline erosion from boat wakes.

Strategies

Continue to inform the public of the slow, no wake areas through seasonal buoy placement and signing as appropriate.

Continue to conduct periodic enforcement of the slow, no-wake restriction.

Continue to cooperate and coordinate with local units of government which establish most slow, no wake zones.

Objective 5.4. Dog Use Policy: Continue to use the current domestic animal regulation which says that "unconfined domestic animals are prohibited on the Refuge, except for controlled hunting and retrieving dogs during the hunting season." The current prohibition of dog field trials or training of dogs would also remain in effect.

Rationale: This alternative reflects no action in regards to the regulation governing the use of dogs and other domestic animals on the Refuge. Unless specifically authorized, national wildlife refuges are closed to dogs, cats, livestock and other animals per federal regulations. Domestic animals can harass and kill wildlife, and at times become a perceived or direct threat to other persons engaged in recreation.

Strategies

Refuge law enforcement officers will continue to use discretion in enforcing this regulation due to the ambiguity inherent in the meaning of the word "confined."

Objective 5.5. General Public Use Regulations: Make no changes to current general public use regulations governing entry and use of the Refuge, as outlined in Appendix J.

Rationale: This objective represents the no action alternative. As a unit of the Refuge System, the current regulations governing entry, use, and prohibited acts of the Refuge are adopted from Title 50, Code of Federal Regulations, Parts 26-28. Over the years, Refuge-specific regulations have been adopted to reflect special circumstances or address unique problems.

Strategies

Continue to print and distribute the Public Use Regulations brochure.
Post pertinent regulations at boat landings and other public use areas, such as trail heads and beach areas.
Continue proactive law enforcement to inform and educate the public on Refuge regulations and to seek their compliance.
Annually review Refuge regulations and clarify language as needed.

Goal 6: Administration and Operations. We will seek adequate funding, staffing, and facilities, and improve public awareness and support, to carry out the purposes, vision, goals, and objectives of the Refuge.

Objective 6.1. Office, Shop and Visitor Contact Facilities: Maintain existing offices (6) and shops (5), and replace the Winona District and Savanna District shops by 2006.

Rationale: This objective represents the no action or current direction for providing office space and maintenance facilities for Refuge Headquarters, the four District Offices, and the Lost Mound Unit. Three of the offices and 4 of the shops are Service-owned, 2 are government-leased, and the Lost Mound office and shop is used by agreement with Department of the Army. The Headquarters and Winona District currently share the same building for offices, and share a shop. The Savanna, Lost Mound, McGregor, and La Crosse offices also have modest visitor reception areas with exhibits and other information. Replacement of the Winona and Savanna District shops is currently in the planning stage and they should be replaced by 2006, dependent on funding through the Service's Maintenance Management System. The existing offices are needed due to the size and length of the Refuge and for effectiveness and efficiency of management, administration, and public service.

Strategies

Continue to maintain Service-owned facilities using annual maintenance budget allocations.

Continue work to complete exhibits at Savanna and La Crosse offices, and seek funding to replace exhibits at McGregor District and the Lost Mound Unit.

Ensure that office needs are reflected in Refuge System needs databases.

Objective 6.2.

Public Access Facilities: Maintain and modernize as needed, 25 public boat accesses on the Refuge. (See Table 1 in Appendix H, and maps, Appendix P.)

Rationale: This objective represents the current number of boat accesses on the Refuge that are maintained by Refuge staff. In addition to these accesses, there are 222 other public and private boat accesses that provide access to the Mississippi River or its tributaries, and thus the Refuge.

Strategies

Continue routine upkeep of boat accesses by Refuge staff, temporary employees and Youth Conservation Corps members when available, and volunteers.

Continue to modernize accesses using Maintenance Management System funding or special funding which is provided periodically.

In cooperation with states and local governments, explore Transportation Enhancement Act projects and funding to upgrade Refuge accesses.

Objective 6.3.

Operations and Maintenance Needs: Complete annual review of Refuge Operating Needs System (RONS), Maintenance Management System (MMS), and Service Assessment and Maintenance Management System (SAMMS) databases to ensure these reflect the funding needs for carrying out the current direction alternative.

Rationale: The RONS, MMS, and SAMMS databases are the chief mechanisms for documenting ongoing and special needs for operating and maintaining a national wildlife refuge. These databases are part of the information used in the formulation of budgets at the Washington and Regional levels, and for the allocation of funding to the field. It is important that the databases be updated periodically to reflect the needs of the Refuge.

Strategies

None warranted.

Objective 6.4.

Public Information and Awareness: Continue current annual average of 80 media interviews, 125 news releases, and 25 special events (special programs, presentations, and displays at others' events) to maintain current levels of public awareness of the Refuge, and its purpose, programs, and challenges. Maintain existing 66 information kiosks.

Rationale: Keeping the public aware of the Refuge and its purpose, programs, and challenges is a basic part of public lands stewardship. An informed public can not only take advantage of the recreation afforded by the

Refuge, but can play a role in influencing and shaping management direction and the challenges which face the Refuge. This objective reflects a relatively high level of continuous effort despite a limited number of visitor services staff.

Strategies

Continue to make public information and awareness a part of all employees positions.
Continue to look for creative ways to leverage efforts and funding for public information.
Carry out related objectives dealing with trails, kiosks, leaflets, and interpretive signs.
Cooperate with the states and the Corps of Engineers on visitor surveys to gauge public awareness of the Refuge and Mississippi River resources.

Objective 6.5. Staffing Needs: Maintain current permanent, full-time staffing of 37 people. (See Table 20 in Appendix H.)

Rationale: This objective reflects the no action or current direction alternative. Like all land management, refuge management is labor intensive and labor costs represent over 95 percent of the base operations funding received each year. Thus, staffing levels are tied to budget appropriations from Congress and budget allocations from the national and regional offices of the Service and could remain the same or go down under this alternative.

Strategies

Continue to evaluate current staffing patterns at the District and Headquarters level to ensure that personnel are assigned to the greatest resource and public service needs.
Maintain other sources of funding for staff who coordinate the Environmental Management Program and the Partners for Fish and Wildlife Program.

2.4.3 Alternative B: Wildlife Focus

Increase level of effort on fish and wildlife and habitat management. Some public use opportunities and programs would remain the same, others reduced in favor of wildlife and habitat protection.

Alternative B Summary

Boundary issues would be aggressively addressed and the entire Refuge boundary would be surveyed. The rate of land acquisition within the approved boundary would increase to complete 58 percent of the total, an average of 1,000 acres per year. All bluffland areas identified in the 1987 Master Plan would be protected by fee-title acquisition or easement, and there would be an increase in oversight and administration of Research Natural Areas. Guiding principles for habitat projects would be established.

There would be an increase in efforts to achieve continuous improvement in the quality of water flowing through the Refuge, including decreasing sedimentation. Pool-scale drawdowns would be accomplished by working with the Corps of Engineers and the states. Control of invasive plant species would increase, and there would be increased emphasis on the control of invasive animals. Environmental Pool Plans would be implemented on a strategic and opportunistic basis using the

Environmental Management Program or other programs and funding sources. Wildlife inventory and monitoring would increase and include more species groups beyond the current focus of waterfowl, colonial nesting birds, eagles, and aquatic invertebrates/vegetation. Management of threatened and endangered species would focus on helping recovery, not just protection. The furbearer trapping program would continue but be brought into compliance with policies by writing a new plan. The Refuge would become much more active in fishery and mussel management, and provide commercial fishing oversight. The knowledge of turtle ecology would be increased through research, and there would be continued cooperation with the states and Corps of Engineers on turtle conservation efforts. A forest inventory on the Refuge would be completed in cooperation with the Corps of Engineers, leading to completion of a forest management plan and more active forest management. The existing 5,700 acres of grassland habitat on the Refuge would be maintained and enhanced using fire and other tools.

Common Egret. Copyright Sanda Lines

Hunting and fishing opportunities would continue on a large percentage of the Refuge. The system of waterfowl hunting closed areas would increase substantially with 14 new areas. Entry into closed areas would be prohibited during the respective state duck season, although the voluntary avoidance area on Lake Onalaska would remain in place. The firing line issue north of the closed area in Lake Onalaska would be addressed by expanding the closed area northward. Current Refuge-wide hunting regulations would be changed to include a 25 shotshell limit during the waterfowl season and to address open water hunting in portions of Pools 9 and 11. Permanent blinds for waterfowl hunting would be eliminated Refuge wide, including those used in the Potter's Marsh and Blanding Landing managed hunts in the Savanna District. The Potter's Marsh managed hunt would continue with administrative changes to promote fairness and efficiency. The Blanding Landing managed hunt would be eliminated, but the area would remain open to hunting. General fishing would continue to be promoted, although the Refuge would begin oversight of fishing tournaments in cooperation with the states and other agencies.

There would be no increase in facilities or programming for wildlife observation, photography, interpretation and environmental education. There would be a modest increase in Refuge access through improvement of existing boat ramps, pull offs, and overlooks, and a boat launch fee would be initiated at Refuge-operated boat ramps. Commercial fish floats or piers below locks and dams 6, 7, 8, and 9 would be eliminated to reduce administrative and oversight costs. Commercial guiding on the Refuge would be prohibited. Areas open to beach-related public use (camping, swimming, picnicking, social gatherings) would be reduced under a "closed-until-open" policy, and beach planning and maintenance would not be allowed on Refuge lands. A total of 10 electric motor areas and 9 new slow, no-wake zones would be established. Current regulations on use of dogs would be changed to require that dogs and other domestic animals be leashed at all times except when used for hunting. General public use regulations would be reviewed annually and changed as needed. Existing offices would be maintained, but new maintenance facilities or shops would be constructed at the Winona, McGregor, and Savanna districts, and eventually, at the Lost Mound Unit. Public information and awareness efforts would be decreased 50 percent to focus on wildlife-related work. Staffing levels for the Refuge would increase by 17.5 full-time equivalents with the priority being biologists, a forester, other specialists, and maintenance persons.

Goal 1: Landscape: We will strive to maintain and improve the scenic qualities and wild character of the Upper Mississippi River Refuge.

Objective 1.1. Maintain the integrity of the Refuge boundary: In coordination with the Corps of Engineers, re-survey and post the entire Refuge boundary by 2021.

Rationale: Maintaining and enforcing a boundary is one of the basic and critical components of refuge management to ensure the integrity of an area over time. Without attention to this basic task, there is a tendency for adjacent development and use to creep and take over Refuge lands and waters. This encroachment includes tree cutting, dumping, construction, storing of equipment and materials, and mowing Refuge lands. In addition, there are a few boundaries between Refuge and Corps of Engineers-managed lands that remain unclear, leading to mixed messages to the public using these lands via permits, leases, or out grants. The size, length, age, and floodplain setting of the Refuge, coupled with a mix of Corps of Engineers-acquired and Service-acquired lands, creates boundary clarity problems that can only be addressed through modern re-surveying techniques.

Strategies

Enter into a joint Service/Corps of Engineers project to complete a cadastral survey of the Refuge boundary.
With the Corps of Engineers, complete a plan of action to prioritize and schedule the completion of the survey by 2020. Seek the funding necessary for the survey work.
Also with the Corps of Engineers, review, update, and publish a new Land Use Allocation Plan for lands within the Refuge (see Chapter 1, section 1.4.3.1 for discussion of this plan).

Objective 1.2. Land Acquisition: By 2021, acquire from willing sellers 58 percent of the lands identified for acquisition in the 1987 Master Plan and subsequent approvals, as identified on the maps in Appendix G (approximately 1,000 acres/year).

Rationale: Land acquisition is a critical component of fish and wildlife conservation since it permanently protects their basic need of habitat. On a narrow, linear refuge, land acquisition is a critical component of restoring the habitat connectivity needed for the health of many species. The Refuge currently ranks 6th nationally on the Service's Land Acquisition Priority System due to its resource importance. Land acquisition can also be cost effective in the long-term due to inflation of land costs and the costs of acquiring undeveloped land versus developed land that also needs restoration. This objective represents an aggressive land acquisition program of about 1,000 acres per year to achieve goals set in the 1987 Master Plan and other approved acquisition documents. Lands and waters most important to fish and wildlife would be the highest priority acquisitions in keeping with the wildlife focus of this alternative. Lands with the highest fish and wildlife values were coded "A" in the 1987 Master Plan, and this ranking system remains a useful prioritization tool.

Strategies

Seek consistent Land and Water Conservation Fund appropriations to meet the objective (approximately $1.5 million per year at $1,500 per acre).

Explore land exchanges with the states to remove intermingled ownerships.

Continue to work with the Department of the Army to transfer title of tracts as they are cleaned of contaminants at the Lost Mound Unit (former Savanna Army Depot).

Objective 1.3.

Bluffland protection: By 2021, acquire from willing sellers protective easements or fee-title interest in all undeveloped bluffland areas within the approved boundary of the Refuge as identified in the 1987 Master Plan. (See maps, Appendix G.)

Rationale: There have been no acquisitions of bluffland areas since first identified in the 1987 Master Plan, and this objective represents a more aggressive approach to safeguarding the wildlife values of these areas. In recent years, peregrines have once again started nesting on the rock faces of some bluffs. Peregrines, at one time an endangered species, were the main rationale for including the 13 areas in the acquisition boundary. Blufflands are also an important part of maintaining the scenic quality of the Refuge landscape and harbor unique and diverse plants and animals. Since some areas identified have been developed for housing or other uses since 1987, the focus would be on the undeveloped areas. However, there may be an opportunity to protect remaining values of these developed areas through creative easements.

Strategies

Seek consistent acquisition funding as noted in Objective 1.2 and favor easements over fee-title acquisition since it is more cost-effective for a wildlife focus approach.

Work with the state, local governments, and private land trusts to protect bluffland habitat and scenic values.

Work with local units of government to encourage zoning regulations which protect bluffland scenic qualities.

Help educate the public on the values of blufflands for birds and unique plant communities.

Objective 1.4

Research Natural Areas and Special Designations: By 2010, complete a management plan for each of the Refuge's four federally-designated Research Natural Areas. No new Natural Areas would be established. (See maps, Appendix P and Table 7.)

Rationale: The Refuge has done little in the way of monitoring or research of the existing Research Natural Areas. Although the main goal of the area designation is the preservation of unique floodplain forest areas, preservation is a form of management. No management plans have been written to guide monitoring and research of current habitat conditions and changes since the areas were designated in the 1970s. Completing a management plan for each area would identify monitoring protocols, any habitat management needed to retain original biological values or address threats, address any special public use considerations, and identify ways to foster public awareness and appreciation of these unique areas. No areas of the Refuge are deemed suitable for new Natural Area designation.

Strategies

District Managers will be responsible for completion of a management plan for natural areas in their District, using a consistent approach and format and in cooperation with the states and other federal agencies as appropriate (e.g., Nelson-Trevino).

Seek cooperative research and monitoring opportunities with other agencies and colleges and universities.

Ensure yearly reviews of Research Natural Area boundaries to ensure integrity of the areas.

Goal 2: Environmental Health. We will strive to improve the environmental health of the Refuge by working with others.

Objective 2.1. Water Quality: Working with others and through a more aggressive Refuge program, seek a continuous improvement in the quality of water flowing through and into the Refuge in terms of parameters measured by the Long Term Monitoring Program of the Environmental Management Program (dissolved oxygen, major plant nutrients, suspended material, turbidity, sedimentation, and contaminants).

Rationale: The quality of water on the Refuge is one of the most important factors influencing fish, wildlife, and aquatic plant populations and health, which in turn influence the opportunity for public use and enjoyment. Water quality is also beyond the Refuge's ability to influence alone given the immense size of the Refuge's watershed and multiple-agency responsibilities. This objective recognizes these limitations, but charts a more aggressive role for the Refuge through the strategies below. The objective also highlights the advocacy role the Refuge can play in educating the public and supporting the myriad of agencies which together can influence water quality.

Strategies

Hire a Private Lands Biologist or Technician for each of the Refuge's four Districts to restore and enhance wetland, upland, and riparian habitat on private lands in and along sub-watersheds feeding into the Refuge, and to broker the myriad of private land and conservation opportunities available through the Department of Agriculture and others.

Increase conservation assistance agreements with Soil and Water Conservation Districts and Resource Conservation and Development boards.

Cooperate with local government land use planning efforts to ensure that water quality impacts to the Refuge are considered.

Emphasize water quality aspects, especially sediment deposit in backwaters, in all habitat enhancement projects.

Link the planning and projects for tributary watersheds to Pool Plan implementation using the latest GIS-based mapping and modeling. Support cooperative water quality monitoring and improvement efforts through the Upper Mississippi River Conservation Committee and other groups and agencies.

Continue to stress the importance of water quality in public information and interpretive and education programs.

Objective 2.2. Water Level Management: By 2021, complete drawdowns of all Refuge pools during the summer growing season in cooperation with the Corps of Engineers and the state.

Rationale: Lowering the water levels in impoundments during the growing season is a proven management practice to dramatically increase emergent vegetation. Improved vegetation results in more food and cover for a wide range of fish and wildlife species. Much of the emergent vegetation on the Refuge has been lost due to stable water regimes created for navigation, and this objective seeks to restore productive marsh habitat to thousands of acres. All pools would benefit from drawdowns. However, Pool 14 does not appear to be feasible in the 15-year horizon of this plan.

Strategies

Continue to work in partnership with the interagency water level management taskforce to plan and facilitate drawdowns.
Inform and involve citizens through public meetings, workshops, and citizen advisory groups.
Seek all available funding sources to carry out needed recreational access dredging to lessen social and economic impacts during drawdowns (proposals in Corps of Engineers Navigation Study released in 2004 includes funding for drawdowns).
Explore options for funding an Access Trust Fund to ensure adequate funding when needed to accomplish drawdowns.

Objective 2.3. Invasive Plants: By 2008, complete an invasive plant inventory and by 2010, achieve a 10 percent reduction in acres affected by invasive plants such as purple loosestrife, reed canary grass, Eurasian milfoil, leafy spurge, crown vetch, Russian knapweed, knotweed, European buckthorn, garlic mustard, and Japanese bamboo. Emphasize the use of biological controls.

Rationale: Invasive plants continue to pose a major threat to native plant communities on the Refuge and beyond. Invasive plants displace native species and often have little or no food value for wildlife. The result is a decline in the carrying capacity of the Refuge for native fish, wildlife, and plants. This objective addresses this threat by first determining and mapping baseline information on invasive plants so that effective and efficient control can take place. Biological control includes release of insects which prey directly on purple loosestrife or leafy spurge plants or disrupt part of their life cycle, and is a more long-term and cost efficient solution compared to herbicide spraying. This objective is tempered by the realization that biological control methods are not yet readily available for a large number of invasive plant species.

Strategies

Hire seasonal biological technicians to conduct an inventory and prepare baseline maps of invasive plant infestations.
Write an invasive plant control and management plan (integrated pest management plan) that identifies priority areas and methods of control.

Seek seasonal staff and funding to accelerate current control and applied research efforts through interagency partnerships, volunteer programs, and public education.

Continue to work with the Department of Agriculture, other agencies, the states, and other refuge field stations in securing insects and beetles for release in high-infestation areas.

Take advantage of periodic invasive grant, cost-sharing, or special funding opportunities offered through the Service or other agencies and foundations.

Conduct public information effort including media, brochures, signage, and programs to increase awareness of the invasives threat and what visitors can do to minimize the introduction or spread of invasives.

Objective 2.4. Invasive Animals: Increase efforts to control invasive animals through active partnerships with the states and other Service programs and federal agencies, and increase public awareness and prevention.

Rationale: Invasive animals such as zebra mussels and Asian carp species pose a current and looming threat to native fish and mussel species and have the potential to disrupt the aquatic ecosystem. This objective is not measurable, reflecting the reality that invasive animal species do not lend themselves to direct control in a large river system and that addressing invasive animals is dependent on political and management actions beyond the boundary of the Refuge. However, the objective does emphasize the importance of addressing invasive species and represents more active Refuge involvement.

Strategies

Implement other objectives and strategies in this plan which have an influence on invasive species work. For example, better habitat conditions promote healthy native fish populations which can compete with invasive species, while adding a fishery biologist to the staff would increase and improve coordination with other programs and agencies dealing with invasives.

Continue to work with other agencies in developing effective regulations, barriers, biological controls, or other means to reduce introduction and spread of invasives.

Explore new and creative ways to expand the harvest of invasive fish by commercial fishing, such as a bonus payment to enhance market price.

Conduct public information effort including media, brochures, signage, and programs to increase awareness of the invasives threat and what visitors can do to minimize the introduction or spread of invasives.

Goal 3: Wildlife and Habitat. Our habitat management will support diverse and abundant native fish, wildlife, and plants.

Objective 3.1. Environmental Pool Plans: By 2021, implement at least 30 percent of the Refuge-priority Environmental Pool Plan actions and strategies in Pools 4-14 as summarized in Table 4 on page 196 at the end of this Chapter (see Appendix N for examples of Environmental Pool Plan maps).

Rationale: Environmental Pool Plans represent a desired future habitat condition developed by an interagency team of resource professionals, including Refuge staff. The Pool Plans represent what is necessary to reverse the negative trends in habitat quality and quantity on the Upper Mississippi River. Improved habitat is the key to healthy fish and wildlife populations, and thus, this objective represents an important part of the wildlife focus alternative. The Refuge represents a sizeable subset of the habitat vision presented in each Pool Plan. The Refuge also has different resource mandates and responsibilities than the Corps of Engineers and the states. Thus, the Refuge prioritized various actions to meet these needs as represented in Table 4. The objective of 30 percent represents a reasonable rate of implementing priority actions given current funding levels (mainly through the Environmental Management Program, Corps of Engineers) for habitat conservation work, and the 15 year horizon of this CCP versus the 50 year horizon of the Pool Plans. Some of the actions and strategies in the Table overlap with other objectives in this plan (e.g. forest management, land acquisition, watershed work, and water level drawdowns).

Strategies

Continue to coordinate with the River Resources Forum's Fish and Wildlife Workgroup, and the River Resources Coordinating Team's Fish and Wildlife Interagency Committee, to implement pool plan priorities.
Continue to work for full and expanded funding of the Environmental Management Program through public and Congressional information and outreach.
Take advantage of any new funding sources that emerge, such as appropriations from Congress for implementing the Navigation Study ecosystem restoration recommendations.

Objective 3.2.

Guiding Principles for Habitat Management Programs: Upon approval of the CCP, adopt and use the following guiding principles when designing or providing input to design and construction of habitat enhancement projects:

1.) Management practices will restore or mimic natural ecosystem processes or functions to promote a diversity of habitat and minimize operations and maintenance costs.
2.) Maintenance and operation costs of projects will be weighed carefully since annual budgets for these items are not guaranteed.
3.) Terrestrial habitat on constructed islands and other areas needs to best fit the natural processes occurring on the river, which in many cases will allow for natural succession to occur.
4.) If project features in Refuge Waterfowl Hunting Closed Areas serve to attract public use during the waterfowl season, spatial and temporal restrictions of uses may be required to reduce human disturbance of wildlife.

Rationale: Guiding principles for habitat restoration or enhancement projects would provide consistency between the four Districts of the Refuge and help communicate to cooperating agencies and the public standards from which we will design projects. The principles will also help ensure compliance with Service policy on biological integrity and recognize the need to consider future operations and maintenance costs before doing projects. In addition,

the principles help ensure that projects complement, rather than compete with, other goals and objectives in this plan.

Strategies

Refuge staff will use these guidelines when proposing and designing habitat enhancement projects funded by the Service. They will also be used during coordination with the Corps of Engineers and the states in cooperative programs such as the Environmental Management Program or any new program authority that may arise from the Corps of Engineers' Navigation Study.

Objective 3.3. Monitor and Investigate Fish and Wildlife Populations and Their Habitats: By January 2008, amend the 1993 Wildlife Inventory Plan to include more species groups such as fish, reptiles, mussels, and plants, and increase the amount of applied research being done on the Refuge.

Rationale: Monitoring is essential to understanding the status and trends of selected species groups and habitats. This in turn provides some indication of overall biological integrity, diversity, and environmental health of the Refuge, and is critical in planning habitat management and public use programs. This objective represents a more aggressive biological program on the Refuge in line with a true wildlife focus, and will help meet directives in the Refuge Improvement Act requiring monitoring the status of fish, wildlife, and plant species. Better biological information is also critical to making sound management decisions. The Refuge would continue to support and use monitoring done by the states, U.S. Geological Survey, the Corps of Engineers, and others to help fill the gaps in status and trends information for fish, mussels, reptiles, forests and other land cover, and environmental factors such as water chemistry and sedimentation.

Strategies

Engage other experts and partners to develop and implement the Wildlife Inventory Plan.
Establish a Refuge Research Team that designs short-term and long-term research projects to address management questions and concerns about wildlife populations and their habitat.
Continue to work with the states, U.S. Geological Survey, and Corps of Engineers in the sharing of data on other species and habitats.
Establish a schedule of formal coordination meetings with the U.S. Geological Survey to share biological monitoring methods and data.
Ensure that each District has a biologist on staff and that Headquarters has a GIS biologist.
Seek more cooperation with colleges and universities to foster more graduate research projects.
Continue to use volunteers for certain monitoring efforts such as the breeding bird survey point counts.
Complete a Habitat Management Plan which integrates species status and trends with the Environmental Pool Plans (Objective 3.1).

Objective 3.4. Threatened and Endangered Species Management: By the end of 2008, begin monitoring of all federally listed threatened or endangered and candidate

species on the Refuge, and by 2010, have in place management plans for each species to help ensure their recovery.

Rationale: As noted in an earlier section of this chapter, it is Service policy to give priority consideration to the protection, enhancement, and recovery of these species on national wildlife refuges. This objective represents a more aggressive approach to achieving this policy. Currently, the only species actively monitored by the Refuge are Bald Eagles, and efforts would be expanded to include the Higgins eye pearlymussel, eastern massasauga rattlesnake, and Sheepnose mussel.

Strategies

Consider the needs of threatened, endangered and candidate species in all habitat and public use management decisions.
Continue to consult with the Service's Ecological Services Offices on all actions which may affect listed species.
In Wildlife Inventory Plan, address monitoring plan for all listed or candidate species, and other species of management concern to help preclude listing.
Continue monitoring bald eagle nesting populations and success.
In Habitat Management Plan, identify steps needed to ensure populations of listed or candidate species are sustained in support of delisting or to preclude listing in the future. Give priority to acquisition of lands within approved boundary that contain listed or candidate species.
Continue assistance to other offices and agencies with Higgins eye pearlymussel recovery efforts.

Objective 3.5. Furbearer Trapping: Update the Refuge trapping plan by June 2007, continuing the existing trapping program until the update is completed.

Rationale: Furbearer trapping has a long history on the Refuge and can be an important management tool in reducing furbearer disease and habitat impacts, and in safeguarding certain Refuge infrastructure such as dikes, islands, and water control structures. The current trapping plan is dated by time (1988), new furbearer ecology and population information, and by new policies governing compatibility of uses and commercial uses on national wildlife refuges.

Strategies

The Refuge wildlife biologists, in consultation with Refuge District managers and state furbearer biologists will develop a revised trapping plan for approval by the Refuge manager.
Afford the public an opportunity for review and comment on the plan.
Complete a new compatibility determination for public review and comment.

Objective 3.6. Fishery and Mussel Management: By the end of 2008, complete a Fishery and Mussel Management Plan for the Refuge which incorporates current monitoring and management by the states and other Service offices and agencies.

Rationale: One of the purposes of the Refuge is to provide a "refuge and breeding place for fish and other aquatic animal life." Fish and mussels also have high intrinsic, recreational, and commercial values. For decades, the Refuge has not taken an active role in fishery or mussel management, deferring to the states or others on this management responsibility. Although the states will still play the lead role in fisheries and mussel management, the Refuge should have in place a plan which communicates to the states and the public the Refuge and Service perspective on fishery and mussel management issues and needs, and to help set common goals, objectives, and means of collecting and sharing information. The plan would also help guide conservation efforts for rare or declining interjurisdictional species such as paddlefish and sturgeon and federally listed and candidate aquatic species, and address the Refuge's role in commercial harvest of species and control of aquatic invasive species.

Strategies

Add a fishery biologist to the Headquarters staff to coordinate fishery and mussel management on the Refuge.

Prepare plan in collaboration with the states, Service fishery offices, the Genoa National Fish Hatchery, and aquatic biologists of the U.S. Geological Survey.

Objective 3.7. Commercial Fishing and Clamming: By the end of 2008, complete a Fishery and Mussel Management Plan, and by January 2009, begin issuing Refuge special use permits in addition to state-required permits for commercial fishing and clamming.

Rationale: The Refuge has provided little to no oversight of the commercial harvest of fish or mussels in the past. However, federal regulations governing the Refuge System state that "fishery resources of commercial importance on wildlife refuge areas may be taken under permit in accordance with federal and state law and regulations" (50 Code of Federal Regulations, Part 31.13). Other regulations govern all commercial uses on refuges. Besides this compliance issue, the Refuge can play an important advisory and coordination role with the four states which administer commercial fish and mussel harvest on the Refuge.

Strategies

In addition to the strategies in Objective 3.6, establish, with the states through the Upper Mississippi River Conservation Committee, a method of sharing permittee and catch information for the Refuge.

Devise a Refuge permitting process that dovetails with state permits so that commercial users receive only one permit versus two.

Enter into cooperative agreements as needed to implement this one-stop-shopping permit process.

Ensure that commercial harvest of fish and mussels meets objectives in Refuge plans, and explore ways that commercial harvest can help address invasive species issues (Objective 2.4).

Objective 3.8. Turtle Management: By spring, 2007, initiate a 3-5 year turtle ecology study on representative habitats of the entire Refuge. Continue to cooperate with

the states and the Corps of Engineers in monitoring turtle populations on certain Refuge areas.

Rationale: Recent surveys in the Weaver Bottoms area of Pool 5 indicate that this area of the Refuge is an important, and perhaps critical, area for 8 species of turtles, some of which are listed by the states as threatened or endangered. Surveys on other Pools of the Refuge show that 11 species are present. There are numerous potential negative and positive impacts to turtles from public use and navigation channel maintenance activities on the Refuge. However, more rigorous monitoring and research is needed over a broad area to understand turtle populations and ecology to guide a coordinated approach to their conservation. A comprehensive study would provide this information.

Strategies

In cooperation with the U.S. Geological Survey, seek special funding and grants to fund the turtle ecology study.
Continue to coordinate with the Corps of Engineers and the states on ways to minimize turtle nesting disturbance on dredge material disposal sites located on the Refuge.
Through the Upper Mississippi River Conservation Committee, devise a method of sharing more detailed commercial turtle harvest information for the Refuge.
Upon completion of the turtle ecology study, complete a turtle management strategy and incorporate recommendations in habitat, commercial use, and public use management activities.
Conduct public information effort including media, brochures, signage, and programs to increase awareness and appreciation of turtles and communicate what visitors can do to minimize impacts on beach areas used for nesting.

Objective 3.9.

Forest Management: Complete by the end of 2008, in cooperation with the Corps of Engineers, a forest inventory of the Refuge, and by 2010, complete a Forest Management Plan for the Refuge.

Rationale: A baseline forest inventory of the approximately 51,000 acres of floodplain forest on the Refuge is the first step in addressing concerns for the long-term health of this important resource. The Corps of Engineers has been actively working on a forest inventory for several years on Corps of Engineers-acquired lands, and it makes fiscal and efficiency sense to partner with the Corps of Engineers on Service-acquired lands on this objective. A Forest Management Plan is needed to integrate forest and wildlife objectives, and to identify management prescriptions such as harvest, planting, fire, and invasives control. Collaboration with the Corps of Engineers is essential to meet the forest habitat needs of wildlife since the Corps of Engineers retained forest management authority on Corps of Engineers-acquired lands that are part of the Refuge.

Strategies

As Refuge funding allows, continue to fund seasonal technicians to help with the Corps of Engineers' inventory project on Service-acquired lands.

Continue to work with the Corps of Engineers and other partners on forest rejuvenation and research projects.

Continue small scale reforestation, especially mast-producing hardwoods, on suitable Refuge lands.

Add a Refuge Forester to the Headquarters staff to oversee Forest Management Plan preparation and implementation, and to coordinate with the Corps of Engineers and the states on forest management issues and opportunities.

Objective 3.10. Grassland Management: Maintain 5,700 acres of grassland habitat on the Refuge through the use of various management tools including prescribed fire, haying, grazing, and control of invasive plants, and by 2008, address grassland conservation and enhancement in a step-down Habitat Management Plan.

Rationale: Many species of wildlife, particularly birds, are dependent on grassland habitat. In addition, some of these grasslands are remnant tallgrass native prairie, a diverse and rare ecosystem throughout the Midwest and home to rare or declining plant and animal species. Active management is needed to curb loss of grasslands to forest succession or invasive species, and to maintain species diversity and health.

Strategies

Implement the Refuge's Fire Management Plan.

Use haying, rotational grazing, and control of invasive plants as appropriate to maintain grasslands.

Restore native prairie where feasible using a combination of rest, fire, farming, and reseeding as appropriate to the site.

Increase monitoring to measure effectiveness of treatments.

Goal 4: Wildlife-Dependent Recreation. We will manage programs and facilities to ensure abundant and sustainable hunting, fishing, wildlife observation, wildlife photography, interpretation, and environmental education opportunities for a broad cross-section of the public.

Objective 4.1. General Hunting: Maintain a minimum of 165,524 acres (69 percent) of land and water of the Refuge open to all hunting in accordance with respective state seasons, and add two new administrative No Hunting Zones for a total of 3,813 acres. See related Objective 4.2 on Waterfowl Closed Areas (See tables, Appendix H and maps, Appendix N.)

Rationale: Maintaining a large percentage of the Refuge open to hunting is in keeping with guidance in the Refuge Improvement Act to facilitate wildlife-dependent use when compatible. This objective also represents a wildlife emphasis by increasing the number of Waterfowl Closed Areas in the related Objective 4.2. These Closed Areas reopen to some hunting after the duck season, adding to the open acreage above. The two new No Hunting Zones are for safety reasons or to minimize conflict between user groups. One is at Sturgeon Slough, Pool 10 (66 acres), which contains a fairly new hiking trail off a major highway, and the other is at Crooked Slough proper, Pool 13 (192 acres) to avoid conflicts and address safety concerns in a relatively narrow corridor popular with anglers.

Strategies

Continue yearly review of Refuge Hunting Regulations to ensure clarity and to address any emerging issues or concerns, and give the public an opportunity to review and comment on any changes.

Continue to publish the Refuge Hunting Regulations brochure to inform the public of hunting opportunities and Refuge-specific regulations.

Continue to improve the hunting experience by ongoing improvements to habitat and enforcement of regulations.

Review the 1989 Refuge Hunting Plan and modify as needed to comply with new regulations and policies.

Clearly sign areas closed to hunting and ensure public notification through news releases and other means well before the hunting seasons.

Objective 4.2.

Waterfowl Hunting Closed Areas: In fall 2006, implement the following changes to the current Waterfowl Closed Area system on the Refuge:

1.) Add 14 new Closed Areas to the current 15, for a total of 29 areas totaling 60,396 acres, or 15,901 acres more than current area (see Table 2 on page 192 and Table 5 on page 208, Table 8 in Appendix H, and maps in Appendix P).

2.) All areas, except on Lake Onalaska, would become true Waterfowl Sanctuaries by prohibiting entry and use from October 1 to the end of the respective state regular duck season.

3.) The current Lake Onalaska Closed Area and associated Voluntary Waterfowl Avoidance Area would not be affected, although boundary adjustments would be made.

Rationale: This objective represents a wildlife focus alternative to best meet the waterfowl-specific goals of the following overall Closed Area system goals:

1.) Provide migrating waterfowl a more balanced and effective network of feeding and resting areas.

2.) Minimize disturbance to feeding and resting waterfowl in closed areas.

3.) Provide waterfowl hunters with more equitable hunting opportunities over the length of the Refuge.

4.) Reduce hunter competition and waterfowl crippling loss along some closed area boundaries.

5.) Stabilize boundaries where island and/or shoreline loss or gain creates a fluctuating boundary.

This objective also helps address the issues surrounding Closed Areas as discussed in Chapter 1, Section 1.4.5.4, and analyzed in Chapter 3, Section 3.2.7 on page 235. The 14 new Closed Areas were chosen to fill gaps between existing Closed Areas, to meet the needs of both dabbler and diver ducks which have different spatial and foraging needs, and to provide areas with the best food potential. An analysis of the potential carrying capacity of existing and proposed alternative Closed Areas was completed in 2004 and shows that this alternative objective would provide a 45 percent increase in total energy

available to waterfowl in the Closed Area system (this report is available at Refuge headquarters or on the Refuge planning web site: http://midwest.fws.gov/planning/uppermiss/index.html).

The Closed Area locations and configurations in this alternative also took into account the needs for public access and travel routes, commercial navigation, adjacent business and community needs and practicalities, likelihood of near-term habitat improvements in existing Closed Areas, and the desire to continue to provide viable waterfowl hunting opportunities. No change was made in entry regulations for the Lake Onalaska closed area due to the unique circumstances presented by development on two sides of the area. By not changing, it also provides a useful control area to measure differences in effectiveness of a mandatory no entry provision versus voluntary compliance.

Strategies

Improve habitat in all Closed Areas by ongoing programs such as pool drawdowns, Environmental Management Program projects, and other agency initiatives and regulations.
Continue to monitor waterfowl use of Closed Areas through weekly aerial surveys in the fall.
Monitor the frequency and effect of disturbance by commercial, public, and agency entry into Closed Areas.
Conduct a comprehensive public information campaign to inform waterfowl hunters and the general public of impending changes. Use all methods available including personal contact, presentations at organizations, special meetings, leaflets, signing, news releases, websites, and media interviews.
Post boundaries of new or modified closed areas well in advance of the waterfowl hunting season to help with public awareness.
Increase law enforcement presence to help ensure understanding and compliance with changes, relying on verbal and/or written warnings, at an officer's discretion, the first year of implementation in 2006.

Objective 4.3.

Waterfowl Hunting Regulation Changes: In fall 2006, implement the following Refuge-specific waterfowl hunting regulation change (see Appendix I for current regulations):

1.) All hunters may possess no more than 25 shotshells during the respective state waterfowl season.

2.) Open-water hunting is prohibited on an area of Pool 9 near Ferryville and Cold Springs (river miles 652-658), and an area of Pool 11 (river miles 586-591), both in Wisconsin.

Rationale: The shotshell limit is designed to curb the excessive out-of-range shooting or "skybusting" that occurs throughout the Refuge to varying degrees. Skybusting can have a marked effect on the number of birds crippled and unretrieved, and disrupts the hunting for those who favor working birds with decoy sets. A shell limit will decrease skybusting by providing an incentive (longer hunting experience) for making judicious shooting decisions. The shell limit is reasonable and above limits imposed at other heavily-used public hunting areas and national wildlife refuges.

The prohibition of open-water hunting is to limit disturbance in areas of Pools 9 and 11 that have become important feeding and loafing sites for hundreds of thousands of canvasback and lesser scaup ducks, two species of management concern due to relatively small or declining populations. In Pool 9, the Refuge prohibition is additional insurance for safeguarding waterfowl use of the area into the future since Wisconsin regulations currently prohibit open water hunting. In Pool 11, open water hunting is allowed through a special exemption to the Wisconsin regulations. In the 1980s, the area was an important staging and feeding area for diving ducks, primarily scaup, which fed on abundant fingernail clam. When the fingernail clams collapsed, waterfowl use virtually ceased. In recent years, wild celery has become established and the area is attracting large numbers of canvasback and other diving ducks. This area provides the only major staging and feeding area for divers between Pool 9 and Pool 13, a distance of 125 river miles. The open water prohibition would be pre-emptive since virtually no open water hunting (skull boats) is happening at this time, but is likely as habitat improves and birds increase.

Strategies

Conduct a comprehensive public information campaign to inform waterfowl hunters and the general public of impending changes.
Use all methods available including personal contact, presentations at organizations, special meetings, leaflets, signing, news releases, websites, and media interviews.
Increase law enforcement presence to help ensure understanding and compliance with changes, relying on verbal and/or written warnings, at an officer's discretion, the first year of implementation in 2006.
Maintain or improve habitat in Pools 9 and 11 through ongoing programs such as pool drawdowns, habitat enhancement projects, and other agency initiatives and regulations.
Continue to monitor waterfowl use of these areas through weekly aerial surveys in the fall.

Objective 4.4.

Firing Line – Pool 7, Lake Onalaska: In fall 2006, expand the Lake Onalaska Waterfowl Closed Area by approximately 530 acres by moving the north boundary northward (See Pool 7 Map, Alternative B, Appendix P). This expansion would close the so-called Barrel Blinds area to waterfowl hunting.

Rationale: This objective emphasizes a wildlife focus by closing an area notorious for skybusting, competition between hunters, and high crippling rates as noted in the issue discussion in Chapter 1, Section 1.4.5.4. This expansion represents a 7 percent increase in the existing Lake Onalaska Closed Area. Although there is some likelihood that this expansion would just move the firing line northward, difference in islands and emergent vegetation would tend to reduce firing line development.

Strategies

Conduct a comprehensive public information campaign to inform waterfowl hunters and the general public of impending changes.
Use all methods available including personal contact, presentations at organizations, special meetings, leaflets, signing, news releases, websites, and media interviews.

Post and sign the new boundary well in advance of the hunting seasons.

Increase law enforcement presence to help ensure understanding and compliance with boundary change, relying on verbal and/or written warnings, at an officer's discretion, the first year of implementation in 2006.

Objective 4.5.

Permanent Hunting Blinds on Savanna District: Eliminate the use of permanent hunting blinds within the Savanna District of the Refuge after the 2006-07 waterfowl hunting season. (See Table 17 in Appendix H and maps in Appendix P, Savanna District.)

Rationale: Eliminating permanent blinds would provide consistency on the Refuge since they are not allowed on the other three Districts. In addition to consistency, eliminating the blinds would address a host of issues involving debris, private exclusive use of public waters, limiting hunting opportunities, and confrontations and other incidents. These issues were discussed more fully in Chapter 1, Section 1.4.5.4. This objective would also reduce the staff time spent on law enforcement, complaints, and clean-up which permanent blinds entail, time which could be directed toward more wildlife-related needs, and in line with the wildlife emphasis of this alternative.

Strategies

Conduct public information campaign to inform the public of the change and to give hunters who have become accustomed to the blinds a chance to adapt to alternative hunting methods or areas.

Prepare and distribute a leaflet explaining the change and regulations for temporary blinds.

Begin phase-in of regulations by requiring hunters to comply with the following requirements the year before a respective pool is scheduled for permanent blind phase out:

1. Blinds must be marked with name and address of owner.
2. All blind material must be removed by the hunter within 30 days of the end of the waterfowl hunting season.

Objective 4.6.

Potter's Marsh Managed Hunt on Savanna District: After the 2006-07 season, eliminate the managed waterfowl hunt at Potter's Marsh Managed Hunt, including the use of permanent blinds, and open the area to waterfowl hunting on a first-come, first-secured basis. (See Table 17 in Appendix H and maps in Appendix P, Pool 13.)

Rationale: This objective would reduce problems associated with permanent blinds as noted in Objective 4.5 (debris, private exclusive use, limiting hunting opportunities, and confrontations) and eliminate the substantial administrative costs associated with the drawings, permit administration, and oversight of the current program (see issue discussion, Chapter 1, Section 1.4.5.4). This objective reflects a wildlife emphasis since funding and staff currently devoted to this hunt could be focused on wildlife objectives throughout the Savanna District.

Strategies

Conduct public information campaign beginning at least one year prior to implementation to inform the public of the change and to give hunters who have become accustomed to the managed hunt a chance to adapt to alternative hunting methods or areas.

Objective 4.7. Blanding Landing Managed Hunt: After the 2006-07 season, eliminate the managed waterfowl hunt at Blanding Landing, Lost Mound Unit, Savanna District (former Savanna Army Depot), including the use of permanent blinds, and open the area to waterfowl hunting on a first-come, first-secured basis. (See Table 17 in Appendix H and maps in Appendix P, Pool 12).

Rationale: Illinois Department of Natural Resources administers this hunt on behalf of the Savanna Army Depot, but with transfer of jurisdiction to the Service, hunting on this area is now the responsibility of the Refuge. Similar to the Potter's Marsh Managed Hunt above, this objective would reduce problems associated with permanent blinds as noted in Objective 4.5 (debris, private exclusive use, limiting hunting opportunities, and confrontations) and eliminate the administrative costs associated with the drawings, permit administration, and oversight of the current program. This objective reflects a wildlife emphasis since funding and staff currently devoted to this hunt could be focused on wildlife objectives throughout the Savanna District, and especially the new Lost Mound Unit which has large start-up needs.

Strategies

Conduct public information campaign prior to implementation to inform the public of the change and give hunters accustomed to the managed hunt a chance to adapt to alternative hunting methods or areas.

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Objective 4.8. General Fishing: Provide and enhance year-round fishing on 104,716 acres of surface water within the Refuge, and an additional 38,645 acres of Waterfowl Closed Areas open spring, summer, and winter. (Note: Iowa, Wisconsin, and Illinois regulations also maintain fish "refuges" below lock and dams 11, 12, and 13, December 1 through March 15). Maintain 15 accessible fishing piers or docks. (Table 8 and Table 14 in Appendix H and maps in Appendix P.)

Rationale: This objective represents the current areas available and open to fishing, tempered by the proposed no entry regulation for Closed Areas in this alternative (Objective 4.2) which would prohibit fishing and all other uses on 38,645 acres during the respective state duck hunting season. Fishing is one of the priority uses of the Refuge System and is to be facilitated when compatible with the purposes of the Refuge and the mission of the Refuge System. Enhanced fishing opportunities are also a reflection of river and Refuge health. No increase in fishing piers or docks is proposed in-line with the wildlife versus public use emphasis of this alternative.

Strategies

Enhance fishing opportunities on suitable areas of the Refuge through habitat, access, and facility improvements as outlined in other plan objectives.

Continue to promote fishing through Fishing Days and other outreach and educational programming.

Cooperate with the states in their ongoing fishery management programs. Schedule yearly inspection and maintenance of fishing piers.

Objective 4.9. Fishing Tournaments: By January 2008, develop a plan for issuing Refuge Special Use Permits in addition to, or in conjunction with, state-issued permits for all fishing tournaments occurring on the Refuge.

Rationale: Fishing tournaments are a use, and at times a commercial use, of the Refuge and subject to regulations governing uses of national wildlife refuges. The Refuge has not provided any oversight to this use, deferring to the states' regulatory and permitting processes. Refuge permitting would provide oversight to protect sensitive habitat and wildlife areas from the possible physical and disturbance impacts of fishing tournaments. Through permitting, the Refuge could also play a coordination role given the interstate nature of the Refuge and the river.

Strategies

Meet with the states and Corps of Engineers to discuss the best strategies for implementing a Refuge permit process in concert with their permitting procedures.

Develop with the states and Corps of Engineers as appropriate, time, space, and capacity parameters on each Pool within the Refuge, and definitions for what constitutes a fishing tournament.

Develop outreach plan to involve and inform fishing tournament organizations or sponsors with changes in regulations and procedures.

Objective 4.10. Wildlife Observation and Photography: Maintain the following existing facilities to foster wildlife observation and photography opportunities: 15 observation decks and areas, 8 hiking trails, 4 canoe trails, 3 biking trails, and 1 auto tour route. (See Tables 3, 4, 5, 15 and 19 in Appendix H and maps in Appendix P.)

Rationale: Wildlife observation and photography are two of the six priority public uses of the Refuge System and are to be facilitated when compatible. This objective represents only an increase in the number of hiking trails (+2). This modest expansion of facilities reflects the wildlife emphasis of this alternative, directing staff to wildlife-related objectives versus public-use related objectives.

Strategies

Schedule annual inspection and maintenance of the facilities.

Ensure adequate signing and information in brochures, websites, and maps so the public is aware of the facilities.

Continue to promote the wildlife observation and photography opportunities of the Refuge through public education, outreach, special programs, and partnerships with the states, Corps of Engineers and private conservation groups.

Enhance observation and photography opportunities on suitable areas of the Refuge through habitat, access, and facility improvements as outlined in other plan objectives.

Objective 4.11. Interpretation and Environmental Education: Maintain and update 59 interpretive signs (see Table 16 in Appendix H and maps in Appendix P for details). Continue to print and distribute Refuge General Brochure, and update websites quarterly. Continue to sponsor at least one major annual interpretive event on each Refuge District, and continue environmental education efforts at Districts with public use staff (Savanna and La Crosse).

Rationale: Interpretation and environmental education are two of the six priority public uses of the Refuge System and are to be fostered if compatible with the Refuge purpose and Refuge System mission. Interpreting the resources and challenges of the Refuge to the general public and incorporating these topics into school curricula are important ways to influence the future well-being of the Refuge and the river. Only through understanding and appreciation will people be moved to personal and collective action to ensure a healthy Refuge for the future. Interpretation and environmental education are also key to changing attitudes and behavior which affect the Refuge through off-Refuge land use decisions and on-Refuge conduct and use.

This objective reflects a continuation of a priority toward wildlife-related management activities versus public use activities and programs. Thus, this objective is identical to the objective in the no action or current direction alternative. Environmental education is labor intensive since it is curriculum-based, so efforts are generally limited to the Savanna and La Crosse Districts which have visitor services staff.

Strategies

Participate in national interpretive events such as National Wildlife Refuge Week or Migratory Bird Day for efficiency and effectiveness.
Schedule quarterly review of kiosks and interpretive signs and conduct maintenance and sign replacement as needed.
Cooperate with existing interpretive and environmental education programs offered by the states, Corps of Engineers, other agencies, and private conservation groups, and continue to seek grants to fund events and programs.
Continue work to complete exhibits at Savanna and La Crosse offices, and seek funding to replace exhibits at McGregor District and Lost Mound Unit.

Objective 4.12. Commercial Fish Floats: By the end of 2008, eliminate the 4 existing commercial fish floats or fishing piers below Locks and Dams 6, 7, 8, and 9. (See Table 12 in Appendix H, and maps in Appendix P.)

Rationale: This objective would eliminate a substantial cost in terms of staff time needed to administer this commercial use, especially in light of continued permit compliance issues with a majority of the fish float operations. The staff time devoted to these commercial operations would be directed to wildlife management and thus represent the wildlife emphasis of this alternative. This objective would also solve several long standing management issues such as permit non-compliance, condition and safety issues with some operations, net economic loss to the government, and

noncompliance with regulations governing concessions on national wildlife refuges.

Strategies

Notify fish float owners/operators of intent to eliminate use and give them 3 years to phase out operations.

Help owners and operators look at off-refuge options for providing this service, such as the use of commercial barges not moored to Refuge lands or not anchored in Refuge waters.

Provide the public with information on the fish float phase out to give them time to seek alternate areas or means for this type of fishing.

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Objective 4.13. Guiding Services: Beginning in spring 2006, do not allow commercial guiding for fishing, hunting, wildlife observation or any other uses on the Refuge.

Rationale: As noted in the issues section of Chapter 1, guiding businesses are on the rise and promise to become an increasingly common activity on the Refuge. Without proper oversight, this activity could lead to disturbance to sensitive areas and wildlife, and increased conflict with the general public or other guides as volume and frequency increases. Providing proper administration and oversight of guiding in accordance with Service policy and regulations would be costly in terms of staff time and reduce resources available for higher priority fish, wildlife, and habitat objectives.

Strategies

Work with the states to ensure that their guide licensing does not conflict with the Refuge prohibition.

Conduct public information effort through news releases and media contacts to implement the objective.

Provide proactive enforcement through Refuge law enforcement officers and information provided by others in the law enforcement community.

Goal 5: Other Recreational Use. We will provide opportunities for the public to use and enjoy the Refuge for traditional and appropriate non-wildlife-dependent recreation that is compatible with the purpose for which the Refuge was established and the mission of the Refuge System.

Objective 5.1. Beach Use and Maintenance: Beginning in spring 2007, implement new "closed-unless-open" policies, and new regulations, outlined below relative to beach-related uses and beach maintenance.
A. Beach Use Policy. Refuge lands will generally be closed to the beach-related, non-wildlife-dependent uses of camping, overnight mooring, and picnicking, swimming, and social gatherings. However, remnant and active dredged material placement sites, natural sand shorelines, and all other shoreline areas within the Refuge that are adjacent to the main channel of the river, including the backside of islands, points or other lands adjacent to the main channel, may be open to beach-related uses by District Managers through signing and other means.

B. New regulations for camping and other beach-related uses. Current public use regulations as described in the Refuge Public Use Regulations brochure

(see Appendix J) will remain in effect, except by April 1, 2007, the following regulation changes will be implemented:

1.) Camping is defined as erecting a tent or shelter of natural or synthetic material, preparing a sleeping bag or other bedding material for use, parking of a motor vehicle or mooring or anchoring of a vessel, for the apparent purpose of overnight occupancy, or, occupying or leaving personal property, including boats or other craft, at a site anytime between the hours of 11 p.m. and 3 a.m. on any given day.

2.) All campers must have access to either a portable or approved, marine onboard toilet facility, or have in their possession a commercial human waste disposal kit for each person. All human solid waste and associated material, along with any personal property, refuse, trash, and litter, shall be removed immediately upon vacating a site.

3.) Entering or remaining on the Refuge when under the influence of alcohol will remain prohibited, but under the influence will be defined as a blood alcohol content of .08 percent blood alcohol content. In addition, develop a public intoxication regulation to give officers a tool to deal with unruly behavior.

4.) Beach Maintenance Policy. Beach maintenance (topdressing, reshaping, leveling, and vegetation clearing) will not be allowed on Refuge lands.

Rationale: Non-wildlife-dependent recreation continues to increase on the Mississippi River and the Refuge. It is estimated that 1.3 million persons per year use the Refuge for camping, recreational boating, picnicking, swimming, social gatherings, and other uses not dependent on the presence of fish and wildlife. This objective, with its new policies and regulations, would address the many issues related to beach use described in the issue section of Chapter 1. These issues included the high incidence of disturbing violations, wildlife displacement, litter and human waste, intoxication, unlawful and unruly behavior, and officer and public safety. However, it would also address the unique circumstances and traditions of beach-related uses at this Refuge and allow these uses to continue at locations and in a manner that would give maximum consideration to the fish and wildlife purpose of the Refuge and the wildlife focus of this alternative. Curtailing any beach maintenance would free staff planning and administrative time for wildlife-related work.

Strategies

Continue to work with the states and the Corps of Engineers through existing interagency workgroups to identify which areas in each Pool would be open in accordance with the new policies and regulations.

Conduct public information and education campaign well before implementation of changes, to include news releases, general articles, fact sheets, and media interviews.

Use the components and principles of the Leave No Trace program in the campaign (plan ahead and prepare, travel and camp on durable surfaces, dispose of waste properly, leave what you find, minimize campfire impacts, respect wildlife, and be considerate of others).

Develop a brochure which clearly explains new policies and regulations and answers frequently asked questions.

Develop new signs for use on areas that would be open to beach-related uses to ensure public recognition and compliance.

Refuge officers will increase contacts with Refuge users once this plan is approved to explain pending regulation changes.

Verbal or written warnings will be used at officer discretion during the first year of implementation to ease the transition.

Objective 5.2. Electric Motor Areas: Beginning spring, 2006, establish a total of 10 electric motor areas on the Refuge encompassing 15,900 acres. A 5 mph speed limit would also apply in these areas given anticipated future changes in technology. Camping would also be prohibited in these areas. (See Table 13 in Appendix H, and maps in Appendix P.)

Rationale: Technology in the form of jet skis, bass boats, shallow water motors such as Go-Devils™, airboats, and hovercraft has introduced more noise and user conflict to the backwater areas of the Refuge. This objective would help reduce disturbance to backwater fish nurseries and sensitive backwater wildlife such as raptors, colonial nesting birds, and furbearers in keeping with the wildlife focus of this alternative. It would also address the need to provide areas of quiet and solitude sought by many users of the Refuge. This objective only affects the means of navigation, and all current uses would be allowed (fishing, hunting, observation, etc.) in accordance with current regulations or those proposed elsewhere in this alternative. The 15,900 acres represents about 7 percent of the Refuge.

Strategies

Conduct a public information campaign to inform and educate the public about pending electric motor designations.

Clearly delineate electric motor areas on Refuge maps and by appropriate signing.

Objective 5.3. Slow, No-Wake Zones: In 2006, add 9 new Refuge-administered slow, no-wake zones (brings total to 11) and assist local or other units of government in the enforcement of 44 other slow, no-wake zones within the Refuge. (See Table 18 in Appendix H, and maps in Appendix P.)

Rationale: On a few areas of the Refuge, boat traffic levels and size of boats is leading to erosion of island and shoreline habitat which can impact fish and wildlife habitat directly, or indirectly through increasing sedimentation and water turbidity. On some of the areas identified, slower speeds would reduce safety hazards posed by heavy traffic and blind spots in narrow channels.

Strategies

Work with local authorities to designate and mark slow, no-wake zones.

Communicate the changes with the public well in advance of implementation using the media and other means, and clearly show slow, no-wake areas on maps available to the public.

Objective 5.4. Dog Use Policy: Beginning in April, 2006, implement the following new regulation governing dogs and other domestic animals on the Refuge:

"Dogs and other domestic animals are not allowed to run free and must be restrained by leash no greater than 6 feet in length, or other means, at all times. Hunting and retrieving dogs are exempt from these conditions while engaged in authorized hunting activities during the hunting season. No field trials or training is allowed on the Refuge"

Rationale: This objective is in line with the current Refuge System regulation which prohibits unconfined domestic animals on national wildlife refuges. The new definition clarifies the meaning of "confined" and safeguards wildlife from domestic animals in keeping with the wildlife focus of this alternative. The new regulation also protects other visitors from the real or perceived threat that dogs and other animals can pose, but recognizes their traditional use and conservation benefit in hunting. The prohibition of field trials and commercial training is a continuation of a long standing Refuge policy.

Strategies

Publish the new regulation in the Refuge public use regulation brochure, issue news releases, and conduct other outreach prior to implementation in 2006.

Except in certain cases, law enforcement officers will generally give verbal and/or written warnings for violations of the new regulation the first year, then issue violation notices at their discretion beginning in 2007.

Objective 5.5.

General Public Use Regulations: Beginning in 2006, conduct annual review and update of the general public use regulations governing entry and use of the Refuge (current regulations are found in Appendix J).

Rationale: Public entry and use regulations serve to protect fish, wildlife, plants, and habitat and thus reflect the wildlife focus of this alternative. The current regulations were last reviewed and amended in 1999. However, the resources and public use of the Refuge is dynamic, and a yearly review would ensure that regulations are needed, clear, and effective. In addition, new regulations may be required to safeguard resources or to address new or emerging problems recognized by managers and law enforcement officers. An annual review would provide a more systematic process than in the past.

Strategies

Conduct review during Refuge law enforcement meetings.

Provide the public, states, and Corps of Engineers ample opportunity to review and comment on any new or substantially changed regulation.

Use national guidance and Federal Register process for codifying any changes and make them a part of the Code of Federal Regulations governing national wildlife refuges.

Update, print, and distribute the Public Use Regulations brochure.

Post pertinent regulations at boat landings and other public use areas, such as trail heads and beach areas.

Continue proactive law enforcement to inform and educate the public on Refuge regulations and to seek their compliance.

Goal 6: Administration and Operations. We will seek adequate funding, staffing, and facilities, and improve public awareness and support, to carry out the purposes, vision, goals, and objectives of the Refuge.

Objective 6.1. Office and Shop Facilities: Maintain existing offices (6) and shops (5), but replace the maintenance facilities at Winona, McGregor, and Savanna Districts by 2010.

Rationale: As the wildlife focus alternative, this objective de-emphasizes the need for office replacement and public orientation facilities, but favors replacement of needed maintenance facilities since they directly support field habitat work which benefits fish and wildlife. Maintenance facilities or shops are used for equipment maintenance used in habitat work, and for fabrication of materials (signing, gates, posts, water control structures, etc.) which protect habitat. The existing offices are needed due to the size and length of the Refuge and for effectiveness and efficiency of management, administration, and public service.

Strategies

Ensure that Refuge shop needs are reflected in budget needs databases.
Continue to maintain Service-owned facilities using annual maintenance budget allocations.

Objective 6.2. Public Access Facilities: Maintain and modernize as needed, 25 public boat accesses on the Refuge. (See Table 1 in Appendix H, and maps, Appendix P.)

Rationale: This objective represents the current number of boat accesses on the Refuge that are maintained by Refuge staff. Maintaining the current number reflects the wildlife focus of this alternative. In addition to these accesses, there are 222 other public and private boat accesses that provide access to the Mississippi River or its tributaries, and thus the Refuge.

Strategies

Continue routine upkeep of boat accesses by Refuge staff, temporary employees and Youth Conservation Corps members when available, and volunteers.
Continue to modernize accesses using Maintenance Management System funding or special funding which is provided periodically, and by implementing a self-service launch fee at Refuge-operated boat ramps.
In cooperation with states and local governments, explore Transportation Enhancement Act projects and funding to upgrade Refuge accesses.

Objective 6.3. *Operations and Maintenance Needs:* Complete annual review of Refuge Operating Needs System (RONS), Maintenance Management System (MMS), and Service Assessment and Maintenance Management System (SAMMS) databases to ensure these reflect the funding needs for carrying out the wildlife focus alternative.

Rationale: The RONS, MMS, and SAMMS databases are the chief mechanisms for documenting ongoing and special needs for operating and maintaining a national wildlife refuge. These databases are part of the information used in the formulation of budgets at the Washington and Regional levels, and for the allocation of funding to the field. It is important

that the databases be updated periodically to reflect the needs of the Refuge, and in particular the objectives and strategies elsewhere in this alternative.

Strategies

None warranted.

Objective 6.4. Public Information and Awareness: By 2006, reduce by 50 percent the current annual average of 80 media interviews, 125 news releases, and 25 special events (special programs, presentations, and displays at others' events), and maintain the existing 66 information kiosks (see Table 16 in Appendix H).

Rationale: This objective reflects an emphasis on the science aspect of Refuge management by freeing staff time from public information and awareness. It also represents the realities of resource management triage in the face of limited visitor services specialists, and a focus on the core fish and wildlife mission and purpose of the Refuge.

Strategies

Be more strategic in selecting methods for public information and awareness, with focus on those efforts which reach the largest audience with the least amount of staff.
Continue to look for creative ways to leverage efforts and funding for public information.
Carry out related objectives dealing with trails, leaflets, and interpretive signs (see objectives 4.10 and 4.11).
Cooperate with the states and the Corps of Engineers on visitor surveys to gauge public awareness of the Refuge and Mississippi River resources.

Objective 6.5. Staffing Needs: By 2015, increase staffing from current permanent, full-time level of 37 people to 57 people (54.5 full-time equivalents or FTEs) with priorities being biologists, specialists, technicians, and maintenance personnel who do biology and habitat work (see Table 2 on page 192 and Table 20 in Appendix H).

Rationale: This objective reflects a wildlife focus and the minimum operations and maintenance-funded staffing deemed necessary to meet the goals and objectives of this alternative. Like all land management, refuge management is labor intensive and labor costs represent over 95 percent of the base operations funding received each year. These staffing needs are documented in the strategies for various objectives in this alternative.

Strategies

Ensure that staffing needs are incorporated in budget needs databases.
Maintain other sources of funding for staff who coordinate the Environmental Management Program and the Partners for Fish and Wildlife Program.

2.4.4 Alternative C: Public Use Focus

Increase level of effort on public use opportunities and programs. Continue current level of effort on many fish and wildlife and habitat management activities, and decrease effort on others in favor of public use.

Alternative C Summary

Boundary issues would be addressed and the entire Refuge boundary would be surveyed. The rate of land acquisition within the approved boundary would increase to complete 58 percent of the total, an average of 1,000 acres per year, with priority given to tracts that also further public use access and opportunities. All bluffland areas identified in the 1987 Master Plan would be protected through fee-title acquisition or easement, and low-key oversight and administration of Research Natural Areas would continue. Guiding principles for habitat projects would be established, but they would not restrict any public use opportunities.

There would be increased effort to achieve continuous improvement in the quality of water flowing through the Refuge, including decreasing sedimentation. Pool-scale drawdowns would continue at current, intermittent level. Control of invasive plant species would be modest, and control of invasive animals would be minimal, relying on the work of the states and other agencies. Environmental Pool Plans would be implemented on a strategic and opportunistic basis using the Environmental Management Program or other programs and funding sources. Wildlife inventory and monitoring would decrease by reducing the number of species groups surveyed. Management of threatened and endangered species would focus on protection versus recovery. The furbearer trapping program would continue but be brought into compliance with policies by writing a new plan. There would continue to be limited emphasis on fishery and mussel management and commercial fishing oversight. Cooperation with the states and Corps of Engineers on turtle monitoring and research would continue, and a forest inventory on the Refuge completed in cooperation with the Corps of Engineers. The existing 5,700 acres of grassland habitat on the Refuge would be maintained and enhanced using fire and other tools.

Photographer on Upper Mississippi River Refuge. Photograph by Cindy Samples

Hunting and fishing opportunities would continue on a large percentage of the Refuge. The system of waterfowl hunting closed areas would remain the same except for minor boundary adjustments. Entry into closed areas for purposes other than hunting, trapping, or camping would continue to be allowed, and the voluntary avoidance area on Lake Onalaska would remain in place. The firing line issue north of the closed area in Lake Onalaska would be addressed by moving the north boundary southward. Current waterfowl hunting regulations would be changed to include a hunting party spacing requirement of 100 yards. No action would be taken in regards to open water hunting in Pools 9 and 11. Permanent blinds for waterfowl hunting would be eliminated Refuge-wide, including those used in the Potter's Marsh and Blanding Landing managed hunts in the Savanna District. The Potter's Marsh managed hunt would continue, but administrative changes would be made to promote fairness and efficiency. The Blanding Landing managed hunt would be eliminated, but the area would remain open to hunting. General fishing would continue to be promoted, although the Refuge would begin oversight of fishing tournaments in cooperation with the states and other agencies.

There would be a major increase in facilities or programming for wildlife observation, photography, interpretation and environmental education. There would be some increase in Refuge access through new facilities and improvement of existing boat ramps, pull offs, and overlooks. A boat launch fee would be initiated at Refuge-operated boat ramps. Commercial fish floats or piers below locks and dams 6, 7, 8, and 9 would be retained if standards met, and a new fish float proposed in the Savanna District. Commercial guiding on the Refuge would be allowed, but with consistent policy and permit procedures. Areas open to beach-related public use (camping, swimming, picnicking,

social gatherings) would remain virtually unchanged, although regulations would be changed to safeguard users, a policy on beach maintenance would be implemented, and an annual Refuge Recreation Use Permit and fee would be initiated to improve recreation management. A total of 15 electric motor areas and 8 new slow, no-wake zones would be established. Current regulations on use of dogs would be changed to allow dogs to be exercised and trained under certain conditions. General public use regulations would be reviewed annually and changed as needed.

New offices and maintenance facilities would be constructed at the Winona, La Crosse, McGregor, and Savanna Districts (shop only at Savanna), and eventually the office and shop facilities at Lost Mound Unit would be remodeled or replaced. A major new visitor center would be constructed in either Winona or La Crosse. Public information and awareness efforts would be increased 50 percent. Staffing levels for the Refuge would increase by 17.5 full-time equivalents with the priority being public use related positions.

Goal 1: Landscape. We will strive to maintain and improve the scenic qualities and wild character of the Upper Mississippi River Refuge.

Objective 1.1. Maintain the integrity of the Refuge boundary. In coordination with the Corps of Engineers, re-survey and post the entire Refuge boundary by 2021.

Rationale: Maintaining and enforcing a boundary is one of the basic and critical components of refuge management to ensure the integrity of an area over time. Without attention to this basic task, there is a tendency for adjacent development and use to creep and take over Refuge lands and waters. This encroachment includes tree cutting, dumping, construction, storing of equipment and materials, and mowing Refuge lands. In addition, there are a few boundaries between Refuge and Corps of Engineers-managed lands that remain unclear, leading to mixed messages to the public using these lands via permits, leases, or out grants. The size, length, age, and floodplain setting of the Refuge, coupled with a mix of Corps of Engineers-acquired and Service-acquired lands, creates boundary clarity problems that can only be addressed through modern re-surveying techniques.

Strategies

Enter into a joint Service/Corps of Engineers project to complete a cadastral survey of the Refuge boundary.
With the Corps of Engineers, complete a survey plan of action to prioritize and schedule the completion of the survey by 2020.
Seek the funding necessary for the survey work.
Also with the Corps of Engineers, review, update, and publish a new Land Use Allocation Plan for lands within the Refuge (see Chapter 1, section 1.4.3.1 for discussion of this plan).

Objective 1.2. Land Acquisition: By 2021, acquire from willing sellers 58 percent of the lands identified for acquisition in the 1987 Master Plan and subsequent approvals, as identified on the maps in Appendix G (approximately 1,000 acres/year).

Rationale: Land acquisition is a critical component of fish and wildlife conservation since it permanently protects their basic need of habitat. Habitat, in turn, provides the public various recreational opportunities. On a narrow, linear refuge, land acquisition is a critical component of restoring the

habitat connectivity needed for the health of many species. The Refuge currently ranks sixth nationally on the Service's Land Acquisition Priority System due to its resource importance. Land acquisition can also be cost effective in the long-term due to inflation of land costs and the costs of acquiring undeveloped land versus developed land that also needs restoration. This objective represents an aggressive land acquisition program of about 1,000 acres per year to achieve goals set in the 1987 Master Plan and other approved acquisition documents. Lands and waters most important to wildlife-dependent recreation would be given higher priority than lands which only protect fish and wildlife, in keeping with the public use focus of this alternative.

Strategies

Seek consistent Land and Water Conservation Fund appropriations to meet the objective (approximately $1.5 million per year at $1,500 per acre).

Explore land exchanges with the states to remove intermingled ownerships.

Continue to work with the Department of the Army to transfer title of tracts as they are cleaned of contaminants at the Lost Mound Unit (former Savanna Army Depot).

Objective 1.3.

Bluffland protection: By 2021, acquire from willing sellers protective easements or fee-title interest in all undeveloped bluffland areas within the approved boundary of the Refuge as identified in the 1987 Master Plan. (See maps, Appendix G.)

Rationale: There have been no acquisitions of bluffland areas since first identified in the 1987 Master Plan, and this objective represents a more aggressive approach to safeguarding the wildlife and recreation values of these areas. In recent years, peregrines have once again started nesting on the rock faces of some bluffs. Peregrines, at one time an endangered species, were the main rationale for including the 13 areas in the acquisition boundary. Blufflands are also an important part of maintaining the scenic quality of the Refuge landscape, harbor unique and diverse plants and animals, and provide recreational opportunities that contrast and complement floodplain recreation. Since some areas identified have been developed for housing or other uses since 1987, the focus would be on the undeveloped areas. However, there may be an opportunity to protect remaining values of these developed areas through creative easements.

Strategies

Seek consistent acquisition funding as noted in Objective 1.2 and favor fee-title acquisition over easements since public ownership would provide additional recreational opportunities in line with a public use focus.

Work with the state, local governments, and private land trusts to protect bluffland habitat and scenic values.

Work with local units of government to encourage zoning regulations which protect bluffland scenic qualities.

Help educate the public on the values of blufflands for birds and unique plant communities.

Objective 1.4

Research Natural Areas and Special Designations: Conduct yearly visits to the Refuges' four federally-designated Research Natural Areas and document condition, check boundary signing, and conduct ongoing wildlife surveys. Increase efforts to make the public aware of values and public use opportunities of Research Natural Areas. Establish no new Research Natural Areas. (See maps, Appendix P and Table 7 in Appendix H.)

Rationale: This objective represents the current level of management which is expected to continue under this alternative. However, there is an increase in public awareness efforts in concert with the public use focus of this alternative. No other areas of the Refuge are deemed suitable for Natural Area designation.

Strategies:

Ensure yearly visits remain a part of annual work plans in each Refuge District containing Research Natural Areas.
Incorporate general and recreational opportunity information on Research Natural Areas in brochures, maps, and websites to increase public awareness.

Goal 2: Environmental Health. We will strive to improve the environmental health of the Refuge by working with others.

Objective 2.1.

Water Quality: Working with others, seek a continuous improvement in the quality of water flowing through and into the Refuge in terms of parameters measured by the Long Term Monitoring Program of the Environmental Management Program (dissolved oxygen, major plant nutrients, suspended material, turbidity, sedimentation, and contaminants).

Rationale: The quality of water on the Refuge is one of the most important factors influencing fish, wildlife, and aquatic plant populations and health, which in turn influence the opportunity for public use and enjoyment. Water quality is also beyond the Refuge's ability to influence alone given the immense size of the Refuge's watershed and multiple-agency responsibilities. This objective recognizes these limitations, but charts a more aggressive role for the Refuge through the strategies below. The objective also highlights the advocacy role the Refuge can play in educating the public and supporting the myriad of agencies which together can influence water quality.

Strategies

Hire a Private Lands Biologist or Technician for each of the Refuge's four Districts to restore and enhance wetland, upland, and riparian habitat on private lands in and along sub-watersheds feeding into the Refuge, and to broker the myriad of private land and conservation opportunities available through the Department of Agriculture and others.
Increase conservation assistance agreements with Soil and Water Conservation Districts and Resource Conservation and Development boards.
Cooperate with local government land use planning efforts to ensure that water quality impacts to the Refuge are considered.

Emphasize water quality aspects, especially sediment deposit in backwaters, in all habitat enhancement projects.

Give enhanced consideration to sediment projects which improve public access.

Link the planning and projects for tributary watersheds to Environmental Pool Plan implementation using the latest GIS-based mapping and modeling.

Support cooperative water quality monitoring and improvement efforts through the Upper Mississippi River Conservation Committee and other groups and agencies.

Continue to stress the importance of water quality in public information and interpretive and education programs.

Objective 2.2. Water Level Management: By 2021, complete drawdowns of all Refuge pools during the summer growing season in cooperation with the Corps of Engineers and the states.

Rationale: Lowering the water levels in impoundments during the growing season is a proven management practice to dramatically increase emergent vegetation. Improved vegetation will result in more food and cover for a wide range of fish and wildlife species, which in turn will provide increased opportunities for fish and wildlife-dependent recreation such as fishing, hunting, and observation. Much of the emergent vegetation on the Refuge has been lost due to stable water regimes created for navigation, and this objective seeks to restore productive marsh habitat to thousands of acres. All pools would benefit from drawdowns. However, Pool 14 does not appear to be feasible in the 15-year horizon of this plan.

Strategies

Continue to work in partnership with the interagency water level management taskforce to plan and facilitate drawdowns. Inform and involve citizens through public meetings, workshops, and citizen advisory groups.

Ensure public access during drawdowns is addressed.

Seek all available funding sources to carry out needed recreational access dredging to lessen social and economic impacts during drawdowns (proposals in Corps of Engineers Navigation Study released in 2004 includes funding for drawdowns).

Objective 2.3. Invasive Plants: Each year, conduct at least one biological control effort on purple loosestrife and/or leafy spurge on each District of the Refuge, and continue ongoing education and outreach efforts on the effects of invasive plants.

Rationale: This objective represents the current modest program of invasive plant control by the Refuge which would continue under an alternative which favors public use management and administration. Biological control consists of release of insects which prey directly on purple loosestrife or leafy spurge plants or disrupt part of their life cycle, and is a more long-term and cost efficient solution compared to herbicide spraying. Biological control methods are not yet readily available for other invasive plant species. Education and outreach is ongoing as a part of regular displays, programs, and media work.

Strategies

Continue to work with the Department of Agriculture, other agencies, the states, and other refuge field stations in securing insects and beetles for release in high-infestation areas.

Take advantage of periodic invasive grant, cost-sharing, or special funding opportunities offered through the Service or other agencies and foundations.

Continue to provide information and education to the public through the media, brochures, signage, and programs.

Objective 2.4. Invasive Animals: Continue ongoing information and education efforts on the issue of invasive animal species and their impact on the resources of the Refuge.

Rationale: Since the focus of this alternative is public use, this objective represents a continuation of the current direction of the Refuge in regard to invasive animals. It also represents basic limitations of resources, but perhaps just as important, the reality that invasive animal species do not lend themselves to direct control in a large river system and that addressing invasive animals is dependent on political and management actions beyond the boundary of the Refuge.

Strategies

Continue to support the efforts of other agencies and groups in the monitoring, research, and control of invasive animals.

Continue to provide information and education to the public through the media, brochures, signage, and programs.

Goal 3: Wildlife and Habitat. Our habitat management will support diverse and abundant native fish, wildlife, and plants.

Objective 3.1. Environmental Pool Plans: By 2021, implement at least 30 percent of the Refuge-priority Environmental Pool Plan actions and strategies in Pools 4-14 as summarized in Table 4 on page 196 (see Appendix N for examples of Environmental Pool Plan maps).

Rationale: Environmental Pool Plans represent a desired future habitat condition developed by an interagency team of resource professionals, including Refuge staff. The Pool Plans represent what is necessary to reverse the negative trends in habitat quality and quantity on the Upper Mississippi River. Improved habitat is the key to healthy fish and wildlife populations, which in turn provide enhanced opportunity for wildlife-dependent recreation, the focus of this alternative. The Refuge represents a sizeable subset of the habitat vision presented in each Pool Plan. The Refuge also has different resource mandates and responsibilities than the Corps of Engineers and the states. Thus, the Refuge prioritized various actions to meet these needs as represented in Table 4. The objective of 30 percent represents a reasonable rate of implementing priority actions given current funding levels (mainly through the Environmental Management Program, Corps of Engineers) for habitat conservation work, and the 15 year horizon of this CCP versus the 50 year horizon of the Pool Plans. Some of the actions and

strategies in the Table overlap with other objectives in this plan (e.g. forest management, land acquisition, watershed work, and water level drawdowns).

Strategies

Continue to coordinate with the River Resources Forum's Fish and Wildlife Workgroup, and the River Resources Coordinating Team's Fish and Wildlife Interagency Committee, to implement pool plan priorities.
Ensure that priorities take into account public use needs and opportunities.
Continue to work for full and expanded funding of the Environmental Management Program through public and Congressional information and outreach.
Take advantage of any new funding sources that emerge, such as appropriations from Congress for implementing the Navigation Study ecosystem restoration recommendations.

Objective 3.2. Guiding Principles for Habitat Management Programs: Upon approval of the CCP, adopt and use the following guiding principles when designing or providing input to design and construction of habitat enhancement projects:

1.) Management practices will restore or mimic natural ecosystem processes or functions to promote a diversity of habitat and minimize operations and maintenance costs.
2.) Maintenance and operation costs of projects will be weighed carefully since annual budgets for these items are not guaranteed.
3.) Terrestrial habitat on constructed islands and other areas needs to best fit the natural processes occurring on the river, which in many cases will allow for natural succession to occur.

Rationale: Guiding principles for habitat restoration or enhancement projects would provide consistency between the four Districts of the Refuge and help communicate to cooperating agencies and the public standards from which we will design projects. The principles will also help ensure compliance with Service policy on biological integrity and recognize the need to consider future operations and maintenance costs before doing projects. In addition, the principles under this alternative provide no guidance or restrictions on public use or aesthetics, reflecting a public use focus.

Strategies

Refuge staff will use these guidelines when proposing and designing habitat enhancement projects funded by the Service. They will also be used during coordination with the Corps of Engineers and the states in cooperative programs such as the Environmental Management Program or any new program authority that may arise from the Corps of Engineers' Navigation Study.

Objective 3.3. Monitor and Invesigate Fish and Wildlife Populations and Their Habitats: By January 2008, amend the 1993 Wildlife Inventory Plan to eliminate yearly monitoring of aquatic invertebrates, submerged aquatic vegetation, breeding songbirds, and frogs and toads, and focus only on waterfowl, colonial nesting birds, bitterns and rails, and bald eagle nesting.

Rationale: Monitoring is essential to understanding the status and trends of selected species groups and habitats. This in turn provides some indication of overall biological integrity, diversity, and environmental health of the Refuge, and is critical in planning habitat management and public use programs. However, this objective represents a reduced inventory program in line with directing staff toward public use-related management activities. Monitoring would be skewed toward a select group of migratory birds in keeping with historic federal interest and responsibilities. The Refuge would continue to rely on monitoring done by others to help fill the gaps in status and trends information for breeding songbirds, fish, mussels, reptiles and amphibians, forests and other land cover, and environmental factors such as water chemistry and sedimentation.

Strategies

Review and amend as needed the Wildlife Inventory Plan to ensure the latest protocols are being followed, but reduce the species being monitored.
Continue to work with the states, U.S. Geological Survey, and Corps of Engineers in the sharing of data on other species and habitats.
Continue to use volunteers for certain monitoring efforts such as the breeding bird survey point counts.
Complete a Habitat Management Plan which integrates species status and trends with the Environmental Pool Plans (Objective 3.1).

Objective 3.4. Threatened and Endangered Species Management: Continue ongoing protection of federally-listed threatened, endangered, and candidate species and conduct yearly survey of bald eagle nesting.

Rationale: As noted in an earlier section of this chapter, it is Service policy to give priority consideration to the protection, enhancement, and recovery of these species on national wildlife refuges. This objective represents the continuation of a minimum threatened and endangered species program, mainly through the protection of habitat and review and consultation of management actions in light of possible impacts to these species. The only species actively monitored by the Refuge are bald eagles due to public interest and their symbolic stature. This objective also reflects the public use versus wildlife focus of this alternative.

Strategies

Consider the needs of threatened, endangered, and candidate species in all habitat and public use management decisions.
Continue to consult with the Service's Ecological Services Offices on all actions which may affect listed species.
Continue monitoring bald eagle nesting populations and success.
Continue assistance to other offices and agencies with Higgins eye pearlymussel recovery efforts.

Objective 3.5. Furbearer Trapping: Update the Refuge trapping plan by June 2007, continuing the existing trapping program until the update is completed.

Rationale: Furbearer trapping has a long history on the Refuge and can be an important management tool in reducing furbearer disease and habitat impacts, and in safeguarding certain Refuge infrastructure such as dikes, islands, and water control structures. Trapping is also a valued recreational pursuit and supports the public use emphasis of this alternative. However, the current trapping plan is dated by time (1988), new furbearer ecology and population information, and by new policies governing compatibility of uses and commercial uses on national wildlife refuges.

Strategies

The Refuge wildlife biologists, in consultation with Refuge District managers and state furbearer biologists will develop a revised trapping plan for approval by the Refuge manager.
Afford the public an opportunity for review and comment on the plan.
Complete a new compatibility determination for public review and comment.

Objective 3.6. Fishery and Mussel Management: Continue to defer fishery and mussel management on the Refuge to the states and the Service's Fishery Resource Office in La Crosse, Wisconsin.

Rationale: This objective reflects the current and projected Refuge involvement in fishery and mussel management given current funding and staffing levels and a focus on public use versus fish and wildlife.

Strategies

Continue to gather information from state and other Service offices on the status of fish and mussels on the Refuge.
Rely on fisheries status and trends provided by the Long Term Resource Monitoring Program of the Environmental Management Program administered by the Corps of Engineers.

Objective 3.7. Commercial Fishing and Clamming: Continue to defer to state departments of natural resources to monitor, regulate, and permit commercial fishing and clamming.

Rationale: This objective reflects the current and projected Refuge involvement in commercial fishing and mussel harvest given current funding and staffing restraints, and the focus of existing resources on public use-related objectives In keeping with the emphasis of this alternative.

Strategies

Continue to gather information from the states and the Upper Mississippi River Conservation Committee on harvest levels.
Conduct license and permit compliance on an opportunistic basis during routine Refuge law enforcement efforts.

Objective 3.8. Turtle Management: Continue to cooperate with state departments of natural resources and the Corps of Engineers in monitoring turtle populations on certain Refuge areas, but continue to defer to the states on commercial harvest management of certain turtle species.

Rationale: Under a public use focus, current and projected Refuge involvement in turtle management and harvest reflected in this objective is expected to continue. The Refuge has contributed funds and staff to monitoring and study efforts, but availability is unpredictable from year to year.

Strategies

Work in partnership with the states and Corps of Engineers on monitoring and research efforts for turtles.
Seek funding for research into turtle ecology and population status through grants.
Increase public awareness of the importance of the Refuge and river to turtles.
Consider the needs of turtles in habitat and public use planning and projects.

Objective 3.9. Forest Management: Complete by the end of 2008, in cooperation with the Corps of Engineers, a forest inventory of the Refuge.

Rationale: A baseline forest inventory of the approximately 51,000 acres of floodplain forest on the Refuge is the first step in addressing concerns for the long-term health of this important resource. Long-term forest health is important to wildlife-dependent public use since it will support wildlife species important to hunting and wildlife observation. The Corps of Engineers has been actively working on a forest inventory for several years on Corps of Engineers-acquired lands, and it makes fiscal and efficiency sense to partner with the Corps of Engineers on this objective.

Strategies

As Refuge funding allows, continue to fund seasonal technicians to help with the Corps of Engineers' inventory project on Refuge-acquired lands.
Continue to work with the Corps of Engineers and other partners on forest rejuvenation and research projects.
Continue small scale reforestation, especially mast-producing hardwoods, on suitable Refuge lands.

Objective 3.10. Grassland Management: Maintain 5,700 acres of grassland habitat on the Refuge through the use of various management tools including prescribed fire, haying, grazing, and control of invasive plants.

Rationale: Many species of wildlife, particularly birds, are dependent on grassland habitat, which in turn supports recreation such as hunting and wildlife observation. Some of these grasslands are remnant tallgrass native prairie, a diverse and rare ecosystem throughout the Midwest and home to rare or declining plant and animal species. Active management is needed to curb loss of grasslands to forest succession or invasive species, and to maintain species diversity and health.

Strategies

Implement the Refuge's Fire Management Plan.
Use haying, rotational grazing, and control of invasive plants as appropriate to maintain grasslands.
Restore native prairie where feasible using a combination of rest, fire, farming, and reseeding as appropriate to the site.

Goal 4: Wildlife-Dependent Recreation. We will manage programs and facilities to ensure abundant and sustainable hunting, fishing, wildlife observation, wildlife photography, interpretation, and environmental education opportunities for a broad cross-section of the public.

Objective 4.1. General Hunting: Maintain a minimum of 189,647 acres (79 percent) of land and water of the Refuge open to all hunting in accordance with respective state seasons, and add 9 new administrative No Hunting Zones for a total of 5,959 acres. See related Objective 4.2 on Waterfowl Closed Areas. (See Table 2 and Table 9 in Appendix H and maps in Appendix P.)

Rationale: Maintaining a large percentage of the Refuge open to hunting is in keeping with the public use focus of this alternative and guidance in the Refuge Improvement Act to facilitate wildlife-dependent use when compatible. This objective also represents a public use emphasis by keeping the existing number of Waterfowl Closed Areas in the related Objective 4.2. These Closed Areas reopen to some hunting after the duck season, adding to the open acreage above. The one new No Hunting Zone is for safety reasons and to increase wildlife observation opportunities during hunting seasons. This area is at Sturgeon Slough, Pool 10 (66 acres), which contains a fairly new hiking trail off a major highway.

Strategies

Continue yearly review of Refuge Hunting Regulations to ensure clarity and to address any emerging issues or concerns, and give the public an opportunity to review and comment on any changes.
Continue to publish the Refuge Hunting Regulations brochure to inform the public of hunting opportunities and Refuge-specific regulations.
Continue to improve the hunting experience by ongoing improvements to habitat and enforcement of regulations.
Review the 1989 Refuge Hunting Plan and modify as needed to comply with new regulations and policies.
Clearly sign areas closed to hunting and ensure public notification through news releases and other means well before the hunting seasons.

Objective 4.2. Waterfowl Hunting Closed Areas: Continue current system of 14 Closed Areas and 1 Sanctuary Area, but in 2007, reduce the size of the Lake Onalaska Closed Area by about 245 acres. Closed Area and Sanctuary acreage would be 40,928 and 3,686 acres respectively. Make area adjustments to clarify boundary or address operation and maintenance needs. (See Table 6 and Table 9 in Appendix H and maps in Appendix P.)

Rationale: Closed Areas are designed to provide relatively undisturbed fall resting and feeding areas for the length of the Refuge, and to more evenly distribute waterfowl hunting opportunities. This objective represents a

virtually unchanged Closed Area system, and keeps a large portion of the Refuge open to waterfowl hunting in line with the public use emphasis of this alternative. This alternative also reflects a reduction in the size of the Lake Onalaska Closed Area as described in Objective 4.4 below. Minor boundary adjustments have been made to some areas over the years and are needed periodically to address physical changes in the environment (such as island erosion) and to reduce confusion or yearly posting concerns.

Strategies

Improve habitat in Closed Areas by ongoing programs such as pool drawdowns, Environmental Management Program projects, and other agency initiatives and regulations.

Continue Voluntary Avoidance Area program for the Lake Onalaska (Pool 7) closed area, and seek to expand to other Closed Areas where feasible.

Continue to monitor waterfowl use of closed areas through weekly aerial surveys in the fall.

Objective 4.3. Waterfowl Hunting Regulation Changes. In fall 2006, implement the following Refuge-specific waterfowl hunting regulation changes: (See Appendix I for current regulations.)

1.) Waterfowl hunting parties shall maintain at least 100 yards spacing between each other. A party is defined as one or more persons hunting together from a boat or stationary location.

Rationale: This objective is designed to improve the waterfowl hunting experience by reducing the conflict and competition between hunting parties that can occur in favored areas of the Refuge. Refuge officers have observed, and received complaints about, crowding and its disruption to hunters favoring decoy hunting, and its contribution to skybusting and confrontations between hunters. The Refuge Manual (8 RM 5) encourages managers to space hunters appropriately to the situation. The 100 yard minimum is less than the standard 200 yards used on many public hunting areas, but is deemed appropriate for this Refuge.

Strategies

Conduct a comprehensive public information effort to inform waterfowl hunters of impending changes. Use all methods available including personal contact, presentations at organizations, special meetings, leaflets, signing, news releases, websites, and media interviews.

Increase law enforcement presence to help ensure understanding and compliance with changes, relying on verbal and/or written warnings, at an officer's discretion, the first year of implementation in 2006.

Objective 4.4. Firing Line – Pool 7, Lake Onalaska. In fall 2006, reduce the Lake Onalaska Waterfowl Closed Area by approximately 245 acres by moving the north boundary southward. (See Pool 7 Map, Alternative C, Appendix P.)

Rationale: This objective emphasizes a public use focus by increasing the area open to hunting while eliminating an area notorious for skybusting, competition between hunters, and high crippling rates as noted in the issue

discussion in Chapter 1, Section 1.4.5.4. This reduction represents a 3 percent decrease in the existing Lake Onalaska Closed Area. Although there is some likelihood that this expansion would just move the firing line southward, difference in islands and open water along the new line should markedly reduce firing line development.

Strategies

Conduct a comprehensive public information campaign to inform waterfowl hunters and the general public of impending changes. Use all methods available including personal contact, presentations at organizations, special meetings, leaflets, signing, news releases, websites, and media interviews.

Post and sign the new boundary well in advance of the hunting seasons.

Increase law enforcement presence to help ensure understanding and compliance with boundary change, relying on verbal and/or written warnings, at an officer's discretion, the first year of implementation in 2006.

Objective 4.5. Permanent Hunting Blinds on Savanna District. Eliminate the use of permanent hunting blinds within the Savanna District of the Refuge after the 2006-07 waterfowl hunting season. (See Table 17 in Appendix H and maps, Appendix P, Savanna District.)

Rationale: Eliminating permanent blinds would provide consistency on the Refuge since they are not allowed on the other three Districts. In addition to consistency, eliminating the blinds would address a host of issues involving debris, private exclusive use of public waters, limiting hunting opportunities, and confrontations and other incidents. These issues were discussed more fully in Chapter 1, Section 1.4.5.4. This objective would also reduce the staff time spent on law enforcement, complaints, and clean-up which permanent blinds entail, time which could be directed toward public use-related needs. This would also increase hunting opportunity for the broadest spectrum of hunters, and thus reflect the public use emphasis of this alternative.

Strategies

Conduct public information campaign to inform the public of the change and to give hunters who have become accustomed to the blinds a chance to adapt to alternative hunting methods or areas.

Prepare and distribute a leaflet explaining the change and regulations for temporary blinds.

Begin phase in of regulations by requiring hunters to comply with the following requirements the year before a respective pool is scheduled for permanent blind phase out:

1. Blinds must be marked with name and address of owner.
2. All blind material must be removed by the hunter within 30 days of the end of the waterfowl hunting season.

Objective 4.6. Potter's Marsh Managed Hunt on Savanna District. After the 2006-07 season, eliminate the managed waterfowl hunt at Potter's Marsh Managed Hunt, including the use of permanent blinds, and open the area to waterfowl

hunting on a first-come, first-secured basis. (See Table 17 in Appendix H and maps in Appendix P, Pool 13.)

Rationale: This objective would reduce problems associated with permanent blinds as noted in Objective 4.5 (debris, private exclusive use, limiting hunting opportunities, and confrontations) and eliminate the substantial administrative costs associated with the drawings, permit administration, and oversight of the current program (see issue discussion, Chapter 1, Section 1.4.5.4). This objective reflects a public use emphasis since it would open the Potter's Marsh area to a broad spectrum of hunters. In addition, the funding and staff currently required for this hunt could be re-directed to public use objectives throughout the Savanna District.

Strategies

Conduct public information campaign beginning at least one year prior to implementation to inform the public of the change and to give hunters who have become accustomed to the managed hunt a chance to adapt to alternative hunting methods or areas.

Objective 4.7. Blanding Landing Managed Hunt. After the 2006-07 season, eliminate the managed waterfowl hunt at Blanding Landing, Lost Mound Unit, Savanna District (former Savanna Army Depot), including the use of permanent blinds, and open the area to waterfowl hunting on a first-come, first-secured basis. (See Table 17 Appendix H and maps in Appendix P, Pool 12.)

Rationale: Illinois Department of Natural Resources administers this hunt on behalf of the Savanna Army Depot, but with transfer of jurisdiction to the Service, hunting on this area is now the responsibility of the Refuge. Similar to the Potter's Marsh Managed Hunt above, this objective would reduce problems associated with permanent blinds as noted in Objective 4.5 (debris, private exclusive use, limiting hunting opportunities, and confrontations) and eliminate the administrative costs associated with the drawings, permit administration, and oversight of the current program. This objective reflects a public use emphasis since funding and staff currently devoted to this hunt could be focused on public use objectives throughout the Savanna District, and especially the new Lost Mound Unit which has large start-up needs.

Strategies

Conduct public information campaign prior to implementation to inform the public of the change and give hunters accustomed to the managed hunt a chance to adapt to alternative hunting methods or areas.

Objective 4.8. General Fishing. Provide and enhance year-round fishing on 140,545 acres of surface water within the Refuge, and an additional 2,736 acres in Waterfowl Closed Areas in spring, summer, and winter. (Note: Iowa, Wisconsin, and Illinois regulations maintain fish "refuges" below lock and dams 11,12, and 13, December 1 through March 15). Add 5 new accessible fishing piers or docks for a total of 20. (See Table 9 and Table 14 in Appendix H and maps in Appendix P.)

Rationale: This objective represents the current areas available and open to fishing and the area currently closed to fishing from October 1 to the end of the duck hunting season to limit disturbance to waterfowl (Spring Lake, Pool 13). Fishing is one of the priority uses of the Refuge System and is to be

facilitated when compatible with the purposes of the Refuge and the mission of the Refuge System. Enhanced fishing opportunities are also a reflection of the public use emphasis of this alternative. The adding of 5 accessible fishing piers is in keeping with this emphasis.

Strategies

Enhance fishing opportunities on suitable areas of the Refuge through habitat, access, and facility improvements as outlined in other plan objectives.
Continue to promote fishing through Fishing Days and other outreach and educational programming.
Cooperate with the states in their ongoing fishery management programs. Schedule yearly inspection and maintenance of fishing piers.

Objective 4.9. Fishing Tournaments. Beginning in January 2007, begin review of all state-issued permits for all fishing tournaments occurring on the Refuge.

Rationale: Fishing tournaments are a use, and at times a commercial use, of the Refuge and subject to regulations governing uses of national wildlife refuges. The Refuge has not provided any oversight to this use, deferring to the states regulatory and permitting process. Refuge review would provide oversight to protect sensitive habitat and wildlife areas from the possible physical and disturbance impacts of fishing tournaments. Through permit review, the Refuge could also play a coordination role given the interstate nature of the Refuge and the river. Limiting Refuge involvement to permit review would be the least time consuming and a fairly large number of tournaments would continue in line with the public use emphasis of this alternative.

Strategies

Meet with the states to discuss the best strategies for implementing a permit review process.
With the states and the Corps of Engineers, develop time, space, and capacity parameters on each Pool within the Refuge, and definitions for what constitutes a fishing tournament.
Develop outreach plan to involve and inform fishing tournament organizations or sponsors with any changes in regulations and/or procedures.

Objective 4.10. Wildlife Observation and Photography. Maintain the following existing and new facilities to foster wildlife observation and photography opportunities: 31 observation decks and areas, 3 observation towers, 3 photography blinds, 21 hiking trails, 26 canoe trails, 6 biking trails, and 3 auto tour routes. (See Tables 3, 4, 5, 15 and 19 in Appendix H and maps in Appendix P.)

Rationale: Wildlife observation and photography are two of the six priority public uses of the Refuge System and are to be facilitated when compatible. This objective represents a marked increase in the number of observation decks (+16), observation towers (+3), photography blinds (+3), hiking trails (+15), canoe trails (+22), biking trails (+3), and auto tour routes (+2). This expansion of facilities reflects the public use emphasis of this alternative,

directing staff and funding to public use-related objectives versus wildlife-related objectives.

Strategies

Schedule annual inspection and maintenance of the facilities.

Ensure adequate signing and information in brochures, websites, and maps so the public is aware of the facilities.

Continue to promote the wildlife observation and photography opportunities of the Refuge through public education, outreach, special programs, and partnerships with the states, Corps of Engineers, and private conservation groups.

Enhance observation and photography opportunities on suitable areas of the Refuge through habitat, access, and facility improvements as outlined in other plan objectives.

Seek new funding and partnership opportunities, including volunteers, for construction and maintenance of facilities.

Objective 4.11. Interpretation and Environmental Education. By the end of 2010, increase the number of stand-alone interpretive signs to 102 (+43) (see Table 15 in Appendix H for details). Build new district offices with visitor contact facilities at McGregor, Winona, La Crosse, and the Lost Mound Unit, and construct a major visitor center and headquarters at either Winona or La Crosse. Continue to print and distribute Refuge General Brochure, and update websites quarterly. Continue to sponsor at least two major annual interpretive events on each Refuge District, and by January 2008 establish at least one major environmental education program at each District with visitor services staff.

Rationale: Interpretation and environmental education are two of the six priority public uses of the Refuge System and are to be fostered if compatible with the Refuge purpose and Refuge System mission. Interpreting the resources and challenges of the Refuge to the general public and incorporating these topics into school curricula are important ways to influence the future well-being of the Refuge and the river. Only through understanding and appreciation will people be moved to personal and collective action to ensure a healthy Refuge for the future. Interpretation and environmental education are also key to changing attitudes and behavior which affect the Refuge through off-Refuge land use decisions and on-Refuge conduct and use.

This objective reflects a marked increase in interpretation and environmental education capability and programs and reflects the public use focus of this alternative. It also reflects basic needs for a Refuge that is the most heavily visited in the U.S., and would provide the visitor facilities necessary to inform and educate visitors and help them make the most of their Refuge visit. Since environmental education is curriculum-based and labor intensive, initial efforts will be limited to Districts with public use staff.

Strategies

Hire visitor services specialists at McGregor and Winona Districts (top priority), and hire a visitor services specialist to be stationed at the National Mississippi River Museum in Dubuque, Iowa to help present Refuge-specific programs.

Continue work to complete exhibits at Savanna and La Crosse offices, and seek funding to replace exhibits at McGregor District and the Lost Mound Unit of the Savanna District.

Participate in national interpretive events such as National Wildlife Refuge Week or Migratory Bird Day for efficiency and effectiveness.

Schedule quarterly review of interpretive signs and conduct maintenance and sign replacement as needed.

Cooperate with existing interpretive and environmental education programs offered by the states, Corps of Engineers, other agencies, and private conservation groups, and continue to seek grants to fund events and programs.

Continue to locate interpretive signs at public access and overlook points in cooperation with various agencies and units of government.

Objective 4.12. Commercial Fish Floats. By the end of 2006, develop new facility, operations, and concession fee standards for the 4 existing commercial fish floats or fishing piers below Locks and Dams 6, 7, 8, and 9, and solicit proposals for one new fish float, or other alternative, in the Savanna District. (See Table 12 in Appendix H and maps in Appendix P.)

Rationale: This objective would continue to recognize the important role of fish floats in providing an alternative fishing experience for a diversity of Refuge visitors. However, new standards would address several long standing management issues such as permit non-compliance, condition and safety issues with some operations, net economic loss to the government, and noncompliance with regulations governing concessions on national wildlife refuges.

Strategies

Draft new standards well in advance of implementation and give fish float owners/operators a chance to review and comment.

Continue yearly coordination meeting with float owners and operators to address concerns and permit conditions.

Continue enforcement of permit stipulations and suspend permits of those operations not meeting the stipulations.

Inspect facilities for safety at least once yearly.

Ensure open and fair solicitation of proposals for a possible new float below Lock and Dam 12. If any floats are phased out due to non-compliance with permit stipulations, ensure adequate public notice so clients can seek alternate opportunities.

Objective 4.13 Guiding Services. In spring 2007, begin implementing a consistent process for issuing permits for persons conducting for-hire guided hunting, fishing, and wildlife observation activities on the Refuge.

Rationale: As noted in the issues section of Chapter 1, guiding businesses are on the rise and promise to become an increasingly common activity on the Refuge. Without proper oversight, this activity could lead to disturbance to sensitive areas and wildlife, and increased conflict with the general public or other guides as volume and frequency increases. In addition, guiding and other commercial uses are prohibited on a national wildlife refuge unless specifically authorized via permit. The Refuge needs to bring this use into compliance with regulations and policy. Effectively managing this use would benefit the general public that uses the Refuge for hunting, fishing, and wildlife observation, and thus represents a public use focus.

Strategies

Work with the states to ensure coordination and some degree of consistency with their guide licensing requirements and procedures.
Conduct public information effort through news releases and media contacts to implement the objective.
Provide proactive enforcement through Refuge law enforcement officers and information provided by others in the law enforcement community.

Goal 5: Other Recreational Use. We will provide opportunities for the public to use and enjoy the Refuge for traditional and appropriate non-wildlife-dependent recreation that is compatible with the purpose for which the Refuge was established and the mission of the Refuge System.

Objective 5.1. Beach Use and Maintenance. Continue current "open" policy for beach-related uses such as camping, mooring, picnicking, and social gatherings in accordance with existing public use regulations (see Appendix J), but beginning in spring 2007, implement policies and regulations outlined below relative to these uses and beach maintenance.

1.) *Beach Use Policy.* Refuge lands will generally be open to the beach-related, non-wildlife-dependent uses of camping, overnight mooring, picnicking, swimming, and social gatherings.

2.) *New regulations for camping and other beach-related uses.* Current public use regulations as described in the Refuge Public Use Regulations brochure (see Appendix J) will remain in effect, except by April 1, 2007, the following regulation changes will be implemented:

a) Camping is defined as erecting a tent or shelter of natural or synthetic material, preparing a sleeping bag or other bedding material for use, parking of a motor vehicle or mooring or anchoring of a vessel, for the apparent purpose of overnight occupancy, or, occupying or leaving personal property, including boats or other craft, at a site anytime between the hours of 11 p.m. and 3 a.m. on any given day.

b) All personal property, refuse, trash, and litter, including human solid waste and associated material, shall be removed immediately upon vacating a site.

c) Entering or remaining on the Refuge when under the influence of alcohol will remain prohibited, but under the influence will be defined as a blood alcohol content of .08 percent blood alcohol content. In

addition, develop a public intoxication regulation that gives officers a tool to deal with unruly behavior.

d) All motorized watercraft which land, park, or moor on Refuge-managed lands, or use the 25 Refuge-operated boat landings, between May 1 and September 1, must have affixed to the outside, right side of the watercraft a current year Refuge Recreation Use Permit sticker. Recreation use permits will cost a minimum of $15, will be valid for unlimited visits in the year issued, and be made available via the internet or in person, phone, or mail from any Refuge office or other designated locations.

3.) Beach Maintenance Policy. Beach maintenance (topdressing, reshaping, leveling, and vegetation clearing) will be allowed on all Refuge lands zoned as low-density recreation in the Service/Corps of Engineers Land Use Allocation Plans.

Rationale: Non-wildlife-dependent recreation continues to increase on the Mississippi River and the Refuge. It is estimated that 1.3 million persons per year use the Refuge for camping, recreational boating, picnicking, swimming, social gatherings, and other uses not dependent on the presence of fish and wildlife. This objective, with its new policies and regulations, would help address some of the issues related to beach use described in the issue section of Chapter 1, most notably litter and human waste, intoxication, unlawful and unruly behavior, officer and public safety, and preemptive use of preferred camping or hunting sites. This objective fosters a high amount of recreation in keeping with the public use focus of this alternative, and is a reasonable alternative given that most use occurs adjacent to the main channel of the river, a corridor which harbors the least amount of wildlife during the peak visitor use season. Charging a recreation fee would provide funding for law enforcement, site maintenance and cleanup, and general beach maintenance to improve the quality of the experience for visitors.

Strategies

Continue to work with the states and the Corps of Engineers through existing interagency workgroups to complete beach plans for each pool within the Refuge according to the policies and regulations above.

Conduct public information and education campaign well before implementation of regulation changes, to include news releases, general articles, fact sheets, and media interviews. Use the components and principles of the Leave No Trace program in the campaign (plan ahead and prepare, travel and camp on durable surfaces, dispose of waste properly, leave what you find, minimize campfire impacts, respect wildlife, and be considerate of others).

Develop a brochure which clearly explains new policies and regulations and answers frequently asked questions.

Plan, test, and refine a user-friendly method of recreational permit sales. Refuge officers will increase contacts with Refuge users once this plan is approved to explain pending regulation changes. Verbal or written warnings will be used at officer discretion during the first year of implementation to ease the transition.

Objective 5.2. Electric Motor Areas. Beginning spring 2006, establish a total of 15 electric motor areas on the Refuge that are within a mile of public accesses, encompassing 13,239 acres. A 5 mph speed limit would also apply in these areas given anticipated future changes in technology. (See Table 13 in Appendix H, and map in Appendix P.)

Rationale: Technology in the form of jet skis, bass boats, shallow water motors such as Go-Devils, airboats, and hovercraft has introduced more noise and user conflict to the backwater areas of the Refuge. This objective would support the public use emphasis of this alternative by meeting the needs of visitors who desire areas of quiet and solitude, while helping to reduce disturbance to fish and wildlife in these areas. This objective only affects the means of navigation, and all current uses would be allowed (fishing, hunting, observation, etc.) in accordance with current regulations or those proposed elsewhere in this alternative. The 13,239 acres represents about 5 percent of the Refuge.

Strategies

Conduct a public information campaign to inform and educate the public about pending electric motor designations.
Clearly delineate electric motor areas on Refuge maps and by appropriate signing.

Objective 5.3. Slow, No-Wake Zones. In 2006, add 8 new Refuge-administered slow, no-wake zones (brings total to 10) and assist local or other units of government in the enforcement of 44 other slow, no-wake zones within the Refuge. (See Table 18 in Appendix H, and maps in Appendix P.)

Rationale: On a few areas of the Refuge, boat traffic levels and size of boats is leading to erosion of island and shoreline habitat which can impact fish and wildlife habitat directly, or indirectly through increasing sedimentation and water turbidity. On some of the areas identified, slower speeds would reduce safety hazards posed by heavy traffic and blind spots in narrow channels.

Strategies

Continue to inform the public of the slow, no wake areas through seasonal buoy placement and signing as appropriate.
Continue to conduct periodic enforcement of the slow, no-wake restriction.
Continue to cooperate and coordinate with local units of government which establish most slow, no wake zones.

Objective 5.4. Dog Use Policy. Beginning March 1, 2007, implement the following new regulation governing dogs on the Refuge:

"No pets are allowed to disturb or endanger the wildlife resource or people while on the Refuge. All dogs and other pets while on the Refuge must be under the control of their owners at all times. No dogs will be allowed to roam. All dogs and pets must be physically restrained when on posted designated areas such as hiking trails and sensitive areas, and when in close

proximity of other people on recreational sandbars, except when engaged in authorized hunting activity. No field trials, or commercial or organized training."

Rationale: This objective relaxes the current Refuge System regulation which prohibits unconfined domestic animals on national wildlife refuges. The new regulation provides stipulations for allowing dogs to be free and would allow owners to exercise and train their dogs in line with the public use emphasis alternative, while protecting Refuge wildlife. The new regulation also helps safeguard other visitors from the real or perceived threat that dogs and other animals can pose, but recognizes their traditional use and conservation benefit in hunting. The prohibition of field trials and commercial or organized dog training is a continuation of a long-standing Refuge policy. This regulation also does not affect the existing regulation that prohibits all other unconfined domestic animals on the Refuge.

Strategies

Publish the new regulation in the Refuge public use regulation brochure, issue news releases, and conduct other outreach prior to implementation in 2007.

Except in certain cases, law enforcement officers will generally give verbal and/or written warnings for violations of the new regulation the first year, then issue violation notices at their discretion beginning in 2008.

Objective 5.5. General Public Use Regulations. Beginning in 2006, conduct annual review and update of the general public use regulations governing entry and use of the Refuge (current regulations are found in Appendix J).

Rationale: Public entry and use regulations not only protect wildlife, but enhance the quality of the visitor experience and thus reflect the public use focus of this alternative. The current regulations were last reviewed and amended in 1999. However, the resources and public use of the Refuge is dynamic, and a yearly review would ensure that regulations are needed, clear, and effective. In addition, new regulations may be required to safeguard resources or to address new or emerging problems recognized by managers and law enforcement officers. An annual review would provide a more systematic process than in the past.

Strategies

Conduct review during Refuge law enforcement meetings.

Provide the public, states, and Corps of Engineers ample opportunity to review and comment on any new or substantially changed regulation.

Use national guidance and Federal Register process for codifying any changes and make them part of the Code of Federal Regulations governing national wildlife refuges.

Update, print, and distribute the Public Use Regulations brochure.

Post pertinent regulations at boat landings and other public use areas, such as trail heads and beach areas.

Continue proactive law enforcement to inform and educate the public on Refuge regulations and to seek their compliance.

Goal 6: Administration and Operations. We will seek adequate funding, staffing, and facilities, and improve public awareness and support, to carry out the purposes, vision, goals, and objectives of the Refuge.

Objective 6.1. Office and Shop Facilities. By 2010, construct new offices and maintenance shops at Winona, La Crosse, and McGregor Districts, and expand the office and construct a new maintenance shop at Savanna District. Each office would have expanded public orientation and interpretation and environmental education capability, but not a biological work area or lab. By 2020, build a new office and large visitor center for the Headquarters of the Refuge, and locate it either in Winona or La Crosse. Also by 2020, remodel or replace office and shop at the Lost Mound Unit.

Rationale: As the public use focus alternative, this objective emphasizes the need for office replacement and visitor contact facilities along with the maintenance capability to support recreation-related infrastructure. The expansion of the Savanna District office would be an additional meeting room/classroom for expanded interpretive programs and environmental education. A large visitor center associated with the Headquarters would provide a focal point for millions of Refuge visitors, and provide state-of-the-art information, displays, and interpretive and education programs.

Strategies

Ensure that Refuge office, maintenance, and visitor center needs are reflected in budget needs databases.
Work with the Refuge Friends Group to raise private funds for the Savanna expansion and the Headquarters visitor center.
Continue to maintain Service-owned facilities using annual maintenance budget allocations.

Objective 6.2. Public Access Facilities. By 2020, add 1 new boat landing (total of 26), 3 new walk-in accesses, and 3 new and 1 improved canoe landings. Improve 5 parking areas on the Refuge to support public use. (See Table 1 in Appendix H, and maps in Appendix P.)

Rationale: This objective represents an increase in public access facilities in line with the public use emphasis of this alternative. Since the Refuge is mainly a floodplain Refuge bounded by major rail lines and highways, opportunities for increasing access points is limited. In addition to these accesses, there are 222 other public and private boat accesses that provide access to the Mississippi River or its tributaries, and thus the Refuge.

Strategies

Continue routine upkeep of boat accesses by Refuge staff, temporary employees and Youth Conservation Corps members when available, and volunteers.
Continue to modernize accesses using Maintenance Management System funding or special funding which is provided periodically, and by implementing a self-service boat launch fee at Refuge-operated boat ramps.
In cooperation with states and local governments, explore Transportation Enhancement Act projects and funding for new accesses and to upgrade current Refuge accesses.

Objective 6.3. Operations and Maintenance Needs. Complete annual review of Refuge Operating Needs System (RONS), Maintenance Management System (MMS), and Service Assessment and Maintenance Management System (SAMMS) databases to ensure these reflect the funding needs for carrying out the public use focus alternative.

Rationale: The RONS, MMS, and SAMMS databases are the chief mechanisms for documenting ongoing and special needs for operating and maintaining a national wildlife refuge. These databases are part of the information used in the formulation of budgets at the Washington and Regional levels, and for the allocation of funding to the field. It is important that the databases be updated periodically to reflect the needs of the Refuge, and in particular the objectives and strategies elsewhere in this alternative.

Strategies

None warranted.

Objective 6.4. Public Information and Awareness. By 2007, increase by 50 percent the current annual average of 80 media interviews, 125 news releases, and 25 special events (special programs, presentations, and displays at others' events), and by 2020 increase information kiosks to 115 (+49) as shown in Table 16 of Appendix H and maps in Appendix P.

Rationale: This objective reflects an emphasis on providing the public more information, especially in regards to public use opportunities to reflect the focus of this alternative.

Strategies

Hire visitor services specialists for those Districts without, namely Winona and McGregor Districts.
Hire a public information specialist at Headquarters to increase attention on interviews, news releases, and special events.
Continue to look for creative ways to leverage efforts and funding for public information.
Carry out related objectives dealing with trails, leaflets, and interpretive signs (see objectives 4.10 and 4.11).
Cooperate with the states and the Corps of Engineers on visitor surveys to gauge public awareness of the Refuge and Mississippi River resources.

Objective 6.5. Staffing Needs. By 2015, increase staffing from current permanent, full-time level of 37 people to 57 people (54.5 full-time equivalents or FTEs) with priorities being public use, maintenance, receptionists, and public information personnel who most directly support public use work on the Refuge (see Table 2 on page 192 and Table 20 in Appendix H).

Rationale: This objective reflects a public use focus and the minimum operations and maintenance-funded staffing deemed necessary to meet the goals and objectives of this alternative. Like all land management, refuge management is labor intensive and labor costs represent over 95 percent of the base operations funding received each year. These staffing needs are

documented in, or related to, the strategies for various objectives in this alternative.

Strategies

Ensure that staffing needs are incorporated in budget needs databases.
Maintain other sources of funding for staff who coordinate the Environmental Management Program and the Partners for Fish and Wildlife Program.
Strengthen existing volunteer program and recruit new volunteers to assist with visitor services.

2.4.5 Alternative D: Wildlife and Integrated Public Use Focus

Increase level of effort on fish and wildlife and habitat management. Take a more proactive approach to public use management to ensure a diversity of opportunities for a broad spectrum of users, both for wildlife-dependent uses and traditional and appropriate non-wildlife-dependent uses.

Alternative D Summary

Boundary issues would be aggressively addressed and the entire Refuge boundary would be surveyed. The rate of land acquisition would increase within the approved boundary to complete 58 percent of the total, an average of 1,000 acres per year. There would be more effort to protect through easements or fee-title acquisition all bluffland areas identified in the 1987 Master Plan, and an increase in oversight and administration of Research Natural Areas. The Refuge would be nominated as a Wetland of International Importance (Ramsar). Guiding principles for habitat projects would be established and stress an integrated approach.

Northern Shoveler pair. Stan Bousson

There would be an increase in effort to achieve continuous improvement in the quality of water flowing through the Refuge, including decreasing sedimentation. Pool-scale drawdowns would be accomplished by working with the Corps of Engineers and the states. The control of invasive plant species would increase, and there would be increased emphasis on the control of invasive animals. Environmental Pool Plans would be implemented on a strategic and opportunistic basis using the Environmental Management Program or other programs and funding sources. Wildlife inventory and monitoring would increase and include more species groups beyond the current focus of waterfowl, colonial nesting birds, eagles, and aquatic invertebrates/vegetation. The management of threatened and endangered species would focus on helping recovery, not just protection. The furbearer trapping program would continue but be brought into compliance with policies by writing a new plan. The Refuge would become much more active in fishery and mussel management, and provide commercial fishing oversight. Knowledge of turtle ecology through research would increase, as would turtle conservation efforts in cooperation with the states and Corps of Engineers. A forest inventory on the Refuge would be completed in cooperation with the Corps of Engineers, and a forest management plan prepared, leading to more active forest management. The 5,700 acres of grassland habitat on the Refuge would be maintained and enhanced using fire and other tools.

There would be a continuation of hunting and fishing opportunities on a large percentage of the Refuge. The system of waterfowl hunting closed areas would change with some eliminated, some reduced in size, and several new areas added for a total of 21 closed areas. Motorized watercraft and entry into closed areas for fishing, along with hunting, trapping, and camping would be prohibited during the respective state duck season, although the voluntary avoidance area on Lake Onalaska would remain in place. The firing line issue north of the closed area in Lake Onalaska would be addressed by initiating the Gibbs Lake Managed Hunting Program involving a limit to the number of hunters through drawing, assigning hunters to areas, and charging a fee. The current Refuge-wide hunting regulations would be changed to include a 25 shotshell limit during the waterfowl season and a 100-yard waterfowl hunting party spacing requirement, and a provision to address open water hunting in portions of Pools 9 and 11. Permanent blinds for waterfowl hunting would be eliminated Refuge wide, including those used in the Potter's Marsh and Blanding Landing managed hunts in the Savanna District. The Potter's Marsh managed hunt would continue with administrative changes to promote fairness and efficiency. The Blanding Landing managed hunt would be eliminated, but the area would remain open to hunting. General fishing would continue to be promoted, although the Refuge would begin issuing permits for fishing tournaments in cooperation with the states and other agencies.

There would be an increase in facilities and programming for wildlife observation, photography, interpretation and environmental education. There would be a modest increase in Refuge access through new facilities and improvement of existing boat ramps, pull offs, and overlooks. A boat launch fee would be initiated on Refuge-operated boat ramps. New standards for the commercial fish floats or piers below locks and dams 6, 7, 8, and 9 would be developed and implemented, with a phase out of floats which do not meet the standards. A consistent process for issuing permits for commercial guiding on the Refuge would be implemented. Areas open to beach-related public use (camping, swimming, picnicking, social gatherings) would be reduced to some degree under an "open-unless-closed" policy, new regulations would be implemented, and a beach maintenance policy established. Initiating a Refuge Recreation Use Permit and fee would be explored to defray costs of managing beach-related uses. A total of 16 electric motor areas and 9 new slow, no-wake zones would be established. Current regulations on the use of dogs would be changed to allow dogs to be exercised and trained under certain conditions. General public use regulations would be reviewed annually and changed as needed.

New offices and maintenance shops would be constructed at the Winona, La Crosse, and McGregor districts, and at the Lost Mound Unit. The office would be expanded at the Savanna District and a new shop constructed. Public information and awareness efforts would be increased 50 percent. Staffing levels for the Refuge would increase by 19.5 full-time equivalents with a balance among biological, maintenance, visitor services, technical, and administrative staff.

Goal 1: Landscape. We will strive to maintain and improve the scenic qualities and wild character of the Upper Mississippi River Refuge.

Objective 1.1. Maintain the integrity of the Refuge boundary. In coordination with the Corps of Engineers, re-survey and post the entire Refuge boundary by 2021. *Rationale:* Maintaining and enforcing a boundary is one of the basic and critical components of refuge management to ensure the integrity of an area over time. Without attention to this basic task, there is a tendency for adjacent development and use to creep and take over Refuge lands and waters. This encroachment includes tree cutting, dumping, construction, storing of equipment and materials, and mowing Refuge lands. In addition, there are a few boundaries between Refuge and Corps of Engineers-managed lands that remain unclear, leading to mixed messages to the public using these lands via permits, leases, or out grants. The size, length, age, and

floodplain setting of the Refuge, coupled with a mix of Corps of Engineers-acquired and Service-acquired lands, creates boundary clarity problems that can only be addressed through modern re-surveying techniques.

Strategies

Enter into a joint Service/Corps of Engineers project to complete a cadastral survey of the Refuge boundary.
With the Corps of Engineers, complete a survey plan of action to prioritize and schedule the completion of the survey by 2020.
Seek the funding necessary for the survey work.
Also with the Corps of Engineers, review, update, and publish a new Land Use Allocation Plan for lands within the Refuge (see Chapter 1, section 1.4.3.1 for discussion of this plan).

Objective 1.2. Land Acquisition. By 2021, acquire from willing sellers 58 percent of the lands identified for acquisition in the 1987 Master Plan and subsequent approvals, as identified on the maps in Appendix G (approximately 1,000 acres/year).

Rationale: Land acquisition is a critical component of fish and wildlife conservation since it permanently protects their basic need of habitat. It is also a cornerstone of promoting wildlife-dependent recreation by providing lands and waters open to all. On a narrow, linear refuge, land acquisition is a critical component of restoring the habitat connectivity needed for the health of many species. The Refuge currently ranks 6th nationally on the Service's Land Acquisition Priority System due to its resource importance. Land acquisition can also be cost effective in the long-term due to inflation of land costs and the costs of acquiring undeveloped land versus developed land that also needs restoration. This objective represents an aggressive land acquisition program of about 1,000 acres per year to achieve goals set in the 1987 Master Plan and other approved acquisition documents. Lands with the highest fish and wildlife values were coded "A" in the 1987 Master Plan, and this ranking system remains a useful prioritization tool. However, public use values would also be considered when setting priorities between available tracts in keeping with the balanced approach of this alternative.

Strategies

Seek consistent Land and Water Conservation Fund appropriations to meet the objective (approximately $1.5 million per year at $1,500 per acre).
Explore land exchanges with the states to remove intermingled ownerships.
Continue to work with the Department of the Army to transfer title of tracts as they are cleaned of contaminants at the Lost Mound Unit (former Savanna Army Depot).

Objective 1.3. Bluffland protection. By 2021, acquire from willing sellers protective easements or fee-title interest in all undeveloped bluffland areas within the approved boundary of the Refuge as identified in the 1987 Master Plan. (See maps, Appendix G.)

Rationale: There have been no acquisitions of bluffland areas since first identified in the 1987 Master Plan, and this objective represents a more aggressive approach to safeguarding the wildlife values of these areas. In recent years, peregrines have once again started nesting on the rock faces of some bluffs. Peregrines, at one time an endangered species, were the main rationale for including the 13 areas in the acquisition boundary. Blufflands are also an important part of maintaining the scenic quality of the Refuge landscape and harbor unique and diverse plants and animals. Since some areas identified have been developed for housing or other uses since 1987, the focus would be on the undeveloped areas. However, there may be an opportunity to protect remaining values of these developed areas through creative easements.

Strategies

Seek consistent acquisition funding as noted in Objective 1.2 and use a blend of easements and fee-title acquisition that best meets landowner's desire and balances wildlife and public use objectives.

Work with the state, local governments, and private land trusts to protect bluffland habitat and scenic values.

Work with local units of government to encourage zoning regulations which protect bluffland scenic qualities.

Educate the public on the values of blufflands for birds and unique plant communities.

Objective 1.4.

Research Natural Areas and Special Designations. By 2010, complete a management plan for each of the Refuge's four federally-designated Research Natural Areas. No new Natural Areas would be established. (See maps in Appendix P and Table 7 on page 229.) Also by 2008, facilitate preparation of a nomination package for designating the Refuge a "Wetland of International Importance" in accordance with the Ramsar Convention.

Rationale: The Refuge has done little in the way of monitoring or research of the existing Research Natural Areas. Although the main goal of the area designation is the preservation of unique floodplain forest areas, preservation is a form of management. No management plans have been written to guide monitoring and research of current habitat conditions and changes since the areas were designated in the 1970s. Completing a management plan for each area would identify monitoring protocols, any habitat management needed to retain original biological values or address threats, address any special public use considerations, and identify ways to foster public awareness and appreciation of these unique areas. No areas of the Refuge are deemed suitable for new Natural Area designation.

Designating the Refuge a Wetland of International Importance would raise its stature in line with previously designated national wildlife refuges including Horicon National Wildlife Refuge in Wisconsin and Sand Lake National Wildlife Refuge in South Dakota. Designation would recognize the Refuge's international importance to migratory birds, as well as its uniqueness in balancing a variety of commercial, cultural, and recreational values, values supported in the treaty stemming from the Ramsar Convention and reflected in this integrated alternative. Designation would

also foster the sharing of scientific information and elevate management attention when facing future needs and challenges.

Strategies

The District Managers will be responsible for completion of management plans for natural areas in their respective Districts, using a consistent approach and format, and in cooperation with the states and other federal agencies as appropriate (e.g. Nelson-Trevino).

Seek cooperative research and monitoring opportunities with other agencies and colleges and universities.

Ensure yearly review of Research Natural Area boundaries to ensure integrity of the areas.

Work collaboratively with the Corps of Engineers, the states, non-government organizations, and the public in preparing a nomination package for Wetland of International Importance designation.

Goal 2: Environmental Health. We will strive to improve the environmental health of the Refuge by working with others.

Objective 2.1. Water Quality. Working with others and through a more aggressive Refuge program, seek a continuous improvement in the quality of water flowing through and into the Refuge in terms of parameters measured by the Long Term Monitoring Program of the Environmental Management Program (dissolved oxygen, major plant nutrients, suspended material, turbidity, sedimentation, and contaminants).

Rationale: The quality of water on the Refuge is one of the most important factors influencing fish, wildlife, and aquatic plant populations and health, which in turn influence the opportunity for public use and enjoyment. Water quality is also beyond the Refuge's ability to influence alone given the immense size of the Refuge's watershed and multiple-agency responsibilities. This objective recognizes these limitations, but charts a more aggressive role for the Refuge through the strategies below. The objective also highlights the advocacy role the Refuge can play in educating the public and supporting the myriad of agencies which together can influence water quality.

Strategies

Hire a Private Lands Biologist or Technician for each of the Refuge's four Districts to restore and enhance wetland, upland, and riparian habitat on private lands in and along sub-watersheds feeding into the Refuge, and to broker the myriad of private land and conservation opportunities available through the Department of Agriculture and others.

Increase conservation assistance agreements with Soil and Water Conservation Districts and Resource Conservation and Development boards.

Cooperate with local government land use planning efforts to ensure that water quality impacts to the Refuge are considered.

Emphasize water quality aspects, especially sediment deposit in backwaters, in all habitat enhancement projects.

Link the planning and projects for tributary watersheds to Pool Plan implementation using the latest GIS-based mapping and modeling.

Support cooperative water quality monitoring and improvement efforts through the Upper Mississippi River Conservation Committee and other groups and agencies.

Continue to stress the importance of water quality in public information and interpretion, and environmental education programs.

Objective 2.2. Water Level Management. By 2021, complete drawdowns of all Refuge pools during the summer growing season in coordination with the Corps of Engineers and states.

Rationale: Lowering the water levels in impoundments during the growing season is a proven management practice to dramatically increase emergent vegetation. Improved vegetation results in more food and cover for a wide range of fish and wildlife species, which in turn enhances opportunities for wildlife-dependent recreation. Much of the emergent vegetation on the Refuge has been lost due to stable water regimes created for navigation, and this objective seeks to restore productive marsh habitat to thousands of acres. All pools would benefit from drawdowns. However, Pool 14 does not appear to be feasible in the 15-year horizon of this plan.

Strategies

Continue to work in partnership with the interagency water level management taskforce to plan, facilitate and prioritize drawdowns.

Inform and involve citizens through public meetings, workshops, and citizen advisory groups.

Seek all available funding sources to carry out needed recreational access dredging to lessen social and economic impacts during drawdowns (proposals in Corps of Engineers Navigation Study released in 2004 includes funding for drawdowns).

Explore options for funding an Access Trust Fund to ensure adequate funding when needed to accomplish drawdowns.

Objective 2.3. Invasive Plants. By 2008, complete an invasive plant inventory and by 2010, achieve a 10 percent reduction in acres affected by invasive plants such as purple loosestrife, reed canary grass, Eurasian milfoil, leafy spurge, crown vetch, Russian knapweed, knotweed, European buckthorn, garlic mustard, and Japanese bamboo. Emphasize the use of biological controls.

Rationale: Invasive plants continue to pose a major threat to native plant communities on the Refuge and beyond. Invasive plants displace native species and often have little or no food value for wildlife. The result is a decline in the carrying capacity of the Refuge for native fish, wildlife, and plants, and a resulting decline in the quality of wildlife-dependent recreation. This objective addresses invasive plants by first determining and mapping baseline information so that effective and efficient control can take place. Biological control includes release of insects which prey directly on purple loosestrife or leafy spurge plants or disrupt part of their life cycle, and is a more long-term and cost efficient solution compared to herbicide spraying.

This objective is tempered by the realization that biological control methods are not yet readily available for a large number of invasive plant species.

Strategies

Hire seasonal biological technicians to conduct an inventory and prepare baseline maps of invasive plant infestations.
Write an invasive plant control and management plan (integrated pest management plan) that identifies priority areas and methods of control.
Seek seasonal staff and funding to accelerate current control and applied research efforts through interagency partnerships, volunteer programs, and public education.
Continue to work with the Department of Agriculture, other agencies, the states, and other refuge field stations in securing insects and beetles for release in high-infestation areas.
Take advantage of periodic invasive grant, cost-sharing, or special funding opportunities offered through the Service or other agencies and foundations.
Conduct public information effort including media, brochures, signage, and programs to increase awareness of the invasives threat and what visitors can do to minimize the introduction or spread of invasives.

Objective 2.4.

Invasive Animals. Increase efforts to control invasive animals through active partnerships with the states and other Service programs and federal agencies, and increase public awareness and prevention.

Rationale: Invasive animals such as zebra mussels and Asian carp species pose a current and looming threat to native fish and mussel species and have the potential to disrupt the aquatic ecosystem. They can also have a direct link to the quality of fishing by displacing various game fish, or destroying important habitat for fish and wetland-dependent birds which people observe or hunt. This objective is not measurable, reflecting the reality that invasive animal species do not lend themselves to direct control in a large river system and that addressing invasive animals is dependent on political and management actions beyond the boundary of the Refuge. However, the objective does emphasize the importance of addressing invasive species and represents more active Refuge involvement.

Strategies

Implement other objectives and strategies in this plan which have an influence on invasive species work. For example, better habitat conditions promote healthy native fish populations that can compete with invasive species, while adding a fishery biologist to the staff would increase and improve coordination with other programs and agencies dealing with invasives.
Continue to work with other agencies in developing effective regulations, barriers, biological controls, or other means to reduce introduction and spread of invasives.
Explore new and creative ways to expand the harvest of invasive fish by commercial fishing, such as a bonus payment to enhance market price.

Conduct public information effort including media, brochures, signage, and programs to increase awareness of the invasives threat and what visitors can do to minimize the introduction or spread of invasives.

Goal 3: Wildlife and Habitat. Our habitat management will support diverse and abundant native fish, wildlife, and plants.

Objective 3.1. Environmental Pool Plans. By 2021, implement at least 30 percent of the Refuge-priority Environmental Pool Plan actions and strategies in Pools 4-14 as summarized in Table 4 on page 196 (see Appendix N for examples of Environmental Pool Plan maps).

Rationale: Environmental Pool Plans represent a desired future habitat condition developed by an interagency team of resource professionals, including Refuge staff. The Pool Plans represent what is necessary to reverse the negative trends in habitat quality and quantity on the Upper Mississippi River. Improved habitat is the key to healthy fish and wildlife populations, which in turn impact the quality of wildlife-dependent recreation. Thus, this objective represents an important part of the wildlife and integrated public use focus alternative. The Refuge represents a sizeable subset of the habitat vision presented in each Pool Plan. The Refuge also has different resource mandates and responsibilities than the Corps of Engineers and the states. Thus, the Refuge prioritized various actions to meet these needs as represented in Table 4 on page 196. The objective of 30 percent represents a reasonable rate of implementing priority actions given current funding levels (mainly through the Environmental Management Program, Corps of Engineers) for habitat conservation work, and the 15 year horizon of this CCP versus the 50 year horizon of the Pool Plans. Some of the actions and strategies in the Table overlap with other objectives in this plan (e.g. forest management, land acquisition, watershed work, and water level drawdowns).

Strategies

Continue to coordinate with the River Resources Forum's Fish and Wildlife Workgroup, and the River Resources Coordinating Team's Fish and Wildlife Interagency Committee, to implement pool plan priorities.
Continue to work for full and expanded funding of the Environmental Management Program through public and Congressional information and outreach.
Take advantage of any new funding sources that emerge, such as appropriations from Congress for implementing the Navigation Study ecosystem restoration recommendations.

Objective 3.2. Guiding Principles for Habitat Management Programs. Upon approval of the CCP, adopt and use the following guiding principles when designing or providing input to design and construction of habitat enhancement projects:

1.) Management practices will restore or mimic natural ecosystem processes or functions to promote a diversity of habitat and minimize operations and maintenance costs.
2.) Maintenance and operation costs of projects will be weighed carefully since annual budgets for these items are not guaranteed.

3.) Terrestrial habitat on constructed islands and other areas needs to best fit the natural processes occurring on the river, which in many cases will allow for natural succession to occur.

4.) If project features in Refuge Waterfowl Hunting Closed Areas serve to attract public use during the waterfowl season, spatial and temporal restrictions of uses may be required to reduce human disturbance of wildlife.

5.) The esthetics of projects, in the context of visual impacts to the landscape, should be considered in project design in support of Refuge Goal 1, Landscape.

Rationale: Guiding principles for habitat restoration or enhancement projects would provide consistency between the four Districts of the Refuge and help communicate to cooperating agencies and the public standards from which we will design projects. The principles will also help ensure compliance with Service policy on biological integrity and recognize the need to consider future operations and maintenance costs before doing projects. In addition, the principles help ensure that projects complement, rather than compete with, other goals and objectives in this plan.

Strategies

Refuge staff will use these guidelines when proposing and designing habitat enhancement projects funded by the Service. They will also be used during coordination with the Corps of Engineers and the states in cooperative programs such as the Environmental Management Program or any new program authority that may arise from the Corps of Engineers' Navigation Study.

Objective 3.3. Monitor and Investigate Fish and Wildlife Populations and Their Habitats. By January 2008, amend the 1993 Wildlife Inventory Plan to include more species groups such as fish, reptiles, mussels, and plants, and increase the amount of applied research being done on the Refuge.

Rationale: Monitoring is essential to understanding the status and trends of selected species groups and habitats. This in turn provides some indication of overall biological integrity, diversity, and environmental health of the Refuge, and is critical in planning habitat management and public use programs. This objective represents a more aggressive biological program on the Refuge and will help meet directives in the Refuge Improvement Act requiring monitoring the status of fish, wildlife, and plant species. Better biological information is also critical to making sound and integrated resource and public use management decisions. The Refuge would continue to support and use monitoring done by the states, U.S. Geological Survey, the Corps of Engineers, and others to help fill the gaps in status and trends information for fish, mussels, reptiles, forests and other land cover, and environmental factors such as water chemistry and sedimentation.

Strategies

Engage other experts and partners to develop and implement the Wildlife Inventory Plan.

Establish a Refuge Research Team that designs short-term and long-term research projects to address management questions and concerns about wildlife populations and their habitat.

Continue to work with the states, U.S. Geological Survey, and Corps of Engineers in the sharing of data on other species and habitats.

Establish a schedule of formal coordination meetings with the U.S. Geological Survey to share biological monitoring methods and data.

Ensure that each District has a biologist on staff and that Headquarters has a GIS biologist.

Seek more cooperation with colleges and universities to foster more graduate research projects.

Continue to use volunteers for certain monitoring efforts such as the breeding bird survey point counts.

Complete a Habitat Management Plan which integrates species status and trends with the Environmental Pool Plans (Objective 3.1).

Objective 3.4. Threatened and Endangered Species Management. By the end of 2008, begin monitoring of all federally listed threatened or endangered and candidate species on the Refuge, and by 2010, have in place management plans for each species to help ensure their recovery.

Rationale: As noted in an earlier section of this chapter, it is Service policy to give priority consideration to the protection, enhancement, and recovery of these species on national wildlife refuges. This objective represents a more aggressive approach to achieving this policy, and also reflects the high public interest in threatened and endangered species. Currently, the only species actively monitored by the Refuge are bald eagles, and efforts would be expanded to include the Higgins eye pearlymussel, eastern massasauga rattlesnake, and Sheepnose mussel.

Strategies

Consider the needs of threatened, endangered and candidate species in all habitat and public use management decisions.

Continue to consult with the Service's Ecological Services Offices on all actions which may affect listed species.

In Wildlife Inventory Plan, address monitoring plan for all listed or candidate species, and other species of management concern to help preclude listing.

Continue monitoring Bald Eagle nesting populations and success.

In Habitat Management Plan, identify steps needed to ensure populations of listed or candidate species are sustained in support of delisting or to preclude listing in the future.

Give priority to acquisition of lands within approved boundary that contain listed or candidate species.

Continue assistance to other offices and agencies with Higgins eye pearlymussel recovery efforts.

Increase education and outreach specifically targeting threatened and endangered species found on the Refuge.

Objective 3.5. Furbearer Trapping. Update the Refuge trapping plan by June 2007, continuing the existing trapping program until the update is completed.

Rationale: Furbearer trapping has a long history on the Refuge and can be an important management tool in reducing furbearer disease and habitat impacts, and in safeguarding certain Refuge infrastructure such as dikes, islands, and water control structures. The current trapping plan is dated by time (1988), new furbearer ecology and population information, and by new policies governing compatibility of uses and commercial uses on national wildlife refuges.

Strategies

The Refuge wildlife biologists, in consultation with Refuge District managers and state furbearer biologists will develop a revised trapping plan for approval by the Refuge manager.
Afford the public an opportunity for review and comment on the plan.
Complete a new compatibility determination for public review and comment.

Objective 3.6. Fishery and Mussel Management. By the end of 2008, complete a Fishery and Mussel Management Plan for the Refuge which incorporates current monitoring and management by the states and other Service offices and agencies.

Rationale: One of the purposes of the Refuge is to provide a "refuge and breeding place for fish and other aquatic animal life." Fish and mussels also have high intrinsic, recreational, and commercial values. For decades, the Refuge has not taken an active role in fishery or mussel management, deferring to the states or others on this management responsibility. Although the states will still play the lead role in fisheries and mussel management, the Refuge should have in place a plan which communicates to the states and the public the Refuge and Service perspective on fishery and mussel management issues and needs, and to help set common goals, objectives, and means of collecting and sharing information. The plan would also help guide conservation efforts for rare or declining interjurisdictional species such as paddlefish and sturgeon and federally listed and candidate aquatic species, and address the Refuge's role in commercial harvest of species and control of aquatic invasive species. Healthy fishery and mussel populations also benefit the public's use and enjoyment of these resources.

Strategies

Add a fishery biologist to the Headquarters staff to coordinate fishery and mussel management on the Refuge.
Prepare plan in collaboration with the states, Service fishery offices, the Genoa National Fish Hatchery, and aquatic biologists of the U.S. Geological Survey.

Objective 3.7. Commercial Fishing and Clamming. By the end of 2008, complete a Fishery and Mussel Management Plan, and by January 2009, begin issuing Refuge special use permits in addition to state-required permits for commercial fishing and clamming.

Rationale: The Refuge has provided little to no oversight of the commercial harvest of fish or mussels in the past. However, federal regulations governing the Refuge System state that "fishery resources of commercial importance on wildlife refuge areas may be taken under permit in accordance with federal and state law and regulations" (50 Code of Federal Regulations, Part 31.13). Other regulations govern all commercial uses on refuges. Besides this compliance issue, the Refuge can play an important advisory and coordination role with the four states which administer commercial fish and mussel harvest on the Refuge.

Strategies

In addition to the strategies in Objective 3.6, establish, with the states through the Upper Mississippi River Conservation Committee, a method of sharing permittee and catch information for the Refuge.
Devise a Refuge permitting process that dovetails with state permits so that commercial users receive only one permit versus two.
Enter into cooperative agreements as needed to implement this one-stop-shopping permit process.
Ensure that commercial harvest of fish and mussels meets objectives in Refuge plans, and explore ways that commercial harvest can help address invasive species issues (Objective 2.4).

Objective 3.8.

Turtle Management. By spring 2007, initiate a 3-5 year turtle ecology study on representative habitats of the entire Refuge. Continue to cooperate with the states and the Corps of Engineers in monitoring turtle populations on certain Refuge areas.

Rationale: Recent surveys in the Weaver Bottoms area of Pool 5 indicate that this area of the Refuge is an important, and perhaps critical, area for 8 species of turtles, some of which are listed by the states as threatened or endangered. Surveys on other Pools of the Refuge show that 11 species are present. There are numerous potential negative and positive impacts to turtles from public use and navigation channel maintenance activities on the Refuge. However, more rigorous monitoring and research is needed over a broad area to understand turtle populations and ecology to guide a coordinated approach to their conservation, and to guide management decisions concerning public uses in or on important turtle habitats. A comprehensive study would provide this information.

Strategies

In cooperation with the U.S. Geological Survey, seek special funding and grants to fund the turtle ecology study.
Continue to coordinate with the Corps of Engineers and the states on ways to minimize turtle nesting disturbance on dredge material disposal sites located on the Refuge.
Through the Upper Mississippi River Conservation Committee, devise a method of sharing more detailed commercial turtle harvest information for the Refuge.
Upon completion of the turtle ecology study, complete a turtle management strategy and incorporate recommendations in habitat, commercial use, and public use management activities.

Conduct public information effort including media, brochures, signage, and programs to increase awareness and appreciation of turtles and communicate what visitors can do to minimize impacts on beach areas used for nesting.

Objective 3.9. Forest Management. Complete by the end of 2008, in cooperation with the Corps of Engineers, a forest inventory of the Refuge, and by 2010, complete a Forest Management Plan for the Refuge.

Rationale: A baseline forest inventory of the approximately 51,000 acres of floodplain forest on the Refuge is the first step in addressing concerns for the long-term health of this important resource. The Corps of Engineers has been actively working on a forest inventory for several years on Corps of Engineers-acquired lands, and it makes fiscal and efficiency sense to partner with the Corps of Engineers on Service-acquired lands on this objective. A Forest Management Plan is needed to integrate forest and wildlife objectives, and to identify management prescriptions such as harvest, planting, fire, and invasives control. Collaboration with the Corps of Engineers is essential to meet the forest habitat needs of wildlife since the Corps of Engineers retained forest management authority on Corps of Engineers-acquired lands that are part of the Refuge. Healthy forests also benefit the diversity and quality of public uses on the Refuge.

Strategies

As Refuge funding allows, continue to fund seasonal technicians to help with the Corps of Engineers' inventory project on Service-acquired lands.
Continue to work with the Corps of Engineers and other partners on forest rejuvenation and research projects.
Continue small scale reforestation, especially mast-producing hardwoods, on suitable Refuge lands.
Add a Refuge Forester to the Headquarters staff to oversee Forest Management Plan preparation and implementation, and to coordinate with the Corps of Engineers and the states on forest management issues and opportunities.

Objective 3.10. Grassland Management. Maintain 5,700 acres of grassland habitat on the Refuge through the use of various management tools including prescribed fire, haying, grazing, and control of invasive plants, and by 2008, address grassland conservation and enhancement in a step-down Habitat Management Plan.

Rationale: Many species of wildlife, particularly birds, are dependent on grassland habitat. In addition, some of these grasslands are remnant tallgrass native prairie, a diverse and rare ecosystem throughout the Midwest and home to rare or declining plant and animal species. Active management is needed to curb loss of grasslands to forest succession or invasive species, and to maintain species diversity and health. Healthy grasslands benefit a variety of public uses including wildlife observation, plant study, photography, and hunting.

Strategies

Implement the Refuge's Fire Management Plan.

Use haying, rotational grazing, and control of invasive plants as appropriate to maintain grasslands. Restore aspects of native prairie where feasible using a combination of rest, fire, farming, and reseeding as appropriate to the site.

Increase monitoring to measure effectiveness of treatments.

Goal 4: Wildlife-Dependent Recreation. We will manage programs and facilities to ensure abundant and sustainable hunting, fishing, wildlife observation, wildlife photography, interpretation, and environmental education opportunities for a broad cross-section of the public.

Objective 4.1. General Hunting. Maintain a minimum of 180,626 acres (75 percent) of land and water of the Refuge open to all hunting in accordance with respective state seasons, and add 6 new administrative No Hunting Zones for a total of 5,404 acres. See related Objective 4.2 on Waterfowl Closed Areas. (See Table 2 and Table 10 in Appendix H and maps in Appendix P.)

Rationale: Maintaining a large percentage of the Refuge open to hunting is in keeping with guidance in the Refuge Improvement Act to facilitate wildlife-dependent use when compatible. This objective also represents an integrated wildlife and public use emphasis by more strategic placement of Waterfowl Closed Areas in the related Objective 4.2, to both protect migrating waterfowl and offer a better distribution of waterfowl hunting opportunities. These Closed Areas reopen to some hunting after the duck season, adding to the open acreage above. The six new No Hunting Zones are for safety reasons or to minimize conflict between user groups. One is at Sturgeon Slough, Pool 10 (66 acres), which contains a fairly new hiking trail off a major highway, and the other is at Crooked Slough proper, Pool 13 (192 acres) to avoid conflicts and address safety concerns in a relatively narrow corridor popular with anglers.

Strategies

Continue yearly review of Refuge Hunting Regulations to ensure clarity and to address any emerging issues or concerns, and give the public an opportunity to review and comment on any changes.

To minimize potential conflicts between user groups, no hunting should occur on the Refuge prior to September 1 of each year and all hunting should end March 15, except for spring Wild Turkey hunting.

Continue to publish the Refuge Hunting Regulations brochure to inform the public of hunting opportunities and Refuge-specific regulations.

Continue to improve the hunting experience by ongoing improvements to habitat and enforcement of regulations.

Review the 1989 Refuge Hunting Plan and modify as needed to comply with new regulations and policies.

Clearly sign areas closed to hunting and ensure public notification through news releases and other means well before the hunting seasons.

Objective 4.2. Waterfowl Hunting Closed Areas. In fall 2006, implement the following changes to the current Waterfowl Closed Area system on the Refuge:

1.) Add five new Closed Areas and delete or modify some of the current 15, for a total of 21 areas totaling 43,704 acres, or 791 acres more than current area (see Table 10 and Table 11 in Appendix H, and maps in Appendix P).
2.) The following areas would be closed to all entry and use from October 1 to the end of the respective state regular duck season:
    a) Pool Slough Sanctuary (McGregor District, Pool 9, Iowa/Minnesota)
    b) Guttenberg Ponds portion of the 12 Mile Slough Sanctuary (McGregor District, Pool 11, Iowa)
    c) Spring Lake Sanctuary (Savanna District, Pool 13, Illinois)
3.) All other Waterfowl Closed Areas, except on Lake Onalaska, would be closed to all fishing, except bank fishing, and all motorized watercraft, from October 1 to the end of the respective state regular duck season.
4.) The current Lake Onalaska Closed Area and associated Voluntary Waterfowl Avoidance Area would not be affected, although boundary adjustments would be made.

Rationale: This objective represents a balanced approach between the needs of waterfowl and the public as reflected in the following overall Closed Area system goals:

1.) Provide migrating waterfowl a more balanced and effective network of feeding and resting areas.
2.) Minimize disturbance to feeding and resting waterfowl in closed areas.
3.) Provide waterfowl hunters with more equitable hunting opportunities over the length of the Refuge.
4.) Reduce hunter competition and waterfowl crippling loss along some closed area boundaries.
5.) Stabilize boundaries where island and/or shoreline loss or gain creates a fluctuating boundary.

This objective also helps address the issues surrounding Closed Areas as discussed in Chapter 1, Section 1.4.5.4 on page 23., and analyzed in Chapter 3, Section 3.2.7 on page 235. The five new Closed Areas were chosen to fill gaps between existing Closed Areas, to meet the needs of both dabbler and diver ducks which have different spatial and foraging needs, and to provide areas with the best food potential. An analysis of the potential carrying capacity of existing and proposed alternative Closed Areas was completed in 2004 and shows that this alternative objective would provide a 16 percent increase in total energy available to waterfowl in the Closed Area system (this report is available at Refuge headquarters or on the Refuge planning web site: http://midwest.fws.gov/planning/uppermiss/index.html).

The Closed Area locations and configurations in this alternative also took into account the need for public access and travel routes, commercial navigation, adjacent business and community needs and practicalities, likelihood of near-term habitat improvements in existing Closed Areas, and the desire to continue to provide viable waterfowl hunting opportunities. No change was made in entry regulations for the Lake Onalaska closed area to provide a useful control area to measure differences in effectiveness of mandatory no

fishing and no motorized watercraft versus voluntary compliance as presented in the current Lake Onalaska Voluntary Avoidance Area. The exception also recognizes the unique location of the Lake Onalaska closed area amidst heavy shoreline development and the resulting heavy watercraft use needs and patterns by adjacent property owners and nearby population centers.

Strategies

Improve habitat in all Closed Areas by ongoing programs such as pool drawdowns, Environmental Management Program projects, and other agency initiatives and regulations.

Continue to monitor waterfowl use of Closed Areas through weekly aerial surveys in the fall.

Monitor the frequency and effect of disturbance by commercial, public, and agency entry into Closed Areas.

Conduct a comprehensive public information campaign to inform waterfowl hunters and the general public of impending changes. Use all methods available including personal contact, presentations at organizations, special meetings, leaflets, signing, news releases, websites, and media interviews.

Post boundaries of new or modified closed areas well in advance of the waterfowl hunting season to help with public awareness.

Increase law enforcement presence to help ensure understanding and compliance with changes, relying on verbal and/or written warnings, at an officer's discretion, the first year of implementation in 2006.

Objective 4.3

Waterfowl Hunting Regulation Changes. In fall 2006, implement the following Refuge-specific waterfowl hunting regulation changes: (See Appendix I for current regulations)

1.) All hunters may possess no more than 25 shotshells during the respective statewide waterfowl season.

2.) Waterfowl hunting parties shall maintain at least 100 yards spacing between each other. A party is defined as one or more persons hunting together from a boat or stationary location.

3.) Open-water hunting is prohibited on an area of Pool 9 near Ferryville and Cold Springs (river miles 652-658), and an area of Pool 11 (river miles 586-591), both in Wisconsin.

Rationale: The shotshell limit is designed to curb the excessive out-of-range shooting or "skybusting" that occurs throughout the Refuge to varying degrees. Skybusting can have a marked effect on the number of birds crippled and unretrieved, and disrupts the hunting for those who favor working birds with decoy sets. A shell limit will decrease skybusting by providing an incentive (longer hunting experience) for making judicious shooting decisions. The shell limit is reasonable and above limits imposed at other heavily-used public hunting areas and national wildlife refuges. The hunting party spacing regulation is designed to improve the waterfowl hunting experience by reducing the conflict and competition between hunting parties that can occur in favored areas of the Refuge. Refuge officers have observed, and received complaints about, crowding and its disruption to

hunters favoring decoy hunting, and its contribution to skybusting and confrontations between hunters. The Refuge Manual (8 RM 5) encourages managers to space hunters appropriately to the situation. The 100 yard minimum is less than the standard 200 yards used on many public hunting areas, but is deemed appropriate for this Refuge. Collectively, these two regulations represent a balanced approach to the conservation of waterfowl through reducing crippling loss, and by improving the hunting experience through spacing of hunters.

The prohibition of open-water hunting is to limit disturbance in areas of Pools 9 and 11 that have become important feeding and loafing sites for hundreds of thousands of canvasback and lesser scaup ducks, two species of management concern due to relatively small or declining populations. In Pool 9, the Refuge prohibition is additional insurance for safeguarding waterfowl use of the area into the future since Wisconsin regulations currently prohibit open water hunting. In Pool 11, open water hunting is allowed through a special exemption to the Wisconsin regulations. In the 1980s, the area was an important staging and feeding area for diving ducks, primarily scaup, which fed on abundant fingernail clam. When the fingernail clams collapsed, waterfowl use virtually ceased. In recent years, wild celery has become established and the area is attracting large numbers of canvasback and other diving ducks. This area provides the only major staging and feeding area for divers between Pool 9 and Pool 13, a distance of 125 river miles. The open water prohibition would be pre-emptive since virtually no open water hunting (skull boats) is happening at this time, but is likely as habitat improves and birds increase.

Strategies

Conduct a comprehensive public information campaign to inform waterfowl hunters and the general public of impending changes. Use all methods available including personal contact, presentations at organizations, special meetings, leaflets, signing, news releases, websites, and media interviews.
Increase law enforcement presence to help ensure understanding and compliance with changes, relying on verbal and/or written warnings, at an officer's discretion, the first year of implementation in 2006.
Maintain or improve habitat in Pools 9 and 11 through ongoing programs such as pool drawdowns, habitat enhancement projects, and other agency initiatives and regulations.
Continue to monitor waterfowl use of these areas through weekly aerial surveys in the fall.

Objective 4.4.

Firing Line – Pool 7, Lake Onalaska. Implement a managed hunting program in a 230-acre area delineated at the north end of Lake Onalaska in 2006 to reduce and/or eliminate "skybusting" and associated crippling of waterfowl, competition between hunters for prime hunting sites, and other unsportsmanlike behavior in the Barrel Blinds area of Pool 7. This will be known as the Gibbs Lake Managed Hunting Program. (See map, Alternative D, Appendix P, La Crosse District)

Rationale: The Refuge's Closed Area System was designed to disperse waterfowl hunting opportunity. Hunters tend to congregate near

concentrations of waterfowl. Some sections of the closed area boundary, particularly those that bisect emergent marsh, are popular and can attract large concentrations of hunters as they wait for waterfowl to leave closed areas. Pass shooting is the technique most often used along the Barrel Blinds firing line. Unfortunately, "skybusting," or shooting at birds out of range, often results in increased crippling loss. For example, 63 of 141 (44.7 percent) hunting parties observed by law enforcement personnel during the 1991-93 seasons hunting along firing lines in Pool 7 skybusted at least once during the time they were observed. Skybusting was defined as shooting at waterfowl at distances of 50 yards or more. The number of shots required to retrieve one bird was 11. During the 1992 hunting season, these same observers working Pool 7 firing lines and other areas, found that hunters who did not skybust had a crippling loss rate of about 27 percent for the ducks or coots they downed. The crippling loss rate for ducks and coots downed through skybusting increased to nearly 57 percent.

Hunter behavior can also deteriorate in crowded, competitive situations. Behavior observed or reported along the Barrel Blinds area includes people claiming preferred sites by spending the night, handing-off sites to friends or co-workers after a party's hunt is over, verbal confrontations, late arriving hunters disrupting those set-up, flaring birds before they can work decoy sets, failure to retrieve birds, and increased littering.

Guidance in the Refuge Manual helps set the standard for hunting on refuges: "Refuge hunting programs should be planned, supervised, conducted, and evaluated to promote positive hunting values and hunter ethics such as fair chase and sportsmanship. In general, hunting on refuges should be superior to that available on other public or private lands and should provide participants with reasonable harvest opportunities, uncrowded conditions, fewer conflicts between hunters, relatively undisturbed wildlife, and limited interference from or dependence on mechanized aspects of the sport. This may require zoning the hunt unit and limiting the number of participants."

The Refuge looked at several options for improving the hunting experience in this area. These options included limiting the number of hunters pool-wide, setting minimum distances between hunters, more education, limiting the number of shotshells, more intense enforcement, and modifying the closed area boundary. However, all had shortcomings in this particular area compared to a managed hunt program.

Strategies

Conduct a comprehensive public information campaign to inform waterfowl hunters and the general public of impending changes. Use all methods available including personal contact, presentations at organizations, special meetings, leaflets, signing, news releases, websites, and media interviews to ensure that hunters accustomed to hunting in this area have ample opportunity to find new hunting sites, if desired. Conversely, hunters who have not had a chance to hunt in this area will also learn about this new opportunity.

Prepare a hunt-specific leaflet or fact sheet explaining the change and new regulations.

Post and sign the new hunt area boundary well in advance of the hunting seasons.

Increase law enforcement presence to help ensure understanding and to monitor and refine the hunt as needed.

Implement the Gibbs Lake Managed Hunting Program per the following details:

1. Hunter selection through a pre-season drawing with each applicant limited to one opportunity through the drawing. Each applicant may apply for up to three dates with selection by order of preference. Only successful applicants will be notified. Hunting sites determined by a daily drawing. If successful applicants are not present on their scheduled day, remaining sites would be made available to stand-bys or walk-ins through a drawing.
2. All hunting would be done next to the assigned stake. Hunters can use temporary blinds per Refuge regulation.
3. The registered hunter can bring one guest for a total party size of two. A daily permit will be issued to each hunter.
4. Two Saturdays during the month of October will be designated as "family days" to provide better opportunities for young hunters, ages 12-15, accompanied by a parent or guardian, to participate. The fee will be waived on "family days" for parents and young hunters, and the party size will be increased to three on these two dates for parties meeting the requirements. If sites are not filled by parents and young hunters, they will be filled by other hunters through a drawing. All area regulations apply on "family days."
5. Each hunting party has use of a site for the full day. Sites would not be refilled if a party leaves.
6. Program-specific regulations include a shotshell possession limit of 25 per hunter. A 100-yard retrieval zone would be implemented within the adjoining Lake Onalaska Closed Area to limit disturbance to waterfowl.
7. The managed hunt would be operational through the first 45 days of a 60-day hunting season. Thereafter, sites would be available on a first-come basis with all Gibbs Lake Managed Hunting Program regulations remaining in effect. No other hunting would be allowed in the Gibbs Lake Managed Hunting Area while the duck hunting season is underway.
8. The exact size, location, and configuration of the Gibbs Lake Managed Hunting Area and the number of hunting sites have not been determined. That will be done later in the field. However, an estimated size as depicted on planning maps is 230 acres (Appendix P). Based on Service hunting program guidelines, past use patterns, and other criteria, it appears that 12-15 hunting parties can be accommodated per day within the managed hunting area and meet program goals.
9. The cost to operate the Gibbs Lake Managed Hunting Program is estimated at nearly $25,000 for a 60-day duck hunting season. To pay for the program, participating hunters will be charged a fee. This fee ranges from $18-23 per hunter per day depending on program costs and the final number of hunting sites. As the program is refined, a final fee will be determined.

Objective 4.5. Permanent Hunting Blinds on Savanna District. Phase-out the use of permanent hunting blinds for waterfowl hunting within the Savanna District of the Refuge. Permanent blinds will no longer be allowed on the Refuge in Pool 12 after the 2006-07 season, Pool 13 after the 2007-08 season, and Pool 14 after the 2008-09 season. (See Table 17 in Appendix H and maps in Appendix P, Savanna District.)

Rationale: Eliminating permanent blinds would provide consistency on the Refuge since they are not allowed on the other three Districts. In addition to consistency, eliminating the blinds would address a host of issues involving debris, private exclusive use of public waters, limiting hunting opportunities, and confrontations and other incidents. These issues were discussed more fully in Chapter 1, Section 1.4.5.4. This objective would also reduce the staff time spent on law enforcement, complaints, and clean-up, which permanent blinds entail, time which could be directed toward more wildlife-related needs, and in line with the wildlife aspect of this alternative. By using a phased approach, the objective takes into consideration the long-standing tradition of permanent blind hunting and gives hunters more time to transition to alternative hunting methods and areas. The elimination of permanent blinds also opens the Refuge to a broader cross-section of hunters, and will help reduce conflict that has arisen between hunting parties, and limits the private, exclusive use of public waters and lands.

Strategies

Conduct public information campaign to inform the public of the change and to give hunters who have become accustomed to the blinds a chance to adapt to alternative hunting methods or areas.

Prepare and distribute a leaflet explaining the change and regulations for temporary blinds.

Begin phase in of regulations by requiring hunters to comply with the following requirements the year before a respective pool is scheduled for permanent-blind phase-out:

1. Blinds must be marked with name and address of owner.
2. All blind material must be removed by the hunter within 30 days of the end of the waterfowl hunting season.

Objective 4.6. Potter's Marsh Managed Hunt on Savanna District. Beginning with the 2006-07 season, implement a variety of administrative and regulation changes to reduce costs and provide an equitable hunting experience. Permanent blinds would be eliminated after the 2007-08 season, but boat-blind sites provided and managed. (See Table 17 in Appendix H and maps in Appendix P, Pool 13.)

Rationale: This objective reflects an integrated approach by reducing costs and staff time that can be devoted to wildlife objectives, while retaining the essence of the waterfowl hunt which provides a desired experience for hunters. The changes would reduce problems associated with permanent blinds as noted in Objective 4.5 (debris, private exclusive use, limiting hunting opportunities, and confrontations) and reduce the administrative costs associated with the drawings, permit administration, and oversight of the current program (see issue discussion, Chapter 1, Section 1.4.5.4).

Strategies

Implement the following for the 2006 waterfowl hunting season:

1. Refuge will mark with numbered stakes 49 hunting areas (same number as current); blinds must be set up within 25 feet of stake.
2. Blind sites must be occupied one-half hour prior to shooting time or they will be open to the public first-come, first-served.
3. A 400-yard closed area restriction on west boundary of Potter's Marsh will be maintained (491 acres) to prevent encroachment from other public hunting.

Implement the following regulation changes for the 2008 season:

1. Permanent blinds will not be allowed. Only boat blinds in accordance with Refuge temporary-blind regulations.
2. Refuge will continue to mark 49 hunting areas and boat blinds must be set up within 25 feet of stake.

Implement the following application and drawing procedure changes for the 2006 season:

1. Accept applications and hold drawing for blind area on same day, generally on a Saturday in July coinciding with the northwest region of Illinois Department of Natural Resources managed hunt drawing .
2. Applicant must be present at drawing.
3. Applicant must have current Firearm Owners Identification if Illinois resident, and current year license and state and federal duck stamps.
4. Applicants must be 16 years of age by date of drawing.
5. Applications accepted 10 a.m. to 2 p.m. with drawing at 2 p.m.
6. Successful applicant receives boat-blind site for entire season.
7. Application fee $10, plus $100 fee for successful applicants.

Conduct public information campaign beginning at least one year prior to implementation to inform the public of the change and to give hunters who have become accustomed to the former managed hunt a chance to adapt to alternative hunting methods or areas.

Objective 4.7.

Blanding Landing Managed Hunt. After the 2006-07 season, eliminate the managed waterfowl hunt at Blanding Landing, Lost Mound Unit, Savanna District (former Savanna Army Depot), including the use of permanent blinds, and open the area to waterfowl hunting on a first-come, first-secured basis. (See Table 17 in Appendix H and maps in Appendix P, Pool 12)

Rationale: Illinois Department of Natural Resources administers this hunt on behalf of the Savanna Army Depot, but with transfer of jurisdiction to the Service, hunting on this area is now the responsibility of the Refuge. Similar to the Potter's Marsh Managed Hunt above, this objective would reduce problems associated with permanent blinds as noted in Objective 4.5 (debris, private exclusive use, limiting hunting opportunities, and confrontations) and eliminate the administrative costs associated with the drawings, permit administration, and oversight of the current program. This objective reflects a wildlife emphasis since funding and staff currently devoted to this hunt could be focused on wildlife objectives throughout the Savanna District, and

especially the new Lost Mound Unit which has large start-up needs. This objective also reflects a public use emphasis by opening an area to a larger number of waterfowl hunters.

Strategies

Conduct public information campaign prior to implementation to inform the public of the change and give hunters accustomed to the managed hunt a chance to adapt to alternative hunting methods or areas.

Objective 4.8

General Fishing. Provide and enhance year-round fishing on 110,611 acres of surface water within the Refuge, and an additional 32,750 acres of Waterfowl Closed Areas open spring, summer, and winter. (Note: Iowa, Wisconsin, and Illinois regulations also maintain fish "refuges" below lock and dams 11, 12, and 13, December 1 through March 15). Add 3 new fishing piers or docks for a total of 18. (See Table 10 and Table 13 in Appendix H and maps in Appendix P.)

Rationale: This objective represents the current areas available and open to fishing, tempered by the proposed no entry regulation for Closed Areas in this alternative (Objective 4.2) which would prohibit fishing on 32,750 acres during the respective state duck hunting season. Fishing is one of the priority uses of the Refuge System and is to be facilitated when compatible with the purposes of the Refuge and the mission of the Refuge System. Enhanced fishing opportunities are also a reflection of river and Refuge health. The increase in fishing piers or docks is proposed in-line with the integrated public use emphasis of this alternative. These facilities offer fishing opportunities for those without boats.

Strategies

Enhance fishing opportunities on suitable areas of the Refuge through habitat, access, and facility improvements as outlined in other plan objectives.
Continue to promote fishing through Fishing Days and other outreach and educational programming.
Cooperate with the states in their ongoing fishery management programs.
Seek new funding and partnership opportunities to construct the new fishing piers.
Ensure yearly inspection and maintenance of all fishing piers to maintain quality and safety.

Objective 4.9.

Fishing Tournaments. By January 2008, develop a plan for issuing Refuge Special Use Permits in addition to, or in conjunction with, state-issued permits for all fishing tournaments occurring on the Refuge.

Rationale: Fishing tournaments are a use, and at times a commercial use, of the Refuge and subject to regulations governing uses of national wildlife refuges. The Refuge has not provided any oversight to this use, deferring to the states' regulatory and permitting processes. In an integrated approach, permitting would benefit both the resource and the public. Refuge permitting would provide oversight to protect sensitive habitat and wildlife areas from the possible physical and disturbance impacts of fishing tournaments, and

help reduce disturbance and conflict with general public fishing. Through permitting, the Refuge could also play a coordination role given the interstate nature of the Refuge and the river.

Strategies

Meet with the states and the Corps of Engineers to discuss the best strategies for implementing a Refuge permit process in concert with their permitting procedures.

Develop with the states and the Corps of Engineers as appropriate time, space, and capacity parameters on each Pool within the Refuge, and definitions for what constitutes a fishing tournament.

Develop outreach plan to involve and inform fishing tournament organizations or sponsors with changes in regulations and procedures.

Objective 4.10. Wildlife Observation and Photography. Maintain the following existing and new facilities to foster wildlife observation and photography opportunities: 26 observation decks and areas, 3 observation tower, 3 photography blinds, 16 hiking trails, 21 canoe trails, 5 biking trails, and 3 auto tour routes. (See Tables 3, 4, 5, 15 and 19 maps in Appendix P.)

Rationale: Wildlife observation and photography are two of the six priority public uses of the Refuge System and are to be facilitated when compatible. This objective represents a marked increase in the number of observation decks (+11), observation towers (+3), photography blinds (+3), hiking trails (+10), canoe trails (+17), biking trails (+2), and auto tour routes (+2). This expansion of facilities reflects a balanced and measured increase in facilities for wildlife observation and photography, while continuing to meet fish and wildlife protection and management responsibilities.

Strategies

Schedule annual inspection and maintenance of the facilities.

Ensure adequate signing and information in brochures, websites, and maps so the public is aware of the facilities.

Continue to promote the wildlife observation and photography opportunities of the Refuge through public education, outreach, special programs, and partnerships with the states, Corps of Engineers and private conservation groups.

Enhance observation and photography opportunities on suitable areas of the Refuge through habitat, access, and facility improvements as outlined in other plan objectives.

Seek new funding and partnership opportunities, including volunteers, for construction and maintenance of facilities.

Objective 4.11. Interpretation and Environmental Education. By the end of 2010, increase the number of stand-alone interpretive signs to 102 (+43) (see Table 16 in Appendix H and maps in Appendix P for details) and build new district offices with visitor contact facilities at McGregor, Winona, La Crosse, and the Lost Mound Unit. Continue to print and distribute Refuge General Brochure, and update websites quarterly. Continue to sponsor at least two major annual

interpretive events on each Refuge District, and by January 2008 establish at least one major environmental education program at each District with visitor services staff.

Rationale: Interpretation and environmental education are two of the six priority public uses of the Refuge System and are to be fostered if compatible with the Refuge purpose and Refuge System mission. Interpreting the resources and challenges of the Refuge to the general public and incorporatiang these topics into school curricula are important ways to influence the future well-being of the Refuge and the river. Only through understanding and appreciation will people be moved to personal and collective action to ensure a healthy Refuge for the future. Interpretation and environmental education are also key to changing attitudes and behavior which affect the Refuge through off-Refuge land use decisions and on-Refuge conduct and use.

This objective reflects a marked increase in interpretation and environmental education capability and programs and reflects the importance of these programs in an integrated resource management alternative. It also reflects basic needs for a Refuge that is the most heavily visited in the U.S., and would provide the visitor facilities necessary to inform and educate visitors and help them make the most of their Refuge visit. Since environmental education is curriculum-based and labor intensive, initial efforts will be limited to Districts with public use staff, but will increase across all Districts as staff are added.

Strategies

Hire visitor services specialists at McGregor and Winona Districts (top priority), and hire a visitor services specialist to be stationed at the National Mississippi River Museum in Dubuque, Iowa to help present Refuge-specific programs.
Continue work to complete exhibits at Savanna and La Crosse offices, and seek funding to replace exhibits at McGregor District and the Lost Mound Unit of the Savanna District.
Participate in national interpretive events such as National Wildlife Refuge Week or Migratory Bird Day for efficiency and effectiveness.
Schedule quarterly review of interpretive signs and conduct maintenance and sign replacement as needed.
Cooperate with existing interpretive and environmental education programs offered by the states, Corps of Engineers, other agencies and private conservation groups, and continue to seek grants to fund events and programs.
Continue to locate interpretive signs at public access and overlook points in cooperation with various agencies and units of government.

Objective 4.12. Commercial Fish Floats. By the end of 2006, develop new facility, operations, and concession fee standards for the 4 existing commercial fish floats or fishing piers below Locks and Dams 6, 7, 8, and 9. Phase out those operations which do not meet new standards, and do not replace. (See Table 12 in Appendix H and maps in Appendix P.)

Rationale: This objective would continue to recognize the important role of fish floats in providing an alternative fishing experience for a diversity of Refuge visitors. However, new standards would address several long standing management issues such as permit non-compliance, condition and safety issues with some operations, net economic loss to the government, and noncompliance with regulations governing concessions on national wildlife refuges. Phasing out operations not in compliance would reduce Refuge administrative and staff costs, resources that could be directed back to fish-and-wildlife-related objectives.

Strategies

Draft new standards well in advance of implementation and give fish float owners/operators a chance to review and comment.
Continue yearly coordination meeting with float owners and operator to address concerns and permit conditions.
Continue enforcement of permit stipulations and suspend permits of those operations not meeting the stipulations.
Inspect facilities for safety at least once yearly.
If any floats are phased out due to non-compliance with permit stipulations, ensure adequate public notice so clients can seek alternate opportunities.
Although phased-out operations will not be replaced, explore other off-refuge alternatives, such as fishing barges, to provide similar fishing opportunities.

Objective 4.13

Guiding Services. In spring 2007, begin implementing a consistent process for issuing permits for persons conducting for-hire guided hunting, fishing, and wildlife observation activities on the Refuge.

Rationale: As noted in the issues section of Chapter 1, guiding businesses are on the rise and promise to become an increasingly common activity on the Refuge. Without proper oversight, this activity could lead to disturbance to sensitive areas and wildlife, and increased conflict with the general public or other guides as volume and frequency increases. In addition, guiding and other commercial uses are prohibited on a national wildlife refuge unless specifically authorized via permit. The Refuge needs to bring this use into compliance with regulations and policy. Effectively managing this use would not only safeguard fish and wildlife resources, but also benefit the general public that uses the Refuge for hunting, fishing, and wildlife observation, and thus represents an integrated approach.

Strategies

Work with the states to ensure coordination and some degree of consistency with their guide licensing requirements and procedures.
Conduct public information effort through news releases and media contacts to implement the objective.
Provide proactive enforcement through Refuge law enforcement officers and information provided by others in the law enforcement community.

Goal 5: Other Recreational Use. We will provide opportunities for the public to use and enjoy the Refuge for traditional and appropriate non-wildlife-dependent recreation that is compatible with the purpose for which the Refuge was established and the mission of the Refuge System.

Objective 5.1. Beach Use and Maintenance. Beginning in spring 2007, implement a new "open-unless-closed" policy for beach-related uses such as camping, mooring, picnicking, and social gatherings as outlined below. Other existing public use regulations (see Appendix J) will remain in effect.

1.) *General Guidelines.* Beach-related uses will be governed by the following over-arching guidelines:

a) protect human health and safety

b) minimize dangerous situations for Refuge officers

c) minimize impacts to wildlife and the Refuge environment

d) minimize conflicts with wildlife-dependent uses

e) set policies and regulations that are reasonable and feasible to administer and enforce

f) minimize or offset current and future administrative, operating, and maintenance costs

g) make regulations easily understood by the general public

2.) *Beach Use Policy.* Remnant and active dredged material placement sites, natural sand shorelines, and all other shoreline areas within the Refuge will be open to public use and enjoyment in accordance with current and new Refuge Public Use Regulations, unless specifically restricted or closed by appropriate signing. Based on clearly articulated reasons approved by the Refuge Manager, District Managers may close or restrict use on certain beach and other shoreline areas to minimize or eliminate chronic problems or safeguard wildlife or habitat values. Examples of restrictions or closures include:

a) Day Use Only Beaches. Open to allowed uses during daylight hours only in accordance with Refuge Public Use Regulations.

b) No Alcohol Beaches. Open to day use and camping, but no alcoholic beverages allowed.

c) Wildlife Beaches. Closed to entry and use from April 1 to September 15 to protect sensitive wildlife needs such as turtle nesting or migratory bird nesting, feeding and loafing.

d) Sensitive Habitat Area. Closed to all entry and use from April 1 to September 15, or if warranted, closed year around.

3.) *New regulations for camping and other beach-related uses.* Current public use regulations as described in the Refuge Public Use Regulations brochure (see Appendix J) will remain in effect, except by April 1, 2007, the following regulation changes will be implemented:

a) Camping is limited to islands, peninsulas, or other lands that border the main river channel, including the backside of such areas, and in Electric Motor Areas. Camping is defined as erecting a tent or shelter of natural or synthetic material, preparing a sleeping bag or other bedding material for use, parking of a motor vehicle or mooring or anchoring of a vessel, for the apparent purpose of overnight

occupancy, or, occupying or leaving personal property, including boats or other craft, at a site anytime between the hours of 11 p.m. and 3 a.m. on any given day.

b) All campers must have access to either a portable or approved, marine onboard toilet facility, or have in their possession a commercial human waste disposal kit for each person. All human solid waste and associated material, along with any personal property, refuse, trash, and litter, shall be removed immediately upon vacating a site.

c) Entering or remaining on the Refuge when under the influence of alcohol will remain prohibited, but under the influence will be defined as a blood alcohol content of .08 percent blood alcohol content. In addition, develop a public intoxication regulation that gives officers a tool to deal with unruly behavior.

4.) *Beach Maintenance Policy.* Maintenance of beaches will only be allowed on remnant spoil islands or existing dredge material disposal sites adjacent to the main channel of the river that are designated "low density recreation" in current Land Use Allocation Plans, those not otherwise restricted or closed to use, and those not located in a Waterfowl Hunting Closed Area. Maintenance will be limited to the minimum reshaping, leveling, and vegetation clearing needed to ensure safe access and to facilitate the camping experience. Top dressing with sand will only be done under special circumstances. The scope and extent of all maintenance will be on a site-by-site basis as determined by the respective District Manager.

Rationale: Non-wildlife-dependent recreation continues to increase on the Mississippi River and the Refuge. It is estimated that 1.3 million persons per year use the Refuge for camping, recreational boating, picnicking, swimming, social gatherings, and other uses not dependent on the presence of fish and wildlife. This objective, with its new policies and regulations, would help address some of the issues related to beach use described in the issue section of Chapter 1, most notably protection of sensitive wildlife and habitat, litter and human waste, intoxication, unlawful and unruly behavior, officer and public safety, and preemptive use of preferred camping or hunting sites. This objective represents a truly integrated wildlife and public use approach, using time, space, and reasonable regulations and policy to ensure that beach-related uses are compatible with the fish, wildlife, and plant conservation purposes of the Refuge. Most current visitors will notice little difference in opportunity for beach-related uses. However, the regulations should improve the quality of visitors' experience by ensuring better control of disruptive behavior. This objective also looks to the future by ensuring that the growing numbers of campers remain in less sensitive areas of the Refuge.

Strategies

Continue to work with the states and the Corps of Engineers through existing interagency workgroups to complete beach plans for each pool within the Refuge according to the policies and regulations above.

Conduct public information and education campaign well before implementation of regulation changes, to include news releases, general articles, fact sheets, and media interviews.

Use the components and principles of the Leave No Trace program in the campaign (plan ahead and prepare, travel and camp on durable surfaces, dispose of waste properly, leave what you find, minimize campfire impacts, respect wildlife, and be considerate of others).

Develop a brochure which clearly explains new policies and regulations and answers frequently asked questions.

Continue to explore a user fee system to off-set costs of beach-related recreation such as camping in line with new fee legislation passed by Congress in 2004.

Refuge officers will increase contacts with Refuge users once this plan is approved to explain pending regulation changes. Verbal or written warnings will be used at officer discretion during the first year of implementation to ease the transition.

Objective 5.2.

Electric Motor Areas. Beginning spring, 2006, establish a total of 16 electric motor areas on the Refuge encompassing 14,498 acres. A 5 mph speed limit would also apply in these areas given anticipated future changes in technology. Primitive camping would be allowed in these areas. (See Table 13 in Appendix H, and maps in Appendix P.)

Rationale: Technology in the form of jet skis, bass boats, shallow water motors such as Go-Devils™, airboats, and hovercraft has introduced more noise and user conflict to the backwater areas of the Refuge. This objective would help reduce disturbance to backwater fish nurseries and sensitive backwater wildlife such as raptors, colonial nesting birds, and furbearers in keeping with the wildlife mission of the Refuge. It would also address the need to provide areas of quiet and solitude sought by many users of the Refuge, and thus provide a balanced approach in line with the focus of this alternative. This objective only affects the means of navigation, and all current uses would be allowed (fishing, hunting, observation, etc.) in accordance with current regulations or those proposed elsewhere in this alternative. The 14,498 acres represents about 6 percent of the Refuge.

Strategies

Conduct a public information campaign to inform and educate the public about pending electric motor area designations.

Clearly delineate electric motor areas on Refuge maps and by appropriate signing.

Objective 5.3.

Slow, No-Wake Zones. In 2006, add 10 new Refuge-administered slow, no-wake zones (brings total to 12) and assist local or other units of government in the enforcement of 43 other slow, no-wake zones within the Refuge. (See Table 18 in Appendix H, and map in Appendix P.)

Rationale: On a few areas of the Refuge, boat traffic levels and size of boats is leading to erosion of island and shoreline habitat which can impact fish and wildlife habitat directly, or indirectly through increasing sedimentation and water turbidity. On some of the areas identified, slower speeds would reduce safety hazards posed by heavy traffic and blind spots in narrow channels.

Strategies

Work with local authorities to designate and mark slow, no-wake zones.

Communicate the changes with the public well in advance of implementation using the media and other means, and clearly show slow, no-wake areas on maps available to the public.

Objective 5.4. Dog Use Policy. Beginning March 1, 2007, implement the following new regulation governing dogs on the Refuge:

"From March 1 to June 30, dogs are not allowed to run free and must be restrained by leash or other means. At other times, dogs are allowed to be free only under the following conditions: a) when at least 100 yards away from any designated Refuge public concentration area such as access roads, trail heads, trails, kiosks, rest areas, pull-offs, and boat landings, and, at least 100 yards away from another person not accompanying the owner/handler, and b) when within sight and voice control of the owner/handler. Hunting and retrieving dogs are exempt from these conditions while engaged in authorized hunting activities during the hunting season. Field trials or commercial/professional training is prohibited."

Rationale: This objective relaxes the current Refuge System regulation which prohibits unconfined domestic animals on national wildlife refuges. The new regulation provides stipulations for allowing dogs to be free and would allow owners to exercise and train their dogs, but protect wildlife during the sensitive nesting or young rearing season. The new regulation also helps safeguard other visitors from the real or perceived threat that dogs and other animals can pose, but recognizes their traditional use and conservation benefit in hunting. The prohibition of field trials and commercial or organized dog training is a continuation of a long-standing Refuge policy. This regulation also does not affect the existing regulation that prohibits all other unconfined domestic animals on the Refuge.

Strategies

Publish the new regulation in the Refuge public use regulation brochure, issue news releases, and conduct other outreach prior to implementation in 2007.

Except in certain cases, law enforcement officers will generally give verbal and/or written warnings for violations of the new regulation the first year, then issue violation notices at their discretion beginning in 2008.

Objective 5.5. General Public Use Regulations. Beginning in 2006, conduct annual review and update of the general public use regulations governing entry and use of the Refuge (current regulations are found in Appendix J).

Rationale: Public entry and use regulations not only protect wildlife, but enhance the quality of the visitor experience and thus reflect the integrated focus of this alternative. The current regulations were last reviewed and amended in 1999. However, the resources and public use of the Refuge is dynamic, and a yearly review would ensure that regulations are needed, clear, and effective. In addition, new regulations may be required to safeguard resources or to address new or emerging problems recognized by managers

and law enforcement officers. An annual review would provide a more systematic process than in the past.

Strategies

Conduct review during Refuge law enforcement meetings.
Provide the public, states, and Corps of Engineers ample opportunity to review and comment on any new or substantially changed regulation.
Use national guidance and Federal Register process for codifying any changes and make part of the Code of Federal Regulations governing national wildlife refuges.
Update, print, and distribute the Public Use Regulations brochure.
Post pertinent regulations at boat landings and other public use areas, such as trail heads and beach areas.
Continue proactive law enforcement to inform and educate the public on Refuge regulations and to seek their compliance.

Goal 6: Administration and Operations. We will seek adequate funding, staffing, and facilities, and improve public awareness and support, to carry out the purposes, vision, goals, and objectives of the Refuge.

Objective 6.1. Office and Shop Facilities. By 2010, construct new offices and maintenance shops at Winona, La Crosse, and McGregor Districts, and expand the office and construct a new maintenance shop at Savanna District. Each office would feature a biological work area or lab, and modest public orientation, interpretation and environmental education capability. Refuge Headquarters would be integrated with either the Winona or La Crosse offices. By 2021, remodel or replace office and shop at the Lost Mound Unit.

Rationale: This objective emphasizes a balanced approach to replacing current office facilities, with a focus on both the resource and public use responsibilities of the Refuge. The expansion of the Savanna District office would be an additional meeting room/classroom for expanded interpretive programs and environmental education.

Strategies

Ensure that Refuge office and maintenance needs are reflected in budget needs databases.
Work with the Refuge Friends Group to raise private funds for the Savanna expansion.
Continue to maintain Service-owned facilities using annual maintenance budget allocations.

Objective 6.2. Public Access Facilities. By 2021, add 1 new boat landing (total of 26), 3 new walk-in accesses, and 1 improved canoe landing. Improve 5 parking areas on the Refuge to support public use. (See Table 1 in Appendix H, and maps in Appendix P.)

Rationale: This objective represents a modest increase in public access facilities to help facilitate wildlife-dependent recreational uses. Since the Refuge is mainly a floodplain Refuge bounded by major rail lines and highways, opportunities for increasing access points is limited. In addition to

these accesses, there are 222 other public and private boat accesses that provide access to the Mississippi River or its tributaries, and thus the Refuge.

Strategies

Continue routine upkeep of boat accesses by Refuge staff, temporary employees and Youth Conservation Corps members when available, and volunteers.

Continue to modernize accesses using Maintenance Management System funding or special funding which is provided periodically, and by implementing a self-service boat launch fee at Refuge-operated boat ramps.

In cooperation with states and local governments, explore Transportation Enhancement Act projects and funding for new accesses and to upgrade current Refuge accesses.

Objective 6.3. Operations and Maintenance Needs. Complete annual review of Refuge Operating Needs System (RONS), Maintenance Management System (MMS), and Service Assessment and Maintenance Management System (SAMMS) databases to ensure these reflect the balanced funding needs for carrying out the wildlife and integrated public use focus alternative.

Rationale: The RONS, MMS, and SAMMS databases are the chief mechanisms for documenting ongoing and special needs for operating and maintaining a national wildlife refuge. These databases are part of the information used in the formulation of budgets at the Washington and Regional levels, and for the allocation of funding to the field. It is important that the databases be updated periodically to reflect the needs of the Refuge, and in particular the objectives and strategies elsewhere in this alternative.

Strategies

None warranted.

Objective 6.4. Public Information and Awareness. By 2007, increase by 50 percent the current annual average of 80 media interviews, 125 news releases, and 25 special events (special programs, presentations, and displays at others' events), and by 2020 increase information kiosks to 115 (+49) as shown in Table 16 in Appendix H, and maps in Appendix P.

Rationale: This objective reflects an emphasis on providing the public more information on both resource-related and public use- related aspects of the Refuge in keeping with a balanced approach.

Strategies

Hire visitor services specialists for those Districts without, namely Winona and McGregor Districts.

Hire a public information specialist at Headquarters to increase attention on interviews, news releases, and special events.

Tap other specialists identified in this alternative (e.g. forester, fishery biologist) for information and outreach on resource programs of the Refuge.

Continue to look for creative ways to leverage efforts and funding for public information.

Carry out related objectives dealing with trails, leaflets, websites and interpretive signs (see objectives 4.10 and 4.11).

Cooperate with the states and the Corps of Engineers on visitor surveys to gauge public awareness of the Refuge and Mississippi River resources.

Objective 6.5. Staffing Needs. By 2015, increase staffing from current permanent, full-time level of 37 people to 59 people (56.5 full-time equivalents or FTEs) in a full range of disciplines which benefit both resource and public use objectives in this alternative. (See Table 2 at the end of this chapter and Table 20, Appendix H.)

Rationale: This objective reflects a balance approach to refuge management by providing operations and maintenance-funded staffing deemed necessary to meet the goals and objectives of this alternative. Like all land management, refuge management is labor intensive and labor costs represent over 95 percent of the base operations funding received each year. These staffing needs are documented in the strategies for various objectives in this alternative.

Strategies

Ensure that staffing needs are incorporated in budget needs databases.

Maintain other sources of funding for staff who coordinate the Environmental Management Program and the Partners for Fish and Wildlife Program.

Strengthen existing volunteer program and recruit new volunteers to assist with resource management and visitor services.

2.4.6 Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)

Increase level of effort on fish and wildlife and habitat management. Take a proactive but balanced approach to public use management to ensure a diversity of opportunities for a broad spectrum of users, both for wildlife-dependent uses and traditional and appropriate non-wildlife-dependent uses.

Alternative E Summary

Boundary issues would be aggressively addressed and areas with greatest encroachment problems would be surveyed in cooperation with the Corps of Engineers. The rate of land acquisition would increase within the approved boundary to complete 58 percent of the total, an average of 1,000 acres per year. There would be more effort to protect through easements or fee-title acquisition all bluffland areas identified in the 1987 Master Plan, and an increase in oversight and administration of Research Natural Areas. The Refuge would be nominated as a Wetland of International Importance (Ramsar). Guiding principles for habitat projects would be established and would stress an integrated approach.

Mallard pair. Stan Bousson

There would be an increase in effort to achieve continuous improvement in the quality of water flowing through the Refuge, including decreasing sedimentation. Pool-scale drawdowns would be accomplished by working with the Corps of Engineers and the states. The control of invasive plant species would increase, and there would be increased emphasis on the control of invasive animals. Environmental Pool Plans would be implemented on a strategic and opportunistic basis using the Environmental Management Program or other programs and funding sources. Wildlife inventory and monitoring would increase and include more species groups beyond the current focus of waterfowl, colonial nesting birds, eagles, secretive marsh birds, frogs and toads, and aquatic invertebrates/vegetation. The management of threatened and endangered species, including state-listed species, would focus on helping population recovery, not just protection. The furbearer trapping program would continue but be brought into compliance with policies by writing a new plan. The Refuge would become much more active in fishery and mussel management, and provide more input to the states on commercial fishing. Knowledge of turtle ecology through research would increase, as would turtle conservation efforts in cooperation with the states and Corps of Engineers. A forest inventory on the Refuge would be completed in cooperation with the Corps of Engineers, and a forest management plan prepared, leading to more active forest management. The 5,700 acres of grassland habitat on the Refuge would be maintained and enhanced using fire and other tools, and the Refuge would look at increasing grassland areas where appropriate due to its importance to grassland birds and other species.

There would be a continuation of hunting and fishing opportunities on a large percentage of the Refuge. The system of waterfowl hunting closed areas would change with some eliminated, some reduced in size, and several new areas added for a total of 20 closed areas and three sanctuaries. The public would be asked to practice Voluntary Avoidance in all closed areas from October 15 to the end of the respective state duck hunting season, and no motorized watercraft would be permitted in eight small closed areas during the same time period. The firing line issue north of the closed area in Lake Onalaska (Gibbs Lake area) would be addressed by completing a management plan in collaboration with waterfowl hunters and the State of Wisconsin. There would be no new shotshell possession limit or spacing requirement between parties for waterfowl hunters, and the 200-yard hunting party spacing for the Illinois side of the Refuge in Pools 12-14 would remain in place. There would be a provision for no open water waterfowl hunting in a portion of Pool 11, Grant County, Wisconsin, approximate river miles 586-592. In the Savanna District (Pools 12-14), permanent blinds for waterfowl hunting would be eliminated, including the Potter's Marsh and Blanding Landing areas, and leaving decoy sets out overnight will not be allowed. The Potter's Marsh managed hunt would continue with administrative changes to promote fairness and efficiency. The Blanding Landing managed hunt would be eliminated, but the area would remain open to hunting. General fishing would continue to be promoted, and the Refuge would provide some oversight on fishing tournaments in collaboration with the states and other agencies.

There would be an increase in facilities and programming for wildlife observation, photography, interpretation and environmental education. There would be a modest increase in Refuge access through new facilities and improvement of existing boat ramps, pull offs, and overlooks. There would be no launch fee on Refuge-operated boat ramps. New standards for the commercial fish floats or piers below locks and dams 6, 7, 8, and 9 would be developed and implemented, and any floats phased out for noncompliance may be replaced based on a review of new proposals. A consistent process for issuing permits for commercial guiding on the Refuge would be implemented in cooperation with the

states. Areas open to beach-related public use (camping, swimming, picnicking, social gatherings) would remain the same, although some new or modified regulations would be adopted. A beach management and maintenance policy would be established and the Refuge would work with the Corps of Engineers, states and the public to complete beach management plans for each river pool. The Refuge would explore a user fee to help defray costs of managing beach-related uses, although none is planned at this time. Any new fee proposals would be developed in coordination with other agencies and the public. A total of five Electric Motor Areas (1,852 acres) and eight Slow, No Wake Areas (9,720 acres) would be established, along with 11 new slow, no-wake zones. Current regulations on the use of dogs would be changed to allow dogs to be exercised under certain conditions. General public use regulations would be reviewed annually and changed as needed, and the Refuge would complete a step-down Law Enforcement Plan in coordination with the states and Corps of Engineers.

New offices and maintenance shops would be constructed at the Winona, La Crosse, and McGregor districts, and at the Lost Mound Unit. The office would be expanded at the Savanna District and a new shop constructed. Public information and awareness efforts would be increased 50 percent. Staffing levels for the Refuge would increase by 23.5 full-time equivalents over a 15-year period with a balance among biological, maintenance, visitor services, law enforcement, technical, and administrative staff.

Goal 1: Landscape. We will strive to maintain and improve the scenic qualities and wild character of the Upper Mississippi River Refuge.

Objective 1.1. Maintain the integrity of the Refuge boundary. In coordination and cooperation with the Corps of Engineers, identify, survey, and post all boundary lines where threat of encroachment is greatest by 2021.

Rationale: Maintaining and enforcing a boundary is one of the basic and critical components of Refuge management to ensure the integrity of an area over time. Without attention to this basic task, there is a tendency for adjacent development and use to creep and take over Refuge lands and waters. This encroachment includes tree cutting, dumping, construction, storing of equipment and materials, and mowing Refuge lands. In addition, there are a few boundaries between Refuge and Corps of Engineers-managed lands that remain unclear, leading to mixed messages to the public using these lands via permits, leases, or out grants. The size, length, age, and floodplain setting of the Refuge, coupled with a mix of Corps of Engineers-acquired and Service-acquired lands, creates boundary clarity problems that can only be addressed through modern re-surveying techniques. This objective also focuses on problem areas versus the entire boundary proposed in other alternatives to reflect the realities of survey time and costs.

Strategies

Conduct an annual review of the posted Refuge boundary to detect and address any encroachment incidents, and coordinate enforcement with the Corps of Engineers and states as appropriate.
In collaboration with the Corps of Engineers, identify and prioritize boundary areas most in need of clarification by surveying and reposting.
Seek joint Corps of Engineers and Service funding to complete needed surveys based on priorities.

In collaboration with the Corps of Engineers and the states, and with appropriate public involvement, review, update, and publish a new Land Use Allocation Plan for lands within the Refuge (see Chapter 1, section 1.4.3.1 for discussion of this plan).

Objective 1.2. Land Acquisition. By 2021, acquire from willing sellers 58 percent of the lands identified for acquisition in the 1987 Master Plan and subsequent approvals, as identified on the maps in Appendix G (approximately 1,000 acres/year).

Rationale: Land acquisition is a critical component of fish and wildlife conservation since it permanently protects their basic need of habitat. It is also a cornerstone of promoting wildlife-dependent recreation by providing lands and waters open to all. On a narrow, linear refuge, land acquisition is a critical component of restoring habitat connectivity needed for the health of many species. The Refuge currently ranks sixth nationally on the Service's Land Acquisition Priority System due to its resource importance. Land acquisition can also be cost effective in the long-term due to inflation of land costs and the costs of acquiring undeveloped land versus developed land that also needs restoration. This objective represents an aggressive land acquisition program of about 1,000 acres per year to achieve goals set in the 1987 Master Plan and other approved acquisition documents. Lands with the highest fish and wildlife values were coded "A" in the 1987 Master Plan, and this ranking system remains a useful prioritization tool. However, public use values would also be considered when setting priorities between available tracts in keeping with the balanced approach of this alternative.

Strategies

Seek consistent Land and Water Conservation Fund appropriations to meet the objective (approximately $1.5 million per year at $1,500 per acre).
Explore land exchanges with the states to remove intermingled ownerships.
Continue to work with the Department of the Army to transfer title of tracts as they are cleaned of contaminants at the Lost Mound Unit (former Savanna Army Depot).

Objective 1.3. Bluffland Protection. By 2021, acquire from willing sellers protective easements or fee-title interest in all undeveloped bluffland areas within the approved boundary of the Refuge as identified in the 1987 Master Plan. (See maps in Appendix G.)

Rationale: There have been no acquisitions of bluffland areas since first identified in the 1987 Master Plan, and this objective represents a more aggressive approach to safeguarding the wildlife values of these areas. In recent years, Peregrine falcons have once again started nesting on the rock faces of some bluffs. Peregrines, at one time an endangered species, were the main rationale for including the 13 areas in the acquisition boundary. Blufflands are also an important part of maintaining the scenic quality of the Refuge landscape and harbor unique and diverse plants and animals. Since some areas identified have been developed for housing or other uses since 1987, the focus would be on the undeveloped areas. However, there may be an

opportunity to protect remaining values of these developed areas through creative easements. Fee or easement acquisition authority was granted by Regional Director approval of the 1987 Master Plan and is in addition to original acquisition authority in the 1924 act creating the Refuge and authorizing acquisition of lands subject to overflow.

Strategies

Seek consistent acquisition funding as noted in Objective 1.2 and use a blend of easements and fee-title acquisition that best meets landowner's desire and balances wildlife and public use objectives.

Work with the state, local governments, and private land trusts to protect bluffland habitat and scenic values.

Work with local units of government to encourage zoning regulations that protect bluffland scenic qualities.

Educate the public on the values of blufflands for birds and unique plant communities.

Objective 1.4.

Research Natural Areas and Special Designations. By 2010, complete a management plan for each of the Refuge's four federally-designated Research Natural Areas. No new Natural Areas would be established. (See maps in Appendix P and Table 7 on page 229) Also by 2008, facilitate preparation of a nomination package for designating the Refuge a "Wetland of International Importance" in accordance with the Ramsar Convention.

Rationale: The Refuge has done little in the way of monitoring or research on the existing Research Natural Areas. Although the main goal of the area designation is the preservation of unique floodplain forest areas, preservation may often entail some level of management. No management plans have been written to guide monitoring and research of current habitat conditions and changes since the areas were designated in the 1970s. Completing a management plan for each area would identify monitoring protocols, any habitat management needed to retain original biological values or address threats, address any special public use considerations, and identify ways to foster public awareness and appreciation of these unique areas. No areas of the Refuge are deemed suitable for new Natural Area designation.

Designating the Refuge a Wetland of International Importance would raise its stature in line with previously designated national wildlife refuges including Horicon National Wildlife Refuge in Wisconsin and Sand Lake National Wildlife Refuge in South Dakota. Designation would recognize the Refuge's international importance to migratory birds, as well as its uniqueness in balancing a variety of commercial, cultural, and recreational values, values supported in the 115-nation treaty stemming from the Ramsar Convention and reflected in this integrated alternative. Designation would also foster the sharing of scientific information and elevate management attention when facing future needs and challenges. Designation does not relinquish sovereignty or jurisdictions in any manner.

Strategies

The District Managers will be responsible for completion of management plans for natural areas in their respective Districts, using a consistent approach and format, and in cooperation with the states and other federal agencies as appropriate (e.g. Nelson-Trevino).

Seek cooperative research and monitoring opportunities with other agencies and colleges and universities.

Ensure yearly review of Research Natural Area boundaries to ensure integrity of the areas.

Work collaboratively with the Corps of Engineers, the states, non-government organizations, and the public in preparing a nomination package for Wetland of International Importance designation.

Goal 2: Environmental Health. We will strive to improve the environmental health of the Refuge by working with others.

Objective 2.1. Water Quality. Working with others and through a more aggressive Refuge program, seek a continuous improvement in the quality of water flowing through and into the Refuge in terms of parameters measured by the Long Term Resource Monitoring Program of the Environmental Management Program (dissolved oxygen, major plant nutrients, suspended material, turbidity, sedimentation, and contaminants).

Rationale: The quality of water on the Refuge is one of the most important factors influencing fish, wildlife, and aquatic plant populations and health, which in turn influence the opportunity for public use and enjoyment. Water quality is also beyond the Refuge's ability to influence alone given the immense size of the Refuge's watershed and multiple-agency responsibilities. This objective recognizes these limitations, but charts a more aggressive role for the Refuge through the strategies below. The objective also highlights the advocacy role the Refuge can play in educating the public and supporting the myriad of agencies which together can influence water quality.

Strategies

Hire a Private Lands Biologist or Technician for each of the Refuge's four Districts to restore and enhance wetland, upland, and riparian habitat on private lands in and along sub-watersheds feeding into the Refuge, and to broker the myriad of private land and conservation opportunities available through the Department of Agriculture and others.

Take an active role in the Midwest Driftless Area Restoration Effort, part of the National Fish Habitat Initiative, which seeks to protect, restore, and enhance riparian and aquatic resources in the Driftless Area which adjoins much of the Refuge.

Increase conservation assistance agreements with Soil and Water Conservation Districts and Resource Conservation and Development boards.

Begin a regular and recurring dialogue with U.S. Geological Survey scientists at the Upper Midwest Environmental Sciences Center, La Crosse, Wisconsin, to help devise and tune strategies specific to addressing sedimentation problems.

Cooperate with local government land use planning efforts to ensure that water quality impacts to the Refuge are considered.

Emphasize water quality aspects, especially sediment deposition in backwaters, in all habitat enhancement projects.

Link planning and projects for tributary watersheds to Environmental Pool Plan implementation using the latest GIS-based mapping and modeling.

Support cooperative water quality monitoring and improvement efforts through the Upper Mississippi River Conservation Committee and other groups and agencies.

Continue to stress the importance of water quality in public information, interpretation, and environmental education programs.

Objective 2.2. Water Level Management. By 2021, in coordination with the Corps of Engineers and the states, complete as many pool-wide drawdowns as practicable based on ecological need, engineering feasibility, and available funding.

Rationale: Lowering the water levels in impoundments during the growing season is a proven management practice to increase emergent vegetation. Improved vegetation results in more food and cover for a wide range of fish and wildlife species, which in turn enhances opportunities for wildlife-dependent recreation. Much of the emergent vegetation on the Refuge has been lost due to stable water regimes created for navigation, and this objective seeks to restore productive marsh habitat to thousands of acres. Although drawdowns show great promise in enhancing aquatic vegetation in all pools, priorities and timing need to be tempered by ecological need, feasibility, and funding.

Strategies

Continue to work in partnership with the Water Level Management Task Force to plan, facilitate, and prioritize drawdowns.

Inform and involve citizens through public meetings, workshops, and citizen advisory groups.

Seek all available funding sources to carry out needed recreational access dredging to lessen social and economic impacts during drawdowns (proposals in Corps of Engineers Navigation Study released in 2004 includes funding for drawdowns).

Explore options for funding an Access Trust Fund to ensure adequate funding for additional public access (temporary or new landings, supplemental dredging, etc.) when needed to accomplish drawdowns.

Objective 2.3. Invasive Plants. Continue current control efforts and by 2008, complete an invasive plant inventory. By 2010, achieve a 10 percent reduction in acres affected by invasive plants such as purple loosestrife, reed canary grass, Eurasian milfoil, leafy spurge, crown vetch, Russian knapweed, knotweed, European buckthorn, garlic mustard, and Japanese bamboo. Emphasize the use of biological controls.

Rationale: Invasive plants continue to pose a major threat to native plant communities on the Refuge and beyond. Invasive plants displace native

species and often have little or no food value for wildlife. The result is a decline in the carrying capacity of the Refuge for native fish, wildlife, and plants, and a resulting decline in the quality of wildlife-dependent recreation. This objective addresses invasive plants by continuing current efforts while determining and mapping baseline information so that effective and efficient long-term control can take place. Biological control includes release of insects which prey directly on purple loosestrife or leafy spurge plants or disrupt part of their life cycle, and is a more long-term and cost efficient solution compared to herbicide spraying. This objective is tempered by the realization that biological control methods are not yet readily available for a large number of invasive plant species.

Strategies

Hire seasonal biological technicians to conduct an inventory and prepare baseline maps of invasive plant infestations.
Write an invasive plant control and management plan (integrated pest management plan) that identifies priority areas and methods of control.
Seek seasonal staff and funding to accelerate current control and applied research efforts through interagency partnerships, volunteer programs, and public education.
Continue to work with the Department of Agriculture, other agencies, the states, and other refuge field stations in securing insects and beetles for release in high-infestation areas.
Continue coordination with the Corps of Engineers on efforts to control invasive forest plants through their operations and maintenance program and other potential authorities.
Take advantage of periodic invasive grant, cost-sharing, or special funding opportunities offered through the Service or other agencies and foundations.
Conduct public information effort including media, brochures, signage, and programs to increase awareness of the invasives threat and what visitors can do to minimize the introduction or spread of invasives.

Objective 2.4.

Invasive Animals. Increase efforts to control invasive animals through active partnerships with the states and other Service programs and federal agencies, and increase public awareness and prevention.

Rationale: Invasive animals such as zebra mussels and Asian carp species pose a current and looming threat to native fish and mussel species and have the potential to disrupt the aquatic ecosystem. They can also have a direct link to the quality of fishing by displacing various game fish, or destroying important habitat for fish and wetland-dependent birds which people observe or hunt. This objective is not measurable, reflecting the reality that invasive animal species do not lend themselves to direct control in a large river system and that addressing invasive animals is dependent on political and management actions beyond the boundary of the Refuge. However, the objective does emphasize the importance of addressing invasive species and represents more active Refuge involvement.

Strategies

Use the visibility and public awareness of the Refuge as a platform or "bully pulpit" to inform the public, decision-makers, and elected representatives of the seriousness of the invasive animal threat to the ecology and economy of the Upper Mississippi River System.

Continue to seek ways to help the states implement their Aquatic Nuisance Species plans and consider and incorporate these plans in Refuge invasives efforts.

Whenever possible, assist with implementation of the Asian Carp Working Group's Management and Control Plan for Asian Carps in the United States (prevent, contain and control, reduce, minimize impacts, increase public information, research, and effective national coordination).

Continue monitoring, sampling, research, and exploration of management options to address spring and fall waterbird mortality in Pools 7 and 8 resulting from ingestion of trematodes associated with the invasive faucet snail (*Bithynia tentaculata).*

Implement other objectives and strategies in the CCP which have an influence on invasive species work. For example, better habitat conditions promote healthy native fish populations that can compete with invasive species, while adding a fishery biologist to the staff would increase and improve coordination with other programs and agencies dealing with invasives.

Continue to work with other agencies in developing effective regulations, barriers, biological controls, or other means to reduce introduction and spread of invasives.

Explore new and creative ways to expand the harvest of invasive fish by commercial fishing, such as a bonus payment to enhance market price.

Conduct public information effort including media, brochures, signage, and programs to increase awareness of the invasives threat and what visitors can do to minimize the introduction or spread of invasives.

Goal 3: Wildlife and Habitat. Our habitat management will support diverse and abundant native fish, wildlife, and plants.

Objective 3.1. Environmental Pool Plans. By 2021, in cooperation with various agencies and states, implement at least 30 percent of the Refuge-priority Environmental Pool Plan actions and strategies in Pools 4-14 as summarized in Table 4 on page 196 (see Appendix N for examples of Environmental Pool Plan maps).

Rationale: Environmental Pool Plans represent a desired future habitat condition developed by an interagency team of resource professionals, including Refuge staff. The Pool Plans represent what is necessary to reverse the negative trends in habitat quality and quantity on the Upper Mississippi River. Improved habitat is the key to healthy fish and wildlife populations, which in turn impact the quality of wildlife-dependent recreation. Thus, this objective represents an important part of the wildlife and integrated public use focus alternative. The Refuge represents a sizeable subset of the habitat vision presented in each Pool Plan. The Refuge also has different resource mandates and responsibilities than the Corps of Engineers and the states. Thus, the Refuge prioritized various actions to meet these needs as

represented in Table 4 on page 196. The objective of 30 percent represents a reasonable rate of implementing priority actions given current funding levels (mainly through the Environmental Management Program, Corps of Engineers) for habitat conservation work, and the 15-year horizon of this CCP versus the 50-year horizon of the Pool Plans. Some of the actions and strategies in the table overlap with other objectives in this plan (e.g. forest management, land acquisition, watershed work, and water level drawdowns).

Strategies

Continue to coordinate with the River Resources Forum's Fish and Wildlife Workgroup, and the River Resources Coordinating Team's Fish and Wildlife Interagency Committee, to implement pool plan priorities.

Continue to work for full and expanded funding of the Environmental Management Program through public and Congressional information and outreach.

Continue to seek opportunities through the Corps of Engineers' Channel Maintenance Program to implement certain aspects of pool plans.

Take advantage of any new funding sources that emerge, such as the Corps of Engineers' Navigation and Environmental Sustainability Program which could be authorized and funded by Congress.

Complete a required Refuge Habitat Management Plan which integrates species status and trends with the Environmental Pool Plans (see related Objective 3.3).

Objective 3.2.

Guiding Principles for Habitat Management Programs. Upon approval of the CCP, adopt and use the following guiding principles when designing or providing input to design and construction of habitat enhancement projects:

1.) Management practices will restore or mimic natural ecosystem processes or functions to promote a diversity of habitat and minimize operations and maintenance costs. Mimicking natural processes in an altered environment often includes active management and/or structures such as drawdowns, moist soil management, prescribed fire, grazing, water control structures, dikes, etc.

2.) Maintenance and operation costs of projects will be weighed carefully since annual budgets for these items are not guaranteed.

3.) Terrestrial habitat on constructed islands and other areas needs to best fit the natural processes occurring on the river, which in many cases will allow for natural succession to occur.

4.) If project features in Refuge Waterfowl Hunting Closed Areas serve to attract public use during the waterfowl season, spatial and temporal restrictions of uses may be required to reduce human disturbance of wildlife.

5.) The esthetics of projects, in the context of visual impacts to the landscape, should be considered in project design in support of Refuge Goal 1, Landscape.

Rationale: Guiding principles for habitat restoration or enhancement projects would provide consistency between the four Districts of the Refuge and help communicate to cooperating agencies and the public standards from which we approach the design of projects. The principles will also help ensure

compliance with Service policy on biological integrity and recognize the need to consider future operations and maintenance costs before doing projects. In addition, the principles help ensure that projects complement, rather than compete with, other goals and objectives in this plan.

Strategies

Refuge staff will use these guidelines when proposing and designing habitat enhancement projects funded by the Service. They will also be used during coordination with the Corps of Engineers and the states in cooperative programs such as the Environmental Management Program or any new program authority that may arise from the Corps of Engineers' Navigation Study. In cooperative projects done on the Refuge, other agency guidelines will also be considered.

Objective 3.3. Monitor and Investigate Fish and Wildlife Populations and Their Habitats. By January 2008, amend the 1993 Wildlife Inventory Plan to include more species groups such as fish, reptiles, mussels, and plants, and increase the amount of applied research being done on the Refuge.

Rationale: Monitoring is essential to understanding the status and trends of selected species groups and habitats. This in turn provides some indication of overall biological integrity, diversity, and environmental health of the Refuge, and is critical in planning habitat management and public use programs. This objective represents a more aggressive biological program on the Refuge and will help meet directives in the Refuge Improvement Act requiring monitoring the status of fish, wildlife, and plant species. Better biological information is also critical to making sound and integrated resource and public use management decisions. The Refuge would continue to support and use monitoring done by the states, U.S. Geological Survey, the Corps of Engineers, and others to help fill the gaps in status and trends information for fish, mussels, reptiles, forests and other land cover, and environmental factors such as water chemistry and sedimentation.

Strategies

Engage other experts and partners to develop and implement the Wildlife Inventory Plan.

In developing the Wildlife Inventory Plan, consult each state's Comprehensive Wildlife Conservation Plan for areas of mutual need and opportunity in regard to monitoring and research.

Establish a Refuge Research Team that designs short-term and long-term research projects to address management questions and concerns about wildlife populations and their habitat.

Continue to work with the states, U.S. Geological Survey, and Corps of Engineers in the sharing of data on other species and habitats.

Establish a schedule of formal coordination meetings with the U.S. Geological Survey to share biological monitoring methods and data.

Ensure that each District has a biologist on staff and that Headquarters has a GIS biologist.

Seek more cooperation with colleges and universities to foster more graduate research projects.

Continue to use volunteers for certain monitoring efforts such as point counts for breeding and migrating birds.

Objective 3.4. Threatened and Endangered Species Management. By the end of 2008, begin monitoring of all federally listed threatened or endangered and candidate species on the Refuge, and by 2010, have in place management plans for each species to help ensure their recovery. Cooperate with the states in the monitoring and management of state-listed species.

Rationale: As noted in an earlier section of this chapter, it is Service policy to give priority consideration to the protection, enhancement, and recovery of these species on national wildlife refuges. This objective represents a more aggressive approach to achieving this policy, and also reflects the high public interest in threatened and endangered species. Currently, the only species actively monitored by the Refuge are Bald Eagles, and efforts would be expanded to include the Higgins eye pearlymussel, eastern massasauga rattlesnake, and sheepnose mussel. Strategies below also recognize the importance of considering state-listed species in monitoring and management activities.

Strategies

Consider the needs of federal and state-listed threatened, endangered and candidate species, as applicable, in all habitat and public use management decisions.

Continue to consult with the Service's Ecological Services Offices on all actions which may affect listed species, and coordinate with the states on actions that may affect state-listed species.

In the Wildlife Inventory Plan, address a monitoring plan for all federally listed or candidate species, and consider state-listed species and "Species of Greatest Conservation Need" in state Comprehensive Wildlife Conservation Plans, to help detect serious problems early and to preclude listing.

Continue monitoring Bald Eagle nesting populations and success, and conduct periodic peak spring Bald Eagle migration counts.

In the Habitat Management Plan, identify steps needed to ensure populations of listed or candidate species are sustained in support of delisting or to preclude listing in the future.

Give priority to acquisition of lands within the approved boundary that contain listed or candidate species.

Continue assistance to other offices and agencies with Higgins eye pearlymussel recovery efforts.

Increase education and outreach specifically targeting threatened and endangered species found on the Refuge.

Objective 3.5. Furbearer Trapping. Update the Refuge trapping plan by June 2007, continuing the existing trapping program until the update is completed and ready for implementation.

Rationale: Furbearer trapping has a long history on the Refuge and can be an important management tool in reducing furbearer disease and habitat impacts, and in safeguarding certain Refuge infrastructure such as dikes,

islands, and water control structures. Trapping is also important from a recreational and cultural standpoint, providing hundreds of trappers thousands of hours of wildlife-related and outdoor-dependent enjoyment. Trappers also provide valuable information on habitat conditions and wildlife population and use trends due to their frequent, first-hand experiences and annual reporting. The current trapping plan is dated by time (1988), new furbearer ecology and population information, and by new policies governing compatibility of uses and commercial uses on national wildlife refuges.

Strategies

Seek input from state furbearer biologists, current Refuge furbearer trappers, and trapping organizations to assess effectiveness and/or needed changes in trapping program administration and management.
The Refuge wildlife biologists, in consultation with Refuge District managers, state furbearer biologists, and the Refuge Manager, will develop a draft trapping plan.
Afford the public an opportunity for review and comment on a draft plan and accompanying environmental assessment and compatibility determination.
Following public review and revision, submit a final plan to the Regional Director of the Service, Twin Cities, Minnesota, for approval (required).
Conduct appropriate information and education effort on any changes reflected in the plan.

Objective 3.6.

Fishery and Mussel Management. By the end of 2008, complete a Fishery and Mussel Management Plan for the Refuge which incorporates current monitoring and management by the states, the Corps of Engineers, and other Service offices and agencies.

Rationale: One of the purposes of the Refuge is to provide a "refuge and breeding place for fish and other aquatic animal life." Fish and mussels also have high intrinsic, recreational, and commercial values. For decades, the Refuge has not taken an active role in fishery or mussel management, deferring to the states or others on this management responsibility. Although the states will still play the lead role in fisheries and mussel management, the Refuge should have in place a plan which communicates to the states and the public the Refuge and Service perspective on fishery and mussel management issues and needs, and to help set common goals, objectives, and means of collecting and sharing information. The plan would also help guide conservation efforts for rare or declining interjurisdictional species such as paddlefish and sturgeon and federally listed and candidate aquatic species, and address the Refuge's role in commercial harvest of species and control of aquatic invasive species. Healthy fishery and mussel populations also benefit the public's use and enjoyment of these resources.

Strategies

Add a fishery biologist to the Headquarters staff to coordinate fishery and mussel management on the Refuge.
Take an active role in Upper Mississippi River Conservation Committee fisheries technical section and mussel ad hoc committee.

Prepare plan in collaboration with the states, Service fishery offices, the Genoa National Fish Hatchery, and aquatic biologists of the U.S. Geological Survey.

Objective 3.7. Commercial Fishing and Clamming. By the end of 2008, complete a Fishery and Mussel Management Plan, and by January 2010, have a mechanism or agreements in place to ensure that Refuge System permit requirements are incorporated in state-issued permits.

Rationale: The Refuge has provided little to no oversight of the commercial harvest of fish or mussels in the past since most fish and mussel management falls under the primary jurisdiction of the states. However, federal regulations governing the Refuge System state that "fishery resources of commercial importance on wildlife refuge areas may be taken under permit in accordance with federal and state law and regulations" (50 Code of Federal Regulations, Part 31.13). Other regulations govern all commercial uses on refuges. Besides this compliance issue, the Refuge can play an important advisory and coordination role with the four states which administer commercial fish and mussel harvest on the Refuge. A Fishery and Mussel Management Plan is needed before any Refuge-specific stipulations for consideration and use in state permits could be crafted.

Strategies

In addition to the strategies in Objective 3.6, establish, with the states through the Upper Mississippi River Conservation Committee, a method of sharing permittee and catch information for the Refuge.
Devise a Refuge permitting process that dovetails with state permits so that commercial users need only one permit or license versus two.
Enter into cooperative agreements as needed to implement this one-stop-shopping permit process.
Ensure that commercial harvest of fish and mussels meets objectives in Refuge plans, and explore ways that commercial harvest can help address invasive species issues (Objective 2.4).
Ensure consistency with state regulations whenever possible. For instance, the Refuge would not issue permits for mussel or fish harvest in areas not opened by the states.

Objective 3.8. Turtle Management. By spring 2008, initiate a 3- to 5-year turtle ecology study on representative habitats of the entire Refuge. Continue to cooperate with the states, U.S. Geological Survey, and the Corps of Engineers in monitoring turtle populations on certain Refuge areas.

Rationale: Recent surveys in the Weaver Bottoms area of Pool 5 indicate that this area of the Refuge is an important, and perhaps critical, area for eight species of turtles, some of which are listed by the states as threatened or endangered. Surveys on other Pools of the Refuge show that 11 species are present. There are numerous potential negative and positive impacts to turtles from public use and navigation channel maintenance activities on the Refuge. However, more rigorous monitoring and research is needed over a broad area to understand turtle populations and ecology. This information

would then guide a coordinated approach to their conservation, and guide management decisions concerning public uses in or on important turtle habitats.

Strategies

In cooperation with the U.S. Geological Survey, seek special funding and grants to fund the turtle ecology study.
Continue to coordinate with the Corps of Engineers and the states on ways to minimize turtle nesting disturbance on dredge material placement sites located on the Refuge.
Through the Upper Mississippi River Conservation Committee, devise a method of sharing more detailed commercial turtle harvest information for the Refuge.
Upon completion of the turtle ecology study, complete a turtle management strategy and incorporate recommendations in habitat, commercial use, and public use management activities.
Conduct public information effort including media, brochures, signage, and programs to increase awareness and appreciation of turtles and communicate what visitors can do to minimize impacts on beach areas used for nesting.

Objective 3.9.

Forest Management. Complete by the end of 2008, in cooperation with the Corps of Engineers, a forest inventory of the Refuge, and by 2010, complete a Forest Management Plan for the Refuge.

Rationale: A baseline forest inventory of the approximately 51,000 acres of floodplain forest on the Refuge is the first step in addressing concerns for the long-term health of this important resource. The Corps of Engineers has been actively working on a forest inventory for several years on Corps-acquired lands, and it makes fiscal and efficiency sense to partner with the Corps of Engineers on Service-acquired lands on this objective. A Forest Management Plan is needed to integrate forest and wildlife objectives, and to identify management prescriptions such as harvest, planting, fire, and invasives control. Collaboration with the Corps of Engineers is essential to meet the forest habitat needs of wildlife since the Corps of Engineers retained forest management authority on Corps of Engineers-acquired lands that are part of the Refuge. Healthy forests also benefit the diversity and quality of public uses on the Refuge.

Strategies

Support a balanced forest management approach that provides adequate habitat for cavity nesting species, and ensures retention of a closed canopy for forest birds of management concern such as Red-shouldered Hawks and Cerulean Warblers.
As Refuge funding allows, continue to fund seasonal technicians to help with the Corps of Engineers' inventory project on Service-acquired lands. Seek ways to leverage funds through partners or grants for long-term forestry technicians.
Continue to work with the Corps of Engineers and other partners on forest rejuvenation and research projects.

Continue small scale reforestation, especially mast-producing hardwoods, on suitable Refuge lands.

Add a Refuge Forester to the Headquarters staff to oversee Forest Management Plan preparation and implementation, and to coordinate with the Corps of Engineers and the states on forest management issues and opportunities.

Objective 3.10. Grassland Management. Maintain 5,700 acres of grassland habitat on the Refuge through the use of various management tools including prescribed fire, haying, grazing, and control of invasive plants. Address grassland conservation and enhancement in a step-down Habitat Management Plan.

Rationale: Many species of wildlife, particularly birds, are dependent on grassland habitat. In addition, some of these grasslands are remnant tallgrass native prairie, a diverse and rare ecosystem throughout the Midwest and home to rare or declining plant and animal species. Some grasslands within or near the Refuge are a unique and declining type of prairie, called sand or xeric prairie, which developed on porous and dry sand terraces created adjacent to the Mississippi River thousands of years ago. Active management is needed to curb loss of grasslands to forest succession or invasive species, and to maintain species diversity and health. In some areas near the river, there are opportunities to restore sand prairie. Healthy grasslands benefit a variety of public uses including wildlife observation, plant study, photography, and hunting.

Strategies

When completing the Habitat Management Plan, look at feasibility of increasing grassland areas on the Refuge due to its importance to grassland nesting birds and other wildlife.

Continue efforts with local units of government, other agencies, and private conservation groups to restore sand prairie on the Brice Prairie area (La Crosse County).

Implement the Refuge's Fire Management Plan.

Use haying, rotational grazing, and control of invasive plants as appropriate to maintain grasslands. Restore aspects of native prairie where feasible using a combination of rest, fire, farming, and reseeding as appropriate to the site.

Increase monitoring to measure effectiveness of treatments.

Goal 4: Wildlife-Dependent Recreation. We will manage programs and facilities to ensure abundant and sustainable hunting, fishing, wildlife observation, wildlife photography, interpretation, and environmental education opportunities for a broad cross-section of the public.

Objective 4.1. General Hunting. Maintain a minimum of 187,205 acres (78 percent)[2] of land and water of the Refuge open to all hunting in accordance with respective state seasons, and add 3 new administrative No Hunting Zones totaling 290 acres. See related Objective 4.2 on Waterfowl Closed Areas. (See Table 2 in Appendix H and maps in Appendix P.)

Rationale: Maintaining a large percentage of the Refuge open to hunting is in keeping with guidance in the Refuge Improvement Act to facilitate wildlife-

dependent use when compatible. This objective also represents an integrated wildlife and public use emphasis by more strategic placement of Waterfowl Closed Areas in the related Objective 4.2, to both protect migrating waterfowl and offer a better distribution of waterfowl hunting opportunities. These Closed Areas reopen to some hunting after the duck season, adding to the open acreage above. The three new No Hunting Zones are for safety reasons or to minimize conflict between user groups. One is at Sturgeon Slough, Pool 10 (66 acres), which contains a fairly new hiking trail off a major highway, another is at Crooked Slough proper, Pool 13 (192 acres) to avoid conflicts and address safety concerns in a relatively narrow corridor popular with anglers, and the third is around the Goetz Island Trail, Pool 11 (32 acres) which connects to a trail in the City of Guttenberg, already a no hunting area by city ordinance. The decision to drop three proposed No Hunting Zones in this alternative was based on public and agency comment, evaluation of expected use patterns, prediction of low user-group conflict, or deletion of a proposed hiking trail. The No Hunting Zones in Alternative D dropped in this alternative were Dairyland Power Trail and Kain Switch Trail (Pool 9) and Turkey River Delta Trail (Pool 11). Total acreage of No Hunting Zone areas decreased from 5,404 acres in Alternative D to 3,845 acres in Alternative E. Also dropped in this alternative was the north expansion of the Goose Island No Hunting Zone or youth hunting area based on public comment.

Strategies

Continue yearly review of Refuge Hunting Regulations to ensure clarity and to address any emerging issues or concerns, and give the public an opportunity to review and comment on any changes.

To minimize potential conflicts between user groups, no hunting should occur on the Refuge from March 16 to August 31 of each year, except for spring Wild Turkey hunting and, on the Illinois portion of Refuge, squirrel hunting. The Refuge will address this change in future updates to the Refuge Hunting Plan.

Work cooperatively with the Town of Shelby, La Crosse County, Wisconsin DNR, and the Corps of Engineers to facilitate deer hunting on Goose Island, Pool 8, to address a high deer population and related safety, disease, and habitat degradation concerns.

Continue to publish the Refuge Hunting Regulations brochure to inform the public of hunting opportunities and Refuge-specific regulations.

Continue to improve the hunting experience by ongoing improvements to habitat and enforcement of regulations.

Review the 1989 Refuge Hunting Plan and modify as needed by January 2007 to comply with new regulations and policies.

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2. *This acreage and percent is designed as a benchmark to denote the importance of hunting on the Refuge due to long-standing tradition and in compliance with the intent of the Refuge Improvement Act and Service policy. Although technically correct, these numbers must be tempered by existing habitat conditions and varying state hunting laws which can make some areas being open a moot point. For example, open water areas may be "open" to hunting, but since some states preclude open water hunting of waterfowl, many areas may not provide opportunity. These opportunities are also subject to fluctuation due to increases or decreases in emergent vegetation which often defines "open water," or, construction of islands as part of habitat projects which may "open" opportunities to hunt an area. However, the overall acreage helps express the long-term intent of the Refuge to ensure abundant hunting opportunities.*

Clearly sign areas closed to hunting and ensure public notification through news releases and other means well before the hunting seasons. Do the same for hiking trails that remain open to hunting.

Objective 4.2.

Waterfowl Hunting Closed Areas. In fall 2007 (fall 2009 for Pool 4 changes), implement the following changes to the current Waterfowl Hunting Closed Area system on the Refuge:

1.) Add eight new Closed Areas/Sanctuaries and delete or modify some of the current 15, for a total of 23 units totaling 43,764 acres, or 780 acres less than current area (see Table 5 on page 208 and Table 11 in Appendix H, maps in Appendix P, and Appendix Q, which gives background and change rationale for each closed area):

2.) The following areas would be closed to all entry and use from October 1 to the end of the respective state regular duck season (sanctuary status, 5,050 acres total):

   a) Pool Slough Sanctuary (McGregor District, Pool 9, Iowa/Minnesota, 1,112 acres)

   b) Guttenberg Ponds portion of the 12 Mile Slough Closed Area (McGregor District, Pool 11, Iowa, 252 acres)

   c) Spring Lake Sanctuary (Savanna District, Pool 13, Illinois, existing sanctuary, 3,686 acres)

3.) Use regulations or guidelines for Closed Areas would be as follows: The public will be asked to practice Voluntary Avoidance (limiting entry) on all closed areas October 15 to the end of the respective state duck hunting season. In addition, there will be a “no motor” restriction on small closed areas October 15 to the end of the regular state duck hunting season. Large closed areas are greater than 1,000 acres and small closed areas are ~1,000 acres or less. “No motors” means the use of motors on watercraft is not allowed, although possession of motors is allowed. Exceptions are:

   a) The existing Lake Onalaska Closed Area. Pool 7, Wisconsin, and associated Voluntary Waterfowl Avoidance Area would not be affected, although boundary adjustments would be made to the Closed Area as shown on the map for Pool 7.

   b) The existing Bertom/McCartney Closed Area, Pool 11, Wisconsin, retains current entry and use regulations (no change).

4.) Implement the following policy for more restrictive use regulations: The Refuge will monitor human disturbance in closed areas, and if disturbance exceeds a threshold, the Refuge will, in coordination with other agencies, move to implement more restrictive regulations such as no motors, no fishing or no entry on an individual closed area basis. Human disturbance monitoring and research on Pools 7 and 8 suggests a reasonable threshold of one major disturbance per day based on a season-long average. A major disturbance is defined as a human intrusion which displaces 1,000 waterfowl or 50 percent of the waterfowl present, whichever is less. The disturbance threshold would not include commercial fishing (handled through permitting process) or government entities engaged in monitoring, research, or law enforcement.

5.) Implement the following policy for approving fish habitat improvements in closed areas through EMP or other programs: Project proposals will

be evaluated on a case-by-case basis considering factors which influence human intrusion and waterfowl disturbance such as size of area, boundary configurations, visual barriers, species and numbers of waterfowl, public access points, public use patterns, and proximity to population centers and other recreation facilities. Evaluations will be conducted in collaboration with the states and Corps of Engineers.

Rationale: This objective represents a balanced approach between the needs of waterfowl and the public as reflected in the following overall Closed Area system goals:

1.) Provide migrating waterfowl a more balanced and effective network of feeding and resting areas.
2.) Minimize disturbance to feeding and resting waterfowl in closed areas.
3.) Provide waterfowl hunters with more equitable hunting opportunities over the length of the Refuge.
4.) Reduce hunter competition and waterfowl crippling loss along some closed area boundaries.
5.) Stabilize boundaries, to the extent practicable, where island and/or shoreline loss or gain creates a fluctuating boundary.

This objective also helps address the issues surrounding Closed Areas as discussed in Chapter 1, Section 1.4.5.4 on page 23, and analyzed in Chapter 3, Section 3.2.7 on page 235. The new Closed Areas were chosen to fill gaps between existing Closed Areas, to meet the needs of both dabbler and diver ducks which have different spatial and foraging needs, and to provide areas with the best food potential. An analysis of the potential carrying capacity of existing and proposed alternative Closed Areas was completed in 2004 and shows that Alternative D would provide a 16 percent increase in total energy available to waterfowl in the Closed Area system. Since Alternative E is a fine-tuning of Alternative D and core areas changed little, a similar increase in total energy available is expected. (The carrying capacity report is available at Refuge headquarters or on the Refuge planning web site: http://midwest.fws.gov/planning/uppermiss).

The Closed Area locations and configurations in this alternative also took into account the need for public access and travel routes, commercial navigation, adjacent business and community needs and practicalities, likelihood of near-term habitat improvements in existing Closed Areas, and the desire to continue to provide viable waterfowl hunting opportunities.

Entry and use regulation and guideline changes from Alternative D reflect consideration of public and agency comments received during the first comment period. Relatively large and small closed areas were treated differently since they generally cater to different waterfowl species groups (divers versus dabblers), differ in carrying capacity of birds, and reflect differences in effects of human entry due to size of area and the natural visual or noise barriers present. Human entry in a small closed area will often disturb nearly all the birds present, forcing them to other parts of the Refuge or beyond. Human entry in large closed areas may be variable, from little to no disturbance based on where birds are located, to moving some birds to other portions of the closed area, to moving virtually all birds present from the closed area. Moving the effective date from October 1 in Alternative D to

October 15 in Alternative E for entry and use regulations reflects public concern about the loss of fall fishing opportunities and survey data which shows that the major influx of waterfowl occurs after October 15 each year.

The new policy on setting a threshold of disturbance to guide future entry and use regulation decisions was based on state and public comments. However, given the food and rest needs of waterfowl on migration, it is recognized that no human disturbance is optimum. Thus, the disturbance rate of one major disturbance per day is not intended to represent a purely biologically-accepted threshold of disturbance, but a balance between the needs of waterfowl and the realities of a large open river system, various authorities, different user groups, abundant access points, and the level of surrounding development.

No change was made in entry regulations for the Lake Onalaska closed area to provide a benchmark for measuring long-term voluntary avoidance effectiveness and compliance as presented in the existing Lake Onalaska Voluntary Avoidance Area. The exception also recognizes the unique location of the Lake Onalaska closed area amidst heavy shoreline development and the resulting heavy watercraft use needs and patterns by adjacent property owners and nearby population centers. The Bertom/McCartney exception recognizes use patterns resulting from the existing boat landing in the heart of the area and existing fall fishing levels fostered by an earlier Environmental Management Program habitat project.

Changes to existing boundaries or new closed areas in Pool 4 (Nelson-Trevino, Big Lake, Peterson Lake, and Rieck's Lake/Buffalo River) will not take effect until the 2009 waterfowl hunting season. During public meetings and workshops, hunters raised questions about the level of waterfowl use in the existing Nelson-Trevino Closed Area. Since this area is heavily wooded, it is not feasible to get an accurate index of waterfowl use during fall aerial surveys. Thus, the Refuge will implement on-the-ground monitoring for three years to ascertain bird use numbers and patterns in the Nelson-Trevino and surrounding areas. Based on the results of this monitoring, the Refuge will have a better picture of waterfowl use dynamics in the Pool 4 area. The changes presented in this alternative will proceed in 2009 unless data dictates another course. The public will be kept informed of the monitoring and any resulting changes in management direction.

The new paired closed areas in Pool 10 (Wisconsin River Delta and Sturgeon Slough/McGregor Lake) were modified since the paired concept was deemed overly complicated based on input and discussion at public meetings on draft Alternative E. The new configuration has a standard, small closed area at Sturgeon Slough which protects bird use in the best habitat. The McGregor Lake portion was dropped from any closed area designation due to marginal waterfowl habitat and its importance to sport fishing. The Wisconsin River Delta was renamed a special hunt area to better reflect the nature of the less-restrictive regulations being employed (closed to hunting and trapping, voluntary avoidance, November 1 to the end of the duck season only).

Finally, the policy on evaluating proposed fish habitat improvements in closed areas recognizes the need to address unintended conflicts that may arise when trying to meet different objectives for fish and waterfowl in the same area. Fall fishing has been shown to be a major disturbance to waterfowl in

some closed areas. Certain fish habitat improvements which attract and hold fish can increase angler use and waterfowl disturbance, and on small closed areas especially, have the potential to negate any waterfowl migration benefits. Careful consideration of these dynamics is needed when planning habitat projects.

Strategies

Continue to improve habitat in all Closed Areas by ongoing programs such as pool-wide drawdowns, Environmental Management Program projects, and other agency initiatives and regulations.
Continue to monitor waterfowl use of Closed Areas through weekly aerial surveys in the fall and adjust closed areas as needed in a more adaptive manner and with full agency and public involvement.
Monitor the frequency and effect of disturbance by the public in line with the disturbance threshold policy.
Meet with Wisconsin DNR and other states to develop criteria to be used in evaluating the compatibility of fish habitat improvements in Waterfowl Hunting Closed Areas located in Wisconsin.
Conduct a comprehensive public information campaign to inform waterfowl hunters and the general public of impending changes. Use all methods available including personal contact, presentations at organizations, special meetings, leaflets, maps, signing, news releases, websites, and media interviews.
Develop new signs for the differing regulations/guidelines for large and small closed areas and post boundaries of new or modified closed areas well in advance of the waterfowl hunting season to help with public awareness.
Increase law enforcement presence to help ensure understanding and compliance with changes, relying on verbal and/or written warnings, at an officer's discretion, the first year of implementation in 2007.

Objective 4.3

Waterfowl Hunting Regulation Changes. In fall 2007, implement the following Refuge-specific waterfowl hunting regulation change: Open-water waterfowl hunting is prohibited in Pool 11, approximate river miles 586-592, Grant County, Wisconsin (see map, Appendix P) in accordance with general Wisconsin open-water hunting regulations/definitions. No change to other Refuge waterfowl hunting regulations, except for permanent blinds and decoys in the Savanna District, Objective 4.5 (See Appendix I for current Refuge regulations). A summary of Wisconsin's open water regulation is:

> No person may hunt waterfowl in open water from, or with the aid of, any blind including any boat, canoe, raft, contrivance, or similar device. Open water is defined as any water beyond a natural growth of vegetation rooted to the bottom and extending above the water surface of such height as to offer whole or partial concealment to the hunter. Dead stumps and dead trees in the water do not constitute a natural growth of vegetation. Hunting is permitted in any open water area provided the hunter is standing on the bottom without the aid of a blind. Blinds include, but are not limited to, any boat, canoe, raft, or similar device that provides any concealment for the hunter.

Rationale: The prohibition of open-water hunting is to limit disturbance in an area of Pool 11 that has become an important feeding and loafing site for thousands of Canvasback and Lesser Scaup ducks, two species of management concern due to relatively small or declining populations. In Pool 11, Grant County, open water hunting is allowed through a special exemption to the Wisconsin regulations. In the 1980s, the area was an important staging and feeding area for diving ducks, primarily Lesser Scaup, which fed on abundant fingernail clams. When the fingernail clam population collapsed, waterfowl use virtually ceased. In recent years, wild celery has become partially re-established and the area is attracting increased numbers of Canvasback and other diving ducks. This area provides the only major staging and feeding area for divers between Pool 9 and Pool 13, a distance of 125 river miles. This objective represents a scaling-back of proposals in earlier alternatives based on public input, and to ensure the action targets the current area of need versus a broad, preemptive approach. However, an additional strategy below highlights the Refuge's continued concern with periodic suggestions by individuals/groups to liberalize open-water hunting regulations.

The proposed shotshell possession limits and hunting party spacing requirement in Alternative D were dropped in Alternative E based on input from a majority of waterfowl hunters providing comment, issues with enforcement and compliance, and desire of Illinois waterfowlers to retain the 200-yard spacing requirement in Pools 12-14. In lieu of specific regulation, the strategies below have been modified to reflect the continuing need for information and education to help reduce hunter crowding, skybusting (shooting at birds out of range) and resulting crippling loss, conflicts between parties, and litter in the form of spent shells.

Strategies

Conduct a comprehensive public information campaign to inform waterfowl hunters and the general public of impending regulation change. Use all methods available including personal contact, presentations at organizations, special meetings, leaflets, signing, news releases, websites, and media interviews.

In cooperation with waterfowl hunters and conservation organizations, develop a hunter information and education campaign starting in fall 2007 to help address the issues of crowding, conflicts, skybusting (shooting at birds out-of-range) and bird retrieval, and spent shell litter to maintain the quality and important traditions of waterfowl hunting on the Refuge.

Maintain or improve habitat in Pool 11 through ongoing programs such as pool drawdowns, habitat enhancement projects, and other agency initiatives and regulations.

Continue to monitor waterfowl use of Pool 11 through weekly aerial surveys in the fall.

Continue to work with the states to help ensure that state waterfowl regulations concerning open water hunting continue to safeguard important diver duck staging areas in Pool 9 and elsewhere, and add additional Refuge-specific open-water hunting regulations only if warranted.

Objective 4.4.

Firing Line – Pool 7, Lake Onalaska. By October 1, 2006, in cooperation with local waterfowlers and state managers and conservation officers, complete a step-down plan for the Gibbs Lake area of Pool 7 (see map, Appendix P). The plan should strive to address the following goals:

1.) Reduce competition and conflict in securing preferred hunting sites.
2.) Reduce pre-emptive use of choice hunting sites.
3.) Reduce crowding.
4.) Reduce skybusting (shooting at birds out-of-range) and resulting crippling or loss of downed birds.
5.) Improve the quality of the waterfowling experience.
6.) Be fair, simple, and efficient to administer and manage.

Rationale: A purpose of the Refuge's Closed Area System is to disperse waterfowl hunting opportunities since hunters tend to congregate near concentrations of waterfowl. However, some sections of closed area boundaries, particularly those that bisect emergent marsh at the upriver end of the Lake Onalaska Closed Area (Gibb's Lake), can attract large concentrations of hunters in firing lines as they wait for waterfowl to leave closed areas. Pass shooting is the technique most often used, particularly in the Barrel Blinds area of Gibb's Lake. Unfortunately, "skybusting," or shooting at birds out of range, is common and often results in increased crippling loss. For example, during the 1991-93 seasons, officers observed that 63 of 141 hunting parties (44.7 percent) along firing lines in Pool 7 skybusted at least once during the time they were observed. Skybusting was defined as shooting at waterfowl at distances of 50 yards or more. The number of shots required to retrieve one bird was 11. During the 1992 hunting season, these same observers working Pool 7 firing lines and other areas found that hunters who did not skybust had a crippling loss rate of about 27 percent for the ducks or coots they downed. The crippling loss rate for ducks and coots downed through skybusting increased to nearly 57 percent.

Hunter behavior can also deteriorate in crowded, competitive situations. Behavior observed or reported along the Barrel Blinds area includes people claiming preferred sites (spending the night, leaving illuminated lights in unattended sites, handing-off sites to friends or co-workers after a party's hunt is over), engaging in verbal confrontations, late arriving hunters disrupting those set-up, flaring birds before they can work decoy sets, failure to retrieve birds, and increased littering.

Guidance in the Refuge Manual helps set the standard for hunting on refuges:

> "Refuge hunting programs should be planned, supervised, conducted, and evaluated to promote positive hunting values and hunter ethics such as fair chase and sportsmanship. In general, hunting on refuges should be superior to that available on other public or private lands and should provide participants with reasonable harvest opportunities, uncrowded conditions, fewer conflicts between hunters, relatively

undisturbed wildlife, and limited interference from or dependence on mechanized aspects of the sport. This may require zoning the hunt unit and limiting the number of participants."

The Refuge looked at several options for improving the hunting experience in the Gibbs Lake area. These options included limiting the number of hunters pool-wide, setting minimum distances between hunters, more education, limiting the number of shotshells, more intense enforcement, and modifying the closed area boundary. These options all had shortcomings in this particular area compared to a managed hunt program. However, based on concerns with Alternative D (managed hunt), it was deemed appropriate to re-engage waterfowl hunters in trying to address their concerns while at the same time meeting the Refuge's goals for the Gibbs Lake area.

Strategies

Assemble a diverse group of waterfowl hunters familiar with the Gibbs Lake Area, and Wisconsin DNR biologists/managers and conservation officers, to provide input to the Refuge for preparing a draft Gibbs Lake Waterfowl Hunting Management Plan that meets the goals above.

Ensure opportunity for public review and comment on the draft management plan.

Conduct a comprehensive public information and education effort to inform waterfowl hunters of any changes resulting from the planning effort. Use personal contact, presentations, special meetings, leaflets, signing, news releases, websites, and media interviews as applicable.

Objective 4.5.

Permanent Hunting Blinds on Savanna District. Phase-out the use of permanent hunting blinds for waterfowl hunting and the practice of leaving decoy sets overnight within the Savanna District of the Refuge. Permanent blinds and leaving decoys out one-half hour after shooting hours will no longer be allowed on the Refuge in Pool 12 after the 2006-07 season, Pool 14 after the 2007-08 season, and Pool 13 after the 2008-09 season.

Rationale: Eliminating permanent blinds would provide consistency on the Refuge since they are not allowed on the other three Districts. In addition to consistency, eliminating the blinds would address a host of issues involving debris, private exclusive use of public waters, limiting hunting opportunities, and confrontations and other incidents. These issues were discussed more fully in Chapter 1, Section 1.4.5.4. This objective would also reduce the staff time spent on law enforcement, complaints, and clean-up that permanent blinds entail, time that could be directed toward more wildlife-related needs, and in line with the wildlife aspect of this alternative. By using a phased approach, the objective takes into consideration the long-standing tradition of permanent blind hunting and gives hunters more time to transition to alternative hunting methods and areas. The phase out schedule was modified in this alternative to give the greatest number of hunters more time to adjust, and takes into account staff workload by timing the phase out over three years. The elimination of permanent blinds also opens the Refuge to a broader cross-section of hunters, and will help reduce conflict that has arisen between hunting parties, and limits the private, exclusive use of public waters and lands.

Related to permanent blinds is the issue of leaving duck hunting decoys on Refuge waters in Pools 12-14 (Savanna District). This is an exception to Refuge-wide regulations which state that decoys may not be in place ½ hour after the close of legal shooting hours and 1 hour before the start of legal shooting hours. Hunters who leave decoys out overnight, and in some instances multiple days or the entire season, are in effect practicing private, exclusive or proprietary use of public waters by tying-up a hunting area. Like permanent blinds, this has the effect of limiting places for the general public to hunt. Although including this change in the permanent blind objective was always the Refuge intent, it was inadvertently left out of previous alternatives. This change in decoy regulations for the Savanna District was discussed at public meetings, and written comments on the issue were received during the comment period.

Strategies

Conduct a public information campaign to inform hunters of the changes, and to give hunters ample time to adjust to alternative hunting methods or areas.

Prepare and distribute a leaflet explaining the new regulations governing temporary blinds and decoy use.

Begin phase in of permanent blind regulations by requiring hunters to comply with the following requirements the year before a respective pool is scheduled for permanent-blind phase-out:

1. Blinds must be marked with name, address, and telephone number of owner.
2. All blinds and blind material within 100 yards of blind site must be removed by the hunter within 30 days of the end of the waterfowl hunting season.

Objective 4.6. Potter's Marsh Managed Hunt on Savanna District, Pool 13. Beginning with the 2006-07 season, implement a variety of administrative and regulation changes to reduce costs and provide an equitable hunting experience. Permanent blinds would be eliminated after the 2008-09 season (Pool 13 schedule), but boat-blind sites provided and managed.

Rationale: This objective reflects an integrated approach by reducing costs and staff time that can be devoted to wildlife objectives, while retaining the essence of the waterfowl hunt which provides a desired experience for hunters. The changes would reduce problems associated with permanent blinds as noted in Objective 4.5 (debris, private exclusive use, limiting hunting opportunities, and confrontations) and reduce the administrative costs associated with the drawings, permit administration, and oversight of the current program (see the issue discussion in Chapter 1, Section 1.4.5.4 on page 23).

Strategies

Implement the following for the 2006 waterfowl hunting season:

1. The Refuge will mark with numbered stakes 49 hunting areas (same number as current); blinds must be set up within 25 feet of stake.
2. Blind sites must be occupied one-half hour prior to shooting time or they will be open to the public first-come, first-served.

3. A 400-yard closed area restriction on the west boundary of Potter's Marsh will be maintained (491 acres) to prevent encroachment from other public hunting.

Implement the following regulation changes for the 2009 season:

1. Permanent blinds will not be allowed. Only boat blinds in accordance with Refuge temporary-blind regulations.
2. The Refuge will continue to mark 49 hunting areas and boat blinds must be set up within 25 feet of stake.

Implement the following application and drawing procedure changes for the 2006 season:

1. Accept applications and hold drawing for blind area on same day, generally on a Saturday in July coinciding with the northwest region of Illinois Department of Natural Resources managed hunt drawing .
2. Applicant must be present at drawing.
3. Applicant must have current Firearm Owners Identification if Illinois resident, and current year license and state and federal duck stamps.
4. Applicants must be 16 years of age by date of drawing.
5. Applications accepted 10 a.m. to 2 p.m. with drawing at 2 p.m.
6. The successful applicant receives boat-blind site for entire season.
7. Application fee $10, plus $100 fee for successful applicants.

Conduct public information campaign to inform the public of the change and to give hunters who have become accustomed to the former managed hunt a chance to adapt to alternative hunting methods or areas.

Objective 4.7. Blanding Landing Managed Hunt, Pool 12. After the 2006-07 season, eliminate the managed waterfowl hunt at Blanding Landing, Lost Mound Unit, Savanna District (former Savanna Army Depot), including the use of permanent blinds, and open the area to waterfowl hunting on a first-come, first-secured basis.

Rationale: The Illinois Department of Natural Resources administers this hunt on behalf of the Savanna Army Depot, but with transfer of jurisdiction to the Service, hunting on this area is now the responsibility of the Refuge. Similar to the Potter's Marsh Managed Hunt above, this objective would reduce problems associated with permanent blinds as noted in Objective 4.5 (debris, private exclusive use, limiting hunting opportunities, and confrontations) and eliminate the administrative costs associated with the drawings, permit administration, and oversight of the current program. This objective reflects a wildlife emphasis since funding and staff currently devoted to this hunt could be focused on wildlife objectives throughout the Savanna District, and especially the new Lost Mound Unit which has large start-up needs. This objective also reflects a public use emphasis by opening an area to a larger number of waterfowl hunters.

Strategies

Conduct a public information campaign prior to implementation to inform the public of the change and give hunters accustomed to the managed hunt a chance to adapt to alternative hunting methods or areas.

Objective 4.8

General Fishing. Provide and enhance year-round fishing on the approximately 140,000 acres[3] of surface water within the Refuge, and an additional 5,050 acres of waterfowl sanctuaries open spring, summer, and winter. (Note: Iowa, Wisconsin, and Illinois regulations also maintain fish "refuges" below lock and dams 11, 12, and 13, December 1 through March 15). Add three new fishing piers or docks by 2021 for a total of 20 (See Table 14 in Appendix H).

Rationale: This objective represents the current areas available and open to fishing. Fishing is one of the priority uses of the Refuge System and is to be facilitated when compatible with the purposes of the Refuge and the mission of the Refuge System. Enhanced fishing opportunities are also a reflection of river and Refuge health. The increase in fishing piers or docks is proposed in-line with the integrated public use emphasis of this alternative. These facilities offer fishing opportunities for persons without boats. In Alternative E, the location of two fishing piers was changed following public review, but the total number remains the same.

Strategies

- Enhance fishing opportunities on suitable areas of the Refuge through habitat, access, and facility improvements as outlined in other plan objectives.
- Continue to promote fishing through Fishing Days and other outreach and educational programming.
- Cooperate with the states in their ongoing fishery management programs.
- Seek new funding and partnership opportunities to construct the new fishing piers.
- Ensure yearly inspection and maintenance of all fishing piers to maintain quality and safety.

Objective 4.9.

Fishing Tournaments. By January, 2008, in collaboration with the states and the Corps of Engineers through the Upper Mississippi River Conservation Committee, develop a plan for dove-tailing Refuge permitting requirements with the respective state-issued permits for all fishing tournaments occurring on the Refuge.

Rationale: Fishing tournaments continue to grow in size and number on the Mississippi River and on the Refuge. Conflicts can at times occur between tournaments and between tournament participants and the general public due to location, timing, frequency, and size of tournaments. These conflicts can be heightened by differing state and Corps of Engineers policies and permit requirements and stipulations. Care must also be taken to safeguard sensitive habitats or fish and wildlife areas within the Refuge. Since fishing tournaments are a use of the Refuge, they are subject to regulations governing uses on national wildlife refuges.

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3. *This acreage is designed as a benchmark to denote the importance of fishing on the Refuge due to long-standing tradition and in compliance with the intent of the Refuge Improvement Act and Service policy. Although technically correct, these numbers must be tempered by existing habitat conditions which can affect the quantity of water acres suitable for fishing in any given year. However, the overall acreage helps express the long-term intent of the Refuge to ensure abundant fishing opportunities.*

The Refuge has not provided any oversight to tournaments in the past, deferring to the individual states', and at times Corps of Engineers', regulatory and permitting processes. Although the states will retain their leadership role, the Refuge needs to meet its regulatory requirements for tournaments occurring on the Refuge. This can most efficiently be accomplished by dove-tailing any Refuge requirements in the state permit process and provide one-stop-shopping for tournament clients. Since tournaments often cross state lines regardless of the origin, the Refuge can also serve as a catalyst for an integrated and consistent approach to fishing tournament management on the river.

Strategies

Use the Upper Mississippi River Conservation Committee as a forum to discuss with the states and the Corps of Engineers the best strategies for dove-tailing Refuge permit requirements with their permitting procedures.

Develop with the states and the Corps of Engineers time, space, and capacity parameters on each Pool within the Refuge, and definitions for what constitutes a fishing tournament.

Seek fishing tournament organization input in planning a permit allocation and application process, and ensure opportunity for public involvement and review.

Foster the use of a web-based tournament management system so all partners, tournament sponsors, and the public have access to scheduling information, tournament dates, and permit procedures.

Objective 4.10. Wildlife Observation and Photography. Maintain the following existing and new facilities to foster wildlife observation and photography opportunities: 25 observation decks and areas, 3 observation towers, 4 photography blinds, 14 hiking trails, 19 canoe trails, 6 biking trails, and 3 auto tour routes. (See Tables in Appendix H and maps, Appendix P)

Rationale: Wildlife observation and photography are two of the six priority public uses of the Refuge System and are to be facilitated when compatible. This objective represents a marked increase in the number of existing observation decks/areas (plus 10), observation towers (plus 3), photography blinds (plus 4), hiking trails (plus 8), canoe trails (plus 15), biking trails (plus 3), and auto tour routes (plus 2). This expansion of facilities reflects a balanced and measured increase in facilities for wildlife observation and photography, while continuing to meet fish and wildlife protection and management responsibilities.

Strategies

Schedule annual inspection and maintenance of the facilities.

Ensure adequate signing and information in brochures, websites, and maps so the public is aware of the facilities.

Continue to promote the wildlife observation and photography opportunities of the Refuge through public education, outreach, special programs, and partnerships with the states, Corps of Engineers and private conservation groups.

Enhance observation and photography opportunities on suitable areas of the Refuge through habitat, access, and facility improvements as outlined in other plan objectives.

Seek new funding and partnership opportunities, including volunteers, for construction and maintenance of facilities.

Objective 4.11. Interpretation and Environmental Education. By the end of 2010, increase the number of stand-alone interpretive signs to 102 (plus 43) and by 2021 build new district offices with visitor contact facilities at McGregor, Winona, La Crosse, and the Lost Mound Unit. Continue to print and distribute a Refuge General Brochure, and update websites quarterly. Continue to sponsor at least two major annual interpretive events on each Refuge District, and by January 2008 establish at least one major environmental education program at each District with visitor services staff. (See Table 16 in Appendix H and maps, Appendix P)

Rationale: Interpretation and environmental education are two of the six priority public uses of the Refuge System and are to be fostered if compatible with the Refuge purpose and Refuge System mission. Interpreting the resources and challenges of the Refuge to the general public and incorporating these topics into school curricula are important ways to influence the future well-being of the Refuge and the river. Only through understanding and appreciation will people be moved to personal and collective action to ensure a healthy Refuge for the future. Interpretation and environmental education are also key to changing attitudes and behavior which affect the Refuge through off-Refuge land use decisions and on-Refuge conduct and use.

This objective reflects a marked increase in interpretation and environmental education capability and programs and reflects the importance of these programs in an integrated resource management alternative. It also reflects basic needs for a Refuge that is the most heavily visited in the United States, and would provide facilities necessary to inform and educate visitors and help them make the most of their Refuge visit. Since environmental education is curriculum-based and labor intensive, initial efforts will be limited to Districts with public use staff, but will increase across all Districts if and when staff are added.

Strategies

Hire visitor services specialists at McGregor and Winona Districts (top priority), and hire a visitor services specialist to be stationed at the National Mississippi River Museum in Dubuque, Iowa, to help present Refuge-specific programs.

Continue work to complete exhibits at Savanna and La Crosse offices, and seek funding to replace exhibits at McGregor District and the Lost Mound Unit of the Savanna District.

Participate in national interpretive events such as National Wildlife Refuge Week or Migratory Bird Day for efficiency and effectiveness.

Conduct a quarterly condition review of interpretive signs and complete maintenance and sign replacement as needed.

Cooperate with existing interpretive and environmental education programs offered by the states, Corps of Engineers, other agencies and private conservation groups, and continue to seek grants to fund events and programs.

Continue to place interpretive signs at public access and overlook points in cooperation with various agencies and units of government.

Objective 4.12. Commercial Fish Floats. By the end of 2006, develop new facility, operations, and concession fee standards for the four existing commercial fish floats or fishing piers below Locks and Dams 6, 7, 8, and 9. Phase out those operations which do not meet new standards, solicit proposals for new floats, and base a decision on the adequacy and feasibility of the new proposals.

Rationale: This objective would continue to recognize the important role of fish floats in providing an alternative fishing experience for a diversity of Refuge visitors. However, new standards would address several long standing management issues such as permit non-compliance, condition and safety issues with some operations, net economic loss to the government, and noncompliance with regulations governing concessions on national wildlife refuges. Phasing out operations not in compliance would reduce Refuge administrative and staff costs, resources that could be directed back to fish-and-wildlife-related objectives. Soliciting new proposals to replace any facilities phased out could lead to quality replacements to meet need and demand while reducing staff oversight.

Strategies

Seek input from current fish float owners, draft new standards well in advance of implementation, and give fish float owners/operators a chance to review and comment.

Continue yearly coordination meeting with float owners and operators to address concerns and permit conditions.

Continue enforcement of permit stipulations and suspend permits of those operations not meeting the stipulations.

Inspect facilities for safety at least once yearly.

If any floats are phased out due to non-compliance with permit stipulations, ensure adequate public notice so clients can seek alternate opportunities and ensure timely solicitations of new float proposals.

Objective 4.13 Guiding Services. In collaboration with the states and the Corps of Engineers, implement in spring 2008, a consistent process for issuing permits for persons conducting for-hire guided hunting, fishing, and wildlife observation activities on the Refuge.

Rationale: As noted in the issues section of Chapter 1, guiding businesses are on the rise and promise to become an increasingly common activity on the Refuge. Without proper oversight, this activity could lead to disturbance to sensitive areas and wildlife, and increased conflict with the general public or other guides as volume and frequency increases. In addition, guiding and other commercial uses are prohibited on a national wildlife refuge unless specifically authorized via permit. The Refuge needs to bring this use into compliance with regulations and policy. Effectively managing this use would

not only safeguard fish and wildlife resources, but also benefit the general public that uses the Refuge for hunting, fishing, and wildlife observation, and thus represents an integrated approach.

Strategies

Use the Upper Mississippi River Conservation Committee as a forum to discuss with the states and the Corps of Engineers the best strategies for dove-tailing Refuge permit requirements with their permitting procedures.

Develop with the states and the Corps of Engineers capacity parameters on each Pool(s) within the Refuge for various types of guiding operations. The parameters should aim to minimize competition or conflict with the general public engaged in hunting, fishing, and wildlife observation, minimize conflicts between guides, and ensure a viable economic opportunity for existing guiding businesses.

Conduct a public information effort through news releases and media contacts to implement the objective.

Provide proactive enforcement through Refuge and other agency law enforcement officers.

Goal 5: Other Recreational Use. We will provide opportunities for the public to use and enjoy the Refuge for traditional and appropriate non-wildlife-dependent recreation that is compatible with the purpose for which the Refuge was established and the mission of the Refuge System.

Objective 5.1. Beach Use and Maintenance. Beginning in spring 2007, use the following general guidelines, regulations and policies to manage beach-related uses and beach maintenance. Other existing public use regulations pertaining to beach areas (see Appendix J) will remain in effect.

1.) *General Guidelines.* Beach-related uses will be governed by the following over-arching guidelines:

a) protect human health and safety

b) minimize dangerous situations for Refuge law enforcement officers

c) minimize impacts to wildlife and the Refuge environment.

d) minimize conflicts with wildlife-dependent users

e) set policies and regulations that are reasonable and feasible to administer and enforce

f) minimize or offset current and future administrative, operating, and maintenance costs

g) make regulations easily understood by the general public

2.) *Beach Use Policy.* Remnant and active dredged material placement sites, natural sand shorelines, and all other shoreline areas within the Refuge will be open to public use and enjoyment in accordance with current and proposed (see item 3 below) Refuge Public Use Regulations. Based on clearly articulated reasons, the Refuge Manager may close or restrict use on certain beach and other shoreline areas to address chronic public use problems or safeguard wildlife or habitat values. Unless an emergency situation, these closures or restrictions will be coordinated with the states and Corps of Engineers through existing interagency workgroups

or through the pool-by-pool beach planning process, and the public will be given proper notice and an opportunity to comment.

3.) *New Regulations for Camping and Other Beach-related Uses.* Current public use regulations as described in the Refuge Public Use Regulations brochure (see Appendix J) will remain in effect, except by April 1, 2007, the following regulation changes will be implemented:

a) Areas open to camping remain unchanged from existing policy and regulations. However, camping is defined as erecting a tent or shelter of natural or synthetic material, preparing a sleeping bag or other bedding material for use, parking of a motor vehicle or mooring or anchoring of a vessel, for the apparent purpose of overnight occupancy, or, occupying or leaving personal property, including boats or other craft, at a site anytime between the hours of 11 p.m. and 3 a.m. on any given day.

b) Human solid waste and associated material must either be removed and properly disposed of off-refuge, or, be buried on site to a depth of 6-8 inches and at least 50 feet from waters edge. The burying of all other refuse, trash, or litter is still prohibited.

c) The use or possession of glass food and beverage containers while afoot on lands within the Refuge is prohibited (vehicles and watercraft are exempt).

d) No change to existing alcohol use regulations as published in the Code of Federal Regulations (50 CFR 27.81 and 32.2) for national wildlife refuges: "Entering or remaining in any national wildlife refuge when under the influence of alcohol, to a degree that may endanger oneself or other persons or property or unreasonably annoy persons in the vicinity, is prohibited" and "The use or possession of alcoholic beverages while hunting is prohibited."

4.) *Beach Management and Maintenance Policy.* The Refuge will play an active role in completing beach management plans with the Corps of Engineers and the states for all pools within the Refuge, and supports active public involvement in the process. However, the Refuge will in general only concur with maintenance of beaches on remnant dredged material islands or existing dredged material placement sites adjacent to the main channel of the river that are designated "low density recreation" in current Land Use Allocation Plans, or those not otherwise closed to use. Maintenance should be limited to the minimum reshaping, leveling, and vegetation clearing needed to ensure safe access and to facilitate the camping experience. Top dressing with sand should only be done under special circumstances. The scope and extent of all maintenance will be on a site-by-site basis as determined by the respective District Manager in consultation with the Corps of Engineers and the respective state. The Refuge will continue to request the closure of openings to dredged material placement sites after emptying on Service-acquired lands and Corps-acquired lands due to concerns with crowding, large group behavior issues, steep slopes, and shoreline drop-offs. Enforcement of non-wildlife-related recreation in empty placement sites left open on Corps of Engineers-acquired lands will not be the responsibility of the Refuge.

Rationale: Non-wildlife-dependent recreation continues to increase on the Mississippi River and the Refuge. It is estimated that 1.3 million persons per

year use the Refuge for camping, recreational boating, picnicking, swimming, social gatherings, and other uses not dependent on the presence of fish and wildlife. This objective, with its new policies and regulations, would help address some of the issues related to beach use described in the issue section of Chapter 1, most notably protection of sensitive wildlife and habitat, human waste, intoxication, unlawful and unruly behavior, officer and public safety, and preemptive use of preferred camping or hunting sites. This objective represents an integrated wildlife and public use approach, using reasonable regulations and policy to ensure that beach-related uses are compatible with the fish, wildlife, and plant conservation purposes of the Refuge and to address public safety concerns. The existing alcohol use regulation was deemed adequate, with the main problem being public awareness of the full regulations versus a set blood alcohol limit. The glass container regulation was added in this alternative since it was suggested by the public at several workshops to address safety problems with broken glass on beach areas. The beach management and maintenance policy strengthens the Refuge commitment to completing beach management plans in collaboration with other agencies and the public, while communicating the Refuge's preferred policy or framework for completing the plans. This policy also clarifies the Refuge's position on the management of dredged material placement sites and addresses concerns of agency responsibility on areas actively used by the Corps of Engineers for navigation system management.

Strategies

Continue to work with the states and the Corps of Engineers through existing interagency workgroups, to complete beach plans for each pool within the Refuge with due consideration of the policies and regulations above. Actively seek public input and comment for beach plan preparation.

Conduct a public information and education campaign well before implementation of regulation changes, to include news releases, general articles, fact sheets, and media interviews.

Institute an active "Leave No Trace" program for beach users (plan ahead and prepare, travel and camp on durable surfaces, dispose of waste properly, leave what you find, minimize campfire impacts, respect wildlife, and be considerate of others).

Explore a citizen "Adopt a Beach" program to help address beach maintenance and clean-up needs.

Develop a brochure that clearly explains new policies and regulations and answers frequently asked questions.

Refuge law enforcement officers will increase contacts with Refuge users once this plan is approved to explain pending regulation changes. Verbal or written warnings will be used at officer discretion during the first year of implementation to ease the transition.

Continue to explore a user fee system to off-set costs of beach-related recreation such as camping in line with new fee legislation passed by Congress in 2004. Any fee proposal would be drafted only with full public, state, and Corps of Engineers involvement.

Objective 5.2. Electric Motor and Slow, No Wake Areas. Beginning in the spring of 2007, establish a total of five Electric Motor Areas on the Refuge encompassing

1,852 acres, and eight Slow, No Wake Areas encompassing 9,720 acres. The Black River Bottoms Slow, No Wake Area will not be implemented until 2008, and the Nelson-Trevino Slow, No Wake Area in 2009. (See Table 13 in Appendix H, maps in Appendix P, and Appendix R, which contains more detailed area descriptions and rationales.) These areas are defined as follows:

> *Electric Motor Areas.* Areas closed year-round to all motorized vehicles and watercraft except watercraft powered by electric motors or non-motorized means. The possession of other watercraft motors is not prohibited, only their use. For example, anglers could switch to an electric trolling motor when entering these areas.
>
> *Slow, No Wake Areas.* From March 16 through October 31 in these areas, watercraft must travel at slow, no-wake speed and no airboats or hovercraft are allowed. Respective state definitions for what constitutes "slow, no wake" speed or operation will apply as appropriate. The airboat and hovercraft prohibition refers to operation. For example, they could be propelled by electric motors or other means at slow, no wake speed inside these areas during the dates specified.

Rationale: This objective will help reduce disturbance to backwater fish nurseries and sensitive backwater wildlife such as raptors, Black Terns and other colonial nesting birds, and furbearers in keeping with the wildlife mission of the Refuge. It will also address the need to provide areas of quiet and solitude sought by many users of the Refuge, and thus provide a balanced approach in line with the focus of this alternative. This balancing of needs and desire of user groups, and within user groups, is becoming more important as visitation grows, technology advances, and the use of such technology increases (for example jet skis, mud motors, airboats, and hovercraft). The seasonal prohibition of airboats and hovercraft in the Slow, No Wake Areas recognizes the innate and virtually unavoidable noise levels produced by these types of watercraft. The seasonal approach also allows the use of airboats and hovercraft during the trapping season and for about half of the waterfowl hunting season when it is 60 days or longer. Due to the size and scope of the Refuge, space and time restraints are deemed a fair approach to watercraft use on the Refuge in keeping with the overall goal of providing high quality and sustainable wildlife-dependent recreation and opportunities for other recreation.

All Slow, No Wake Areas will take effect in 2007, except the Black River Bottoms Slow, No Wake Area (Pool 7) which takes effect in 2008, and the Nelson-Trevino Slow, No Wake Area (Pool 4) which takes effect in 2009. During the public comment period on the supplemental EIS, a group of citizens suggested an alternative Slow, No Wake Area in the Big Marsh/Mud Lake area of Pool 7 to replace the Black River Bottoms area. The proposal had several conditions which made it unsuitable. However, since the proposal has merit based on resource values, ease of access, and existing adjacent facilities, the implementation of the Black River Bottoms Slow, No Wake Area is being delayed one year to allow further exploration of the proposal. However, the Black River Bottoms Slow, No Wake Area will be implemented in 2008 unless further consultation with citizens and a decision by the Refuge Manager dictates another course. The implementation of the Nelson-Trevino Slow, No Wake Area is delayed to 2009 to reduce variables (frequency, type, and level of public use) during three years' of waterfowl monitoring planned

for the area. The implementation is related to, and coincides with, Waterfowl Hunting Closed Area changes scheduled for 2009 in Pool 4 (see Objective 4.2, Waterfowl Hunting Closed Areas).

This objective only affects the means of navigation in these areas, and all current uses would be allowed (fishing, hunting, camping, wildlife observation, etc.) in accordance with current regulations or those proposed elsewhere in this alternative. This alternative also reflects the substantial public comment received about proposed electric motor areas and suggestions to use slow, no wake designations versus electric motor areas to meet concerns of wildlife disturbance and user conflict while not unduly restricting public access and use. Four areas originally proposed were dropped from any designation after further review and consideration of public comment.

Strategies

Conduct a public information campaign to inform and educate the public about pending area designations and implementation dates. Use news releases, media interviews, fact sheets, brochures, and websites in the information effort.
Clearly delineate Electric Motor Areas and Slow, No Wake Areas on Refuge maps and by appropriate signing.

Objective 5.3. Slow, No Wake Zones. In 2007, begin adding 11 new Refuge-administered slow, no wake zones (brings total to 13) and assist local or other units of government in the enforcement of 44 other slow, no wake zones within the Refuge. In Spring Lake and Crooked Slough-Lost Mound (Pool 13), implement in 2007 a speed and distance restriction similar to state regulations: "Watercraft operators must reduce the speed of their watercraft to less than 5 mph when within 100 feet of another watercraft that is anchored or underway at 5 mph or less." (See Table 18 in Appendix H and maps, Appendix P)

Rationale: On a few areas of the Refuge, boat traffic levels and size of boats is leading to erosion of island and shoreline habitat, which can impact fish and wildlife habitat and archeological sites directly or indirectly through increasing sedimentation and water turbidity. On some of the areas identified, slower speeds would reduce safety hazards posed by heavy traffic and blind spots in narrow channels. Public comment on the proposed Spring Lake speed limit and Crooked Slough slow, no wake regulation in Alternative D led to a change in this objective. The speed and distance regulation will address concerns of safety and user-conflict without unduly restricting boating use when no other boats are present.

Strategies

Work with local authorities to designate and mark slow, no wake zones.
Communicate the changes with the public well in advance of implementation using the media and other means, and clearly show slow, no wake zones on maps available to the public.

Objective 5.4. Dog Use Policy. Beginning March 1, 2007, implement the following new regulation governing dogs on the Refuge:

"No dogs are allowed to disturb or endanger wildlife or people while on the Refuge. All dogs while on the Refuge must be under the control of their owners/handlers at all times or on a leash. No dogs are allowed to roam. All dogs must be on a leash when on hiking trails or other areas so posted. Working a dog in Refuge waters by tossing a retrieval dummy or other object for out-and-back exercise is allowed. However, the above conditions do apply. Dogs are exempt from these conditions while engaged in authorized hunting activities. Owners/handlers of dogs are also responsible for disposal of dog droppings on Refuge public use concentration areas such as trails, sandbars, and boat landings." Field trials or commercial/professional dog training remain prohibited.

Rationale: This objective relaxes the current Refuge System regulation which prohibits unconfined domestic animals on national wildlife refuges. The new regulation provides stipulations for allowing dogs to be free and would allow owners to exercise their dogs, but protects wildlife from disturbance. The new regulation also helps safeguard other visitors from the real or perceived threat that dogs and other animals can pose, but recognizes their traditional use and conservation benefit in hunting. This regulation represents a change in wording, but not intent, from that proposed in the draft Alternative E, taking into account public comment and the need for clear, plain language. The prohibition of field trials and commercial or organized dog training is a continuation of a long-standing Refuge policy. This regulation also does not affect the existing regulation that prohibits all other unconfined domestic animals on the Refuge.

Strategies

Publish the new regulation in the Refuge public use regulation brochure, issue news releases, and conduct other outreach prior to implementation in 2007.

Except in certain cases, Refuge law enforcement officers will generally give verbal and/or written warnings for violations of the new regulation the first year, then issue violation notices at their discretion beginning in 2008.

Objective 5.5.

General Public Use Regulations. Beginning in 2007, conduct annual review and update of the general public use regulations governing entry and use of the Refuge (current regulations are found in Appendix J).

Rationale: Public entry and use regulations not only protect wildlife, but enhance the quality of the visitor experience and thus reflect the integrated focus of this alternative. The current regulations were last reviewed and amended in 1999. However, the resources and public use of the Refuge are dynamic, and a yearly review would ensure that regulations are needed, clear, and effective. In addition, new regulations may be required to safeguard resources or to address new or emerging problems recognized by managers and law enforcement officers. An annual review would provide a more systematic process than in the past.

Strategies

Complete a law enforcement step-down plan for the Refuge in cooperation with the states and the Corps of Engineers.

Conduct review during Refuge law enforcement meetings.

Provide the public, states, and Corps of Engineers ample opportunity to review and comment on any new or substantially changed regulation.

Follow national guidance for any changes affecting hunting and fishing and make part of the Code of Federal Regulations governing national wildlife refuges.

Update, print, and distribute the Public Use Regulations brochure.

Post pertinent regulations at boat landings and other public use areas, such as trail heads and beach areas.

Continue proactive law enforcement to inform and educate the public on Refuge regulations and to seek their compliance.

Goal 6: Administration and Operations. We will seek adequate funding, staffing, and facilities, and improve public awareness and support, to carry out the purposes, vision, goals, and objectives of the Refuge.

Objective 6.1. Office and Shop Facilities. By 2010, construct new offices and maintenance shops at Winona, La Crosse, and McGregor Districts, and expand the office and construct a new maintenance shop at the Savanna District. Each office would feature a biological work area or lab, and modest public orientation, interpretation and environmental education capability. Refuge Headquarters would be integrated with either the Winona or La Crosse offices. By 2021, remodel or replace the office and shop at the Lost Mound Unit.

Rationale: This objective emphasizes a balanced approach to replacing current office facilities, with a focus on both the resource and public use responsibilities of the Refuge. The expansion of the Savanna District office would be an additional meeting room/classroom for expanded interpretive programs and environmental education.

Strategies

Ensure that Refuge office and maintenance needs are reflected in budget needs databases.

Work with the Refuge Friends Group to raise private funds for the Savanna expansion.

Continue to maintain Service-owned facilities using annual maintenance budget allocations.

Objective 6.2. Public Access Facilities. By 2021, add one new boat landing (total of 26), four new walk-in accesses, and one improved canoe landing. Improve five parking areas on the Refuge to support public use. (See Table 1, Appendix H, and maps, Appendix P)

Rationale: This objective represents a modest increase in public access facilities to help facilitate wildlife-dependent recreational uses. Since the Refuge is mainly a floodplain Refuge bounded by major rail lines and highways, opportunities for increasing access points is limited. In addition to these accesses, there are 221 other public and private boat accesses that provide access to the Mississippi River or its tributaries, and thus the Refuge.

Strategies

Continue routine upkeep of boat accesses by Refuge staff, temporary employees and Youth Conservation Corps members when available, and volunteers.

Continue to modernize accesses using Maintenance Management System funding or special funding which is provided periodically. Seek design input from users of the accesses.

In cooperation with states and local governments, explore Transportation Enhancement Act projects and funding for new accesses and to upgrade current Refuge accesses.

Objective 6.3. Operations and Maintenance Needs. Complete annual review of Refuge Operating Needs System (RONS), Maintenance Management System (MMS), and Service Assessment and Maintenance Management System (SAMMS) databases to ensure these reflect the balanced funding needs for carrying out this alternative. Continue to document operations and maintenance needs for habitat projects completed on the Refuge through the Environmental Management Program or any future Navigation and Environmental Sustainability Program administered through the Corps of Engineers.

Rationale: The RONS, MMS, and SAMMS databases are the chief mechanisms for documenting ongoing and special needs for operating and maintaining a national wildlife refuge. These databases are part of the information used in the formulation of budgets at the Washington and Regional levels, and for the allocation of funding to the field. It is important that the databases be updated periodically to reflect the needs of the Refuge, and in particular the objectives and strategies elsewhere in this alternative. Habitat projects completed through the Environmental Management Program also carry with them an operations and maintenance obligation. For existing projects, this cost amounted to actual Refuge costs of $139,000 in 2003 and $98,600 in 2004. No additional funding is provided by Congress to cover these annual and increasing costs. Estimated annual operations and maintenance costs are expected to grow as projects age, and are projected to average $365,000 per year during the 15-year span of this plan. These costs could accelerate if Congress authorizes and funds the proposed Navigation and Environmental Sustainability Program as documented in the Corps of Engineers 2005 navigation feasibility study.

Strategies

Continue to work with partner organizations in disseminating information on operations and maintance needs.

Objective 6.4. Public Information and Awareness. By 2008, increase by 50 percent the current annual average of 80 media interviews, 125 news releases, and 25 special events (special programs, presentations, and displays at others' events), and by 2021 increase information kiosks to 115, an increase of 49. (See Table 16 in Appendix H and maps in Appendix P)

Rationale: This objective reflects an emphasis on providing the public with more information on both resource-related and public use-related aspects of the Refuge in keeping with a balanced approach. The number of kiosks is high given the size and length of the Refuge, numerous access points, and adjacent National Scenic Byways.

Strategies

Hire visitor services specialists for those Districts without, namely Winona and McGregor Districts.
Hire a public information specialist at Headquarters to increase effort on interviews, news releases, and special events.
Tap other specialists identified in this alternative (e.g. forester, fishery biologist) for information and outreach on resource programs of the Refuge.
Continue to look for creative ways to leverage efforts and funding for public information.
Carry out related objectives dealing with trails, leaflets, websites and interpretive signs (see objectives 4.10 and 4.11).
Cooperate with the states and the Corps of Engineers on visitor surveys to gauge public awareness of the Refuge and Mississippi River resources.

Objective 6.5. Staffing Needs. By 2021, increase staffing from current permanent, full-time level of 37 people to 63 people (60.5 full-time equivalents or FTEs) in a full range of disciplines which benefit both resource and public use objectives in this alternative.

Rationale: This objective reflects a balanced approach to Refuge management by providing operations and maintenance-funded staffing deemed necessary to meet the goals and objectives of this alternative. The increase in staff would bring the Refuge just above “minimum staffing levels” used for planning purposes in the National Wildlife Refuge System. Like all land management, refuge management is labor intensive and labor costs represent over 95 percent of the base operations funding received each year. These staffing needs are documented in the strategies for various objectives in this alternative. Based on public input concerning the need for additional law enforcement capability and presence, an additional four full-time law enforcement officers (one for each of the four Refuge districts) was added in this alternative. This increase in law enforcement capability is still far below levels recommended in various law enforcement assessments and deployment models for a refuge of this size and visitation level.

Strategies

Ensure that staffing needs are incorporated in budget needs databases.
Maintain other sources of funding for staff who coordinate the Environmental Management Program and the Partners for Fish and Wildlife Program.
Strengthen existing volunteer program and recruit new volunteers to assist with resource management and visitor services.

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
Goal 1. Landscape. Improve scenic qualities and wild character of the Upper Mississippi River Refuge.					
1.1 Refuge Boundary	Survey problem areas, post boundary as time permits	In coordination with the Corps of Engineers, survey and post entire boundary by 2021. Boundary issues would be addressed in coordination with the Corps of Engineers, as appropriate.	Same as B	Same as B	In coordination with the Corps of Engineers, identify, survey, and post all areas where threat of encroachment is greatest by 2021.
1.2 Acquisition within approved boundary	Acquire from willing sellers about 200 acres per year or 3,000 acres by 2020. Give highest priority to acquisition of lands and waters most important to fish and wildlife.	Acquire from willing sellers an average of 1,000 acres per year or 15,000 acres by 2021 (58% of goal). Give highest priority to acquisition of lands and waters most important to fish and wildlife.	Same as B except give highest priority to acquisition of lands and waters most important for public recreation values and opportunities.	Same as B except give highest priority to acquisition of lands and waters most important to fish and wildlife, but consider public recreation values.	Same as D
1.3 Bluffland protection	Low-key current approach: support others and support opportunistic acquisition of some bluff areas in boundary	Acquire from willing sellers 13 bluffland areas within approved boundary (Winona District – 6, La Crosse District – 3, McGregor District – 4). Work with partners to leverage resources, and favor easements over fee-title acquisition.	Same as B, but favor fee-title acquisition over easements.	Same as B, but consider a blend of easements and fee-title acquisition.	Same as D

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
1.4 Research Natural Areas and Special Designations	No change, continue low-key monitoring, administration, and public information. No new Natural Areas proposed and no Ramsar designation.	More actively administer Natural Areas; complete management plan for each by 2010 with focus on plant and wildlife conservation. No new Natural Areas proposed and no Ramsar designation.	Same as A except increase effort to make public aware of values and management of Natural Areas by incorporating information in brochures, maps, and websites.	Same as B except increase effort to make public aware of values and management of Natural Areas by incorporating information in brochures, maps, and websites. Also, nominate Refuge as Wetland of International Significance under Ramsar.	Same as D
Goal 2. Environmental Health. Improve environmental health of the refuge by working with others.					
2.1 Water Quality (chemistry and sediments)	Current program of seeking improvement in water quality and sediment problems through programs of other agencies, including EMP.	Proactive program to address water quality: - priv. lands biologists - watershed agreements - assessments - research/education - support UMRBA efforts to standardize water quality criteria Address sedimentation in backwaters through EMP and other programs, with emphasis on improving fish and wildlife habitat.	Same as B except put emphasis on improving access for recreation when addressing sediment reduction projects in backwaters.	Same as B except ensure that fish and wildlife objectives are met while integrating public use needs such as access.	Same as D, but strategies expanded, especially for sedimentation, to include consultation with the U.S. Geological Survey and others.

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
2.2 Water level management	By 2021, complete drawdowns of Refuge pools.	Same as A except seek establishment of Access Trust Fund so drawdowns can be accomplished as needed based on habitat conditions.	Same as A	Same as B	By 2021, complete as many drawdowns of Refuge pools as practicable through the interagency workgroups based on ecological need and engineering feasibility. Retain Access Trust Fund provision from Alternative B.
2.3 Invasive Plants	Continue modest level of control as funding allows.	Complete invasive plant inventory by 2008; reduce acres affected by 10% by 2010.	Same as A	Same as B	Same as D, recognizing that some level of control should continue before and during inventory work.
2.4 Invasive Animals	Continue modest effort of information and education on invasives and their impact.	Increase efforts to control invasive animals through active partnerships with the states and other federal agencies, and increase public awareness and prevention.	Same as A	Same as B	Similar to D, but objective and strategies strengthened to highlight the seriousness and urgency of the invasive animal threat, especially in regard to asian carp species and the new threat from trematodes affecting waterbirds.

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
Goal 3. Wildlife and Habitat. Support diverse and abundant native fish, wildlife, and plants.					
3.1 Environmental Pool Plans	Aggressive implementation of Pool Plans using all tools available, with 30% of the portion of the priority projects/tools within the approved refuge boundary completed by 2021.	Same as A	Same as A	Same as A	Same as A
3.2 Guiding Principles for all habitat management programs	Do not adopt and implement guiding principles.	Adopt and begin use of guiding principles when providing input to design and construction of projects. Principles will favor fish and wildlife over public use and aesthetic considerations	Adopt and begin use of guiding principles when providing input to design and construction of projects. Principles will favor public use of projects versus fish and wildlife needs or aesthetics.	Adopt and begin use of guiding principles when providing input to design and construction of projects. Principles will integrate public use and aesthetic considerations with fish and wildlife needs.	Same as D, but language clarified so that active management practices not discouraged (e.g. moist soil, water control structures) and consideration given to other agency guidelines.
3.3 Monitoring fish and wildlife populations	Continue current monitoring efforts on some key species and habitat indicators, moderate applied research.	Increase monitoring efforts. Amend Wildlife Inventory plan to include more species and more emphasis on habitat monitoring and research.	Decrease monitoring by focusing on waterfowl and a few other migratory bird species or groups.	Same as B	Same as B, but strategy added to consult states' new Comprehensive Wildlife Conservation Plans.
3.4 Threatened and Endangered species management	Continue current monitoring of bald eagles, advisory involvement with other listed species.	By 2008, begin monitoring all federally listed threatened or endangered and candidate species and prepare management plans to help recovery.	Same as A	Same as B	Same as B, but recognize need to consider state-listed species and other "Species of Greatest Conservation Need" in state plans to help preclude federal listing.

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
3.5 Furbearer trapping	Continue basic trapping program until refuge trapping plan, with public involvement, is updated by 2007.	Same as A	Same as A	Same as A	Same as A, but expand trapper and public input as outlined in strategies.
3.6 Fishery and Mussel Management	Continue current modest involvement in fishery and mussel management on the refuge, deferring to states and Service's Fishery Resource Office	Increase refuge involvement in fishery management by: 1. Completing by 2008 a Fishery and Mussel Management Plan which incorporates current monitoring and management by the states and other Service offices. 2. Hire a fishery biologist to facilitate state/Service/ refuge coordination	Same as A	Same as B	Same as B, but wording in rationale and strategies modified to emphasize state and Corps of Engineers role.

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
3.7 Commercial fishing and clamming(see 3.8 for reference to turtle harvesting)	Continue to defer to the states to monitor, regulate, and permit commercial fishing and clamming.	Increase refuge involvement in commercial fishing and clamming by: 1) Completing a Fishery and Mussel Management Plan (see Objective 3.6) 2) Issuing refuge special use permits in addition to state-required permits 3) Increase coordination with the states for commercial fishing activity to meet fishery objectives, especially in regards to invasive fish species (see Objectives 2.4 and 3.6)	Same as A	Same as B	Same as B, with edits to reflect “one-stop-shopping” aspect of dovetailing Refuge permit with state-issued permit, to emphasize state lead in fisheries, and to emphasize collaborative approach with states and Corps of Engineers.
3.8 Turtle Management	Continue current limited involvement with turtle management; continue to cooperate with Corps of Engineers and the states studies and turtle management issues.	Increase refuge involvement in turtle management by: 1) completing a 3-5 year turtle ecology study of representative habitats of the entire refuge, and 2) coordinating with other agencies on turtle management actions including monitoring, harvest, and limiting disturbance to nests.	Same as A	Same as B	Same as B.

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
3.9 Forest Management	Continue current limited involvement with forest management; continue to cooperate with Corps of Engineers' forest inventory work.	Increase refuge involvement in forest management by: 1) Completing, with Corps of Engineers, a forest inventory for the entire refuge. 2) Hire a refuge forester to complete a Forest Management Plan and lead an active forest management program.	Same as A	Same as B	Same as B, but strategy added on exploring ways to leverage funds to add needed forestry technicians at each District.
3.10 Grassland Management	Maintain 5,700 acres of grassland through various management tools including prescribed fire, haying, and control of invasives.	Same as A except also complete a step-down Habitat Management Plan to address grassland conservation and enhancement.	Same as A	Same as B	Same as B, except strategy added to explore feasibility of increasing grassland acres due to importance to birds and other wildlife, and added reference to, and strategy for, sand prairie areas.
Goal 4. Wildlife-Dependent Recreation. Ensure abundant and sustainable opportunities for a broad cross-section of the public.					
4.1. General Hunting	Maintain a minimum of 192,219 acres (80%) of land and water open to all hunting. Make no changes to current 8 No Hunting Zones for a total of 3,555 acres.	Maintain a minimum of 165,524 acres (69%) of land and water open to all hunting. Add 2 new No Hunting Zones for a total of 3,813 acres (10 zones total).	Maintain a minimum of 189,647 acres (79%) of land and water open to all hunting. Add 9 new No Hunting Zones for a total of 5,959 acres (17 zones total).	Maintain a minimum of 180,626 acres (75%) of land and water open to all hunting. Add 6 new No Hunting Zones for a total of 5,404 acres (14 zones total).	Maintain a minimum of 187,205 acres (78%) of land and water open to all hunting and clarify this benchmark. Add 3 new No Hunting Zones totaling 290 acres (11 zones total).

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
4.2 Waterfowl hunting closed areas and sanctuaries	Continue current system of 14 Closed Areas and one Sanctuary (no entry). No change in current entry or use regulations. Make only minor adjustments to some areas to clarify boundaries or address operation/ maintenance needs. Total acres = 44,544 Closed Areas = 14 Sanctuaries = 1	In fall 2006: 1) Add 14 new Closed Areas to the current 15, for a total of 29 areas. 2) All areas, except on Lake Onalaska, would become true Waterfowl Sanctuaries by prohibiting entry and use from Oct. 1 to the end of the respective state duck season. 3) Some boundary adjustments would be made to the Lake Onalaska Closed Area. The Voluntary Avoidance Area would continue. Total acres = 60,396 Closed Areas = 1 Sanctuaries = 28	Continue current system of 14 Closed Areas and one Sanctuary, but in 2007 reduce the Lake Onalaska Closed Area by 245 acres to address a firing line. No change in entry or use regulations from existing system. Make only minor adjustments to other areas to clarify boundaries or address operation/ maintenance needs. Total acres = 44,614 Closed Areas = 14 Sanctuaries = 1	In fall 2006: 1) Add 5 new Closed Areas and delete or modify the current 15 for a total of 21. 2) Add 2 new Waterfowl Sanctuaries (no entry) for a total of 3: a. Pool Slough Sanctuary (McGregor District, Pool 9, Iowa/Minnesota) b. Guttenberg Ponds portion of the 12 Mile Sough Sanctuary (McGregor District, Pool 11, Iowa) c. Spring Lake Sanctuary (Savanna District, Pool 13, Illinois-existing) 3) All Closed Areas, except on Lake Onalaska, would be closed to fishing, except bank fishing, and all motorized watercraft, from Oct. 1 to the end of the respective state regular duck season. (continued next page)	In fall 2007 (except fall 2009 for Pool 4): 1) Add 8 new closed areas/ sanctuaries and delete or modify the current 15 for a total of 23. 2) Add 2 new Waterfowl Sanctuaries (no entry) for a total of 3: a. Pool Slough Sanctuary (McGregor District, Pool 9, Iowa/Minnesota) b. Guttenburg Ponds portion of the 12 Mile Slough Closed Area (McGregor District, Pool 11, Iowa) c. Spring Lake Sanctuary (Savanna District, Pool 13, Illinois – existing) 3. Voluntary Avoidance on all large closed areas Oct. 15 to the end of the respective state duck season and no motors and Voluntary Avoidance on small closed areas (~1,000 acres or less) Oct. 15 to the end of the respective state duck season. Exceptions for sancturaries and Bertram/McCartney Closed Area, Pool 11. Establish threshold for disturbance. (continued next page)

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
4.2 Waterfowl hunting closed areas and sanctuaries (continued)				4) Some boundary adjustments would be made to the Lake Onalaska Closed Area. The Voluntary Avoidance Area would continue. Total acres = 43,704 Closed Areas = 18 Sanctuaries = 3	4) Wisconsin River Delta Special Hunt Area: Closed to hunting and trapping, and a voluntary avoidance area November 1 to end of duck hunting season. 5) Some boundary adjustments to the Lake Onalaska Closed Area. The Voluntary Avoidance Area would continue. 6) Policy and strategy added to address fish habitat projects in closed areas. Total acres = 43,764 Closed areas = 20 Sanctuaries = 3
4.3 Waterfowl hunting regulation changes	No major changes to current waterfowl hunting regulations.	In 2006, implement new refugewide regulation limiting each hunter on the refuge to 25 shotshells in possession while hunting during the waterfowl season. Establish regulations to prohibit open-water hunting on areas of Pools 9 and 11.	In 2006, implement new refugewide regulation requiring a minimum of 100 yards spacing between waterfowl hunting parties. No shotshell restriction. No change in open-water hunting regulations in Pools 9 or 11.	In 2006, implement new refuge-wide regulations limiting each hunter on the refuge to 25 shotshells during waterfowl season and a minimum of 100 yards spacing between waterfowl hunting parties. Establish regulations to prohibit open-water hunting on areas of Pools 9 and 11.	In 2007, prohibit open-water waterfowl hunting in Pool 11, river miles 586-592, Grant County, Wisconsin. No daily shotshell limit or hunter spacing regulation.

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
4.4 Firing Line -- Pool 7, Lake Onalaska, La Crosse District	Status quo, do not address the firing line issue beyond existing laws and regulations.	Move the north boundary of Lake Onalaska Closed Area northward to include 530 more acres and thus reduce the firing line.	Move the north boundary of Lake Onalaska Closed Area southward to exclude 245 more acres and thus reduce the firing line.	Establish a managed waterfowl hunting area on the north end of the Lake Onalaska Closed Area. This hunt would establish posted hunting sites and limit the number of hunters to those sites via random drawing and for-fee permits.	By Oct. 1, 2006, develop plan in cooperation with local waterfowlers and state managers and conservation officers for the area north of the Lake Onalaska Closed Area (Gibbs Lake) to address firing line issue.
4.5 Permanent hunting blinds on Savanna District	Continue current program.	Eliminate the use of permanent hunting blinds after with the 2006-07 waterfowl hunting season.	Same as B	Phase-out the use of permanent hunting blinds beginning with Pool 12 after the 2006-07 season, Pool 13 after the 2007-08 season, and Pool 14 after the 2008-09 season.	Phase-out the use of permanent hunting blinds and the practice of leaving decoys sets overnight beginning with Pool 12 after the 2006-07 season, Pool 14 after the 2007-08 season, and Pool 13 after the 2008-09 season.
4.6 Potter's Marsh Managed Hunt Savanna District	Continue current program but make some administrative changes.	For 2006-07 hunting season, eliminate the managed hunt program, including use of permanent blinds, and open to all on first come, first secured basis.	Same as B	For 2006-07 hunting season, implement a variety of administrative changes. Permanent blinds would be eliminated after the 2007-08 season, but boat blind sites provided and managed.	Same as D

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
4.7 Blanding Landing Managed Hunt Program (Lost Mound Unit, Savanna District)	Continue current managed hunt as previously managed by the Illinois DNR: 15 permanent blind sites awarded by drawing.	After the 2006-07 season, eliminate the managed hunt program, including use of permanent blinds. Open to all on first come basis.	Same as B	Same as B	Same as B
4.8 Fishing	Provide 140,545 acres of surface water open to year-round fishing. An additional 2,736 acres open except October 1 to the end of the state duck hunting season. Maintain 15 fishing piers/ docks.	Provide 104,716 acres of surface water open to year-round fishing. An additional 38,645 acres open except October 1 to the end of the state duck hunting season. Maintain 15 fishing piers/ docks.	Same as A, except add 5 new fishing piers/docks for a total of 20.	Provide 110,611 acres of surface water open to year-round fishing. An additional 32,750 acres open except October 1 to the end of the state duck hunting season. Add 3 new fishing piers/ docks for total of 18.	Provide approximately 140,000 acres of surface water open to year-round fishing. An additional 5,050 acres open except Oct. 1 to the end of the state duck hunting season. Add 3 new fishing piers/docks for total of 18.
4.9 Fishing Tournaments	Continue current "hands off" approach to regulating fishing tournaments.	Issue refuge special use permits for tournaments in addition to state-required permit, to minimize impact to sensitive fish, wildlife, and habitat.	Review and comment on all tournament permits issued by the states to try and minimize conflicts with general public fishing, wildlife observation, and other uses.	Same as B	Same as B, but wording changed to reflect "one-stop-shopping" aspect of dovetailing Refuge permit with state-issued permit. Rationale and strategies changed to emphasize state lead in fisheries and collaborative approach with states and Corps of Engineers.

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
4.10 Wildlife Observation and Photography	Maintain the following existing facilities: 15 observation areas 6 hiking trails 4 canoe trails 3 biking trails 1 auto tour route	Maintain the following existing or new facilities: 15 observation areas 8 hiking trails 4 canoe trails 3 biking trails 1 auto tour route	Maintain the following existing or new facilities: 31 observation areas 21 hiking trails 26 canoe trails 6 biking trails 3 auto tour routes 3 observation towers 3 photography blinds	Maintain the following existing or new facilities: 26 observation areas 16 hiking trails 21 canoe trails 5 biking trails 3 auto tour routes 3 observation towers 3 photography blinds	Slight change from D as follows: 25 observation areas 14 hiking trails 19 canoe trails 6 biking trails 3 auto tour routes 3 observation towers 4 photography blinds
4.11 Interpretation and Environmental Education	Maintain 59 interpretive signs. Continue Refuge brochure and website. Sponsor 1 major annual interpretive event on each District. No change in current visitor services staffing.	Same as A, except long-term add visitor services staff to McGregor and Winona Districts (low priority compared to biological, technical and maintenance positions)	Maintain 102 existing and new interpretive signs. Build 3 new District Offices and new Lost Mound office, all with visitor contact facilities, and 1 major visitor center. Continue refuge brochure and website. Sponsor 2 major annual interpretive events and establish 1 environmental education program on each district. Add visitor services specialists to McGregor and Winona Districts, and one at the National Missisippi River Museum in Dubuque.	Same as C, except no major visitor center.	Same as D.

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
4.12 Fish Floats	Continue to allow 4 existing fish floats under current annual permits, stipulations, and $100 annual fee.	Phase out 4 existing fish floats and do not replace, letting private sector provide alternative off-refuge lands opportunities, such as commercial fishing barges not moored to refuge lands.	Develop new standards for fish float facilities and operations, including new concession fees, and phase out floats that can not meet those standards. Seek replacement operations to replace those phased out. Solicit proposals for one new fish float, or other alternative, in the Savanna District.	Develop new standards for fish float facilities and operations, including new concession fees, and phase out floats that can not meet those standards. Do not replace floats that are phased out, letting private sector provide alternative off-refuge lands opportunities, such as commercial fishing barges not moored to refuge lands.	Same as D except solicit new proposals for any float phased out for not meeting standards, and base decision to replace on adequacy and feasibility of proposals.
4.13 Guiding services	Continue inconsistent, low-key approach to issuing permits for hunting, fishing, and wildlife observation guiding.	Do not allow guiding for hunting, fishing, and wildlife observation on the refuge.	Provide policy and consistent process for issuing permits for hunting, fishing and wildlife observation guide services. Coordinate with the states for consistency with their permitting requirements.	Same as C	Same as C, but language modified to amplify cooperation with states and Corps of Engineers and “one-stop-shopping” for permits when possible.

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
Goal 5. Other Recreational Use. Provide opportunity for traditional and appropriate non-wildlife dependent use that is compatible with the Refuge.					
5.1. Beach use and maintenance policy and regulations	Open policy. No limits on areas open to camping, boat mooring, swimming, social gatherings, picnicking and other non-wildlife-dependent uses, subject to current regulations. No new regulations and use current guidance for beach maintenance.	Closed-unless-open policy. Limit camping, boat mooring, swimming, social gatherings, picnicking, and other non-wildlife-dependent uses to islands and shoreline that border the main channel, including the backside of such islands or points, that are posted open for such uses. Implement new regulations dealing with camping, human waste, and alcohol use. No beach maintenance would be conducted.	Open policy. No limits on areas open to camping, boat mooring, swimming, social gatherings, picnicking and other non-wildlife-dependent uses, subject to current regulations. Implement new regulations on camping, human waste, and alcohol use. Require that all persons using boats for beaching, mooring, or anchoring on refuge lands purchase a Recreation Use Permit. Beach maintenance would be allowed on most areas. Work with interagency teams to complete beach plans by pool.	Open-unless-closed policy. All areas currently open to camping, boat mooring, swimming, social gatherings, picnicking and other non-wildlife-dependent uses, would remain open, except: 1) areas closed or restricted by signing to protect wildlife, habitat or the public, and 2) camping and overnight mooring limited to islands and shoreline that border the main channel, including the backside of such islands or points. Implement new regulations dealing with camping, human waste, and alcohol use. Articulate clear beach maintenance policy, and work with interagency teams to complete beach plans by pool.	Similar to D, with modifications: 1) Current camping area regulations remain in effect (all open, except in sight of main channel and not in Closed Areas during waterfowl season). 2) Managers may close areas for bona fide wildlife and human health and safety concerns, proper coordination with states and Corps of Engineers and notice to public. 3) New alcohol regulation dropped; enforce existing. 4) Regulation for portable toilets or disposal kits dropped in favor of increased “Leave No Trace” education and outreach. Human solid waste must either be removed or buried on-site in accordance with other back country public land regulations.

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
5.1. Beach use and maintenance policy and regulations (continued)					5) Regulations prohibiting the use of glass food and beverage containers on Refuge lands added. 6) New camping definition retained. 7) Retain "explore" user fee for camping and other beach-related uses, but wording added for interagency and citizen involvement before crafting any proposal. 8) "Adopt-A-Beach" program strategy added
5.2. Electric Motor Areas and Slow, No Wake Areas	Current program with only 1 electric motor area of 222 acres (Mertes Slough, Winona District).	Designate 10 electric motor areas encompassing 15,900 acres. All current uses allowed, except camping.	Designate 15 electric motor areas encompassing 13,239 acres. All current uses allowed, including camping.	Designate 16 new electric motor areas encompassing 14,498 acres. All current uses allowed, and areas open to primitive camping.	Designate 5 electric motor areas (4 are new, Mertes existing) encompassing 1,852 acres, and 8 slow, no wake areas* encompassing 9,720 acres. Black River Bottoms and Nelson-Trevino SNWAs effective 2008 and 2009 respectively. Delete 4 areas from any designation. All current uses allowed. **From March 16 through October 31, Slow, No Wake for watercraft and no airboats or hovercraft allowed.*

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
5.3 Slow, No Wake Zones	Maintain 2 existing slow, no wake zones administered by the Refuge, and assist in enforcement of 44 others.	Add 9 new slow, no wake zones, bringing total to 11 administered by the Refuge, and assist in enforcement of 44 others.	Add 8 new slow, no wake zones, bringing total to 10 administered by the Refuge, and assist in enforcement of 44 others.	Add 9 new slow, no wake zones, bringing total to 11 administered by the Refuge, and assist in enforcement of 44 others (slight location difference compared to B).	Add 11 new Slow, No Wake Zones, bringing total to 13 administered by the Refuge, and assist with enforcement of 44 others. Spring Lake and Crooked Slough (Lost Mound): adopt Iowa regulation of under 5 mph if within 100 feet of another vessel going under 5 mph versus slow, no wake.
5.4. Dog use policy	Maintain current regulations: dogs and other animals must be confined, except dogs during hunting seasons. No field trials or commercial training will be permitted (current policy).	Adopt clearer regulation which defines confined: Dogs and other animals must be on 6 ft or less leash, or in closed kennel, at all times, except dogs during hunting seasons while engaged in hunting. No field trials or commercial training will be permitted (current policy).	Adopt regulation similar to one proposed by area conservation group: no wildlife or people disturbance, under control of owners at all times, and physically restrained at posted public use areas or when in proximity to people except while engaged in hunting. No field trials or commercial training will be permitted (current policy).	Adopt enforceable regulation which safeguards wildlife and visitors: From March 1 to June 30, dogs must be restrained by leash or other means. At all other times, dogs can be free if 100 yards away from designated public use areas and/or other persons, and if within sight and voice control of owner/ handler. No field trials or commercial training will be permitted (current policy).	Adopt regulation which safeguards wildlife and visitors yet allows dog exercising: No dogs are allowed to disturb or endanger wildlife or people, and must be under the control of their owners/ handlers and leashed when on hiking trails or other areas so posted. Exercising retrievers allowed and dogs exempt during authorized hunting. Provision for cleaning up after dogs, and professional training and field trials remain prohibited.

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
5.5. General Public Use Regulations	Make no changes to public entry and use regulations for the Refuge.	Conduct annual review, and update as needed, general public use regulations governing public entry and use of the Refuge.	Same as B	Same as B	Same as B, but add strategy for doing a Law Enforcement step-down plan for the Refuge in cooperation with the states and Corps of Engineers.
Goal 6. Administration and Operation. Clarify boundary issues; seek adequate funding, staff, and facilities; improve public awareness of Refuge.					
6.1 Office and shop facilities	Maintain existing offices (6) and shops (5), but replace the maintenance facilities at Winona and Savanna Districts by 2006.	Maintain existing offices (6) and shops (5), but replace the maintenance facilities at Winona, McGregor, and Savanna Districts by 2010.	By 2010, construct new offices and maintenance shops at Winona, La Crosse, and McGregor Districts, and expand the office and construct a new maintenance shop at Savanna District. Each office would have expanded visitor facilities but not a biological work area or lab. By 2020, build a new office and large visitor center for the Headquarters of the Refuge, and locate it either in Winona or La Crosse. Also by 2020, remodel or replace office and shop at the Lost Mound Unit.	By 2010, construct new offices and maintenance shops at Winona, La Crosse, and McGregor Districts, and expand the office and construct a new maintenance shop at Savanna District. Each office would feature a biological work area or lab, and modest visitor facilities. Refuge Headquarters would be integrated with either the Winona or La Crosse offices. By 2020, remodel or replace office and shop at the Lost Mound Unit.	Same as D

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
6.2 Public access facilities	Maintain and modernize as needed, 25 existing public boat accesses.	Same as A, except implement launch fee for Refuge-operated boat ramps.	Add 1 new boat access, 3 new walk-in accesses, 3 new and 1 improved canoe landings, and improve 5 parking areas. Implement launch fee for Refuge-operated boat ramps.	Add 1 new boat access, 3 new walk-in accesses, 1 improved canoe landing, and improve 5 parking areas. Implement launch fee for Refuge-operated boat ramps.	Same as D except no launch fee for Refuge-operated boat ramps and 1 additional walk-in access.
6.3. Operations and maintenance needs	Complete annual review of Refuge Operating Needs System (RONS), Maintenance Management System (MMS), and Service Assessment and Maintenance Management System (SAMMS) databases to ensure these reflect needs of current direction.	Same as A, but reflect needs of wildlife focus alternative.	Same as A, but reflect needs of public use focus alternative.	Same as A, but reflect balanced needs of wildlife and integrated public use focus alternative.	Same as D, but wording added to account for maintenance needs of large habitat projects (e.g. Environmental Management Program projects).
6.4. Public information and awareness	Continue current annual average of 80 media interviews, 125 news releases, and 25 special events (special programs, presentations, and displays at others' events). Maintain existing 66 kiosks.	Decrease by 50 percent the current annual average of 80 media interviews, 125 news releases, and 25 special events (special programs, presentations, and displays at others' events). Maintain existing 66 kiosks.	Increase by 50 percent the current annual average of 80 media interviews, 125 news releases, and 25 special events (special programs, presentations, and displays at others' events). Add 49 kiosks.	Same as C, but also take advantage of technical and specialist positions added in this alternative to increase outreach.	Same as D

Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River Refuge (Continued)

Alternatives Issue/ Objective	Alternative A. No Action	Alternative B. Wildlife Focus	Alternative C. Public Use Focus	Alternative D.Wildlife and Integrated Public Use Focus	Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
6.5 Staffing needs	No change in staffing level of 37 people (37 FTEs)	By 2015, increase staffing from current 37 to 57 people (54.5 FTEs) to bring all Districts to minimum staffing level, add specialists to Headquarters, and increase staff at Lost Mound Unit. Priority would be positions which support biological and habitat programs.	By 2015, increase staffing from current 37 to 57 people (54.5 FTEs) to bring all Districts to minimum staffing level, add specialists to Headquarters, and increase staff at Lost Mound Unit. Priority would be public use positions.	By 2015, increase staffing from current 37 to 59 people (56.5 FTEs) to bring all Districts to minimum staffing level, add specialists to Headquarters, and increase staff at Lost Mound Unit. Priority would be a blend of wildlife and public use related positions.	Similar to D, but add 4 additional FTEs: 4 Full-time Refuge Officers based on public and agency comment. Total FTEs: 60.5. Implement by 2021.

Table 2: Summary of Project Features by Alternative

Feature	Existing Features		Total Proposed Features								Comments for Alternative E
	Alternative A: No Action		Alternative B: Wildlife Focus		Alt. C: Public Use Focus		Alt. D: Wildlife & Integrated Public Use Focus		Alt. E: Modified Wildlife & Integrated Public Use Focus (Preferred Alternative)		
	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	
Waterfowl Closed Areas and/or Sanctuaries	15	44,544	29	60,396	15	44,614	21	43,704	23	43,764	
No open water hunting areas	0	0	2	10,487	0	0	2	10,487	1	4,000	Pool 11 only
Managed / Special Hunts	2	2,434	0	0	0	0	2	2,403	3	~3,530	Gibb's Lake, Pool 7; Wisconsin River Delta, Pool 10; Potter's Marsh, Pool 13
Administrative no hunting zones	8	3,555	10	3,813	17	5,959	14	5,404	11	3,845	All alternatives include Lost Mound Contaminated No Entry Area (2,467 acres)
Fish catch and release area	1	700	1	700	1	700	1	700	1	700	
Heron sanctuary	0	0	1	64	0	0	1	64	0	0	
No-wake zones	46	NA	55	NA	54	NA	55	NA	57	N/A	
Electric motor areas	1	222	10	15,900	15	13,239	16	14,498	5	1,852	
Slow, No Wake Areas	0		0		0		0		8	9,720	
Research Natural Areas	4	6,946	4	6,946	4	6,946	4	6,946	4	6,946	
Trails											
Canoe trails	4	32.1	4	32.1	26	167.9	21	126.9	19	120.6	
Hiking trails	6	20.5	8	24.8	21	50.7	16	40.9	14	36.5	
Auto tour routes	1	2.5	1	2.5	3	11.0	3	11.0	3	11.0	
Biking trails	3	10.0	3	10.0	6	17.0	5	14.1	6	21.1	

Table 2: Summary of Project Features by Alternative (Continued)

Feature	Existing Features		Total Proposed Features								Comments for Alternative E
	Alternative A: No Action		Alternative B: Wildlife Focus		Alt. C: Public Use Focus		Alt. D: Wildlife & Integrated Public Use Focus		Alt. E: Modified Wildlife & Integrated Public Use Focus (Preferred Alternative)		
	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	
Access Facilities											
Fishing Piers	15	NA	15	NA	20	NA	18	NA	20	N/A	
Commercial fishing floats / piers	4	NA	0	NA	5	NA	4	NA	4	N/A	
Boat access	25	NA	25	NA	26	NA	26	NA	26	N/A	
Walk-in access	0	NA	0	NA	3	NA	3	NA	4	N/A	
Canoe landing / launch	1	NA	1	NA	4**	NA	2**	NA	2**	N/A	** Includes proposed improvement to Reno Canoe Launch (non-FWS)
Parking lot improvements	0	NA	0	NA	5	NA	5	NA	5	N/A	
Wildlife Observation Facilities											
Observation decks/areas	15	NA	15	NA	31	NA	26	NA	25	N/A	
Observation towers	0	NA	0	NA	3	NA	3	NA	3		
Photo blinds	0	NA	0	NA	3	NA	3	NA	4	N/A	
Signage											
Kiosks	66	NA	66	NA	115	NA	115	NA	115	N/A	
Interpretive signs	59	NA	59	NA	102	NA	102	NA	102	N/A	
Entrance signs	25	NA	25	NA	30	NA	30	NA	30	N/A	
Official Notice Boards	30	NA	30	NA	49	NA	49	NA	49	N/A	
Proposed Buildings											
Build new maintenance facilities	2	NA	3	NA	5	NA	5	NA	5	N/A	

Table 2: Summary of Project Features by Alternative (Continued)

Feature	Existing Features		Total Proposed Features								Comments for Alternative E
	Alternative A: No Action		Alternative B: Wildlife Focus		Alt. C: Public Use Focus		Alt. D: Wildlife & Integrated Public Use Focus		Alt. E: Modified Wildlife & Integrated Public Use Focus (Preferred Alternative)		
	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	
Build new office facilities	0	NA	0	NA	3	NA	3	NA	3	N/A	HQ office combined with Winona or La Crosse office in Alternatives C & D.
Build major visitor center	0	NA	0	NA	1	NA	0	NA	0	N/A	HQ Visitor Center + Office combined in Alt. C, located in Winona or La Crosse
Refuge Staffing	37.0	NA	54.5	NA	54.5	NA	56.5	NA	60.5	N/A	Number of FTEs (Full Time Equivalents); Alt. E adds 4 law enforcement officers

Table 3: Degree to Which Alternatives Meet Refuge Needs[1]

	Alternative A No Action	Alternative B Wildlife Focus	Alternative C Public Use Focus	Alternative D Wildlife and Integrated Public Use Focus	Alternative E Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)
Need 1: Contribute to the Mission					
Contribute to the mission of the National Wildlife Refuge System	4	5	3	5	5
Need 2: Help Fulfill the Refuge Purpose					
Refuge and breeding place for migratory birds	3	5	3	4	4
Refuge and breeding place for other wild birds, animals, plants	3	5	3	5	5
Refuge and breeding place for fish and other aquatic animal life	3	5	2	5	5
Need 3: Help Achieve Refuge Goals and Related Needs					
Landscape conservation – boundary acquisition, bluffs, research areas	4	5	3	5	5
Environmental health – water quality, drawdowns, invasives	3	5	2	5	5
Wildlife and habitat – monitoring, management, threatened and endangered species, forests, grasslands, Environmental Pool Plans	3	5	2	5	5
Wildlife-dependent recreation – hunting, fishing, observation, environmental education, interpretation	3	2	5	4	4
Other recreational use – beach use, electric motor areas, slow-no-wake, regulations	2	1	5	4	4
Administration and operations – offices, staffing, outreach, access	1	4	4	5	5

1. Scale for summarizing the degree to which the alternatives meet Refuge Needs:
5 = High contribution; 3 = Neutral; 1 = Low contribution.

Table 4: Refuge Priority Locations and Actions that Contribute to Implementation of Environmental Pool Plans, 2006-2021*, Upper Mississippi River NWFR

Environmental Pool Plan Actions Needed to Achieve Desired Future Habitat**															
Pool	**Protect Islands**	**Construct Islands**	**Increase Depth, Dredge**	**Construct Mud/Sand Flats**	**Direct Water Flows**	**Fish Passage**	**Construct Moist Soil Units**	**Pool Draw-downs**	**Land Acquisition**	**Maintain Existing Habitat**	**Reduce Invasive Species**	**Forest Manage-ment**	**Prairie Manage-ment**	**Assist Private Land-owners**	**Water-shed Manage-ment**
Pool 4	Stabilize Crats Island	Lower Big Lake	Big Lake	Robinso Lake (mud flats)	Restoration of Distribut-ary Channels of Zumbro	L&D 4	Barton / Lofgren Tract	Pool-wide	Zumbro River bottoms	Peterson Lake HREP	Barton / Lofgren Tract	Chippewa River delta	Barton Lofgren	Hire Private Lands Biologist	Chippewa River
	Stabilize Islands Lower Pool (WI)	Peterson Lake	Robinson Lake	Rieck's Lake (mud flats)	Block break in Catfish Slough			Rieck's Lake	Remaining 1987 Master Plan tracts within floodplain	Nelson/ Trevino Research Natural Area	Indian Slough delta	Nelson-Trevino bottoms	Grand Encampme nt	Coop Agree. for buffers to reduce runoff	Buffalo River
	Stabilize Island Robinson Lake	Robinson Lake	Peterson Lake								Monitor Pool-wide	Main channel and barrier island	Crats Island		
	Monitor Drury and Hershey Islands	Beef Slough	Plan with new island const-ruction									Complete Forest Inventory by 2006	Finger Lakes Disposal Site		

Table 4: Refuge Priority Locations and Actions that Contribute to Implementation of Environmental Pool Plans, 2006-2021*, Upper Mississippi River NWFR (Continued)

Environmental Pool Plan Actions Needed to Achieve Desired Future Habitat**															
Pool	**Protect Islands**	**Construct Islands**	**Increase Depth, Dredge**	**Construct Mud/Sand Flats**	**Direct Water Flows**	**Fish Passage**	**Construct Moist Soil Units**	**Pool Draw-downs**	**Land Acquisition**	**Maintain Existing Habitat**	**Reduce Invasive Species**	**Forest Manage-ment**	**Prairie Manage-ment**	**Assist Private Land-owners**	**Water-shed Manage-ment**
Pool 5	Protect Islands near Buffalo City	Lower Pool 5 Island cluster	Weaver bottoms	Spring Lake	Restoration of distributary channels of Zumbro River	L&D 5	Lizzy Paul's Pond	Pool-wide	Buffer around Lizzy Paul's Pond	Finger Lakes HREP	Lost Island/ Weaver	Main channel and barrier islands	Wabasha Prairie	Hire Private Lands Biologist	Zumbro River
	Monitor Sommer-feld Islands	Weaver bottoms / Lost Island	Spring Lake	Whitewater delta	Evaluate flowing channels off Zumbro River to Weaver bottoms			Lizzy Paul's Pond	Zumbro River delta	Island 42 HREP	Wabasha Prairie	Complete forest inventory	Swan Island	Coop Agree. for buffers to reduce runoff	Whitewater River
		Lower Pool 5 Seed Islands	Lower Pool	Weaver Islands					Remaining 1987 Master Plan tracts within floodplain	Weaver Islands	Monitor Pool-wide		Spring Lake HREP		
		Krueger Slough area	Plan with new island construct-ion							Spring Lake HREP					

Table 4: Refuge Priority Locations and Actions that Contribute to Implementation of Environmental Pool Plans, 2006-2021*, Upper Mississippi River NWFR (Continued)

Environmental Pool Plan Actions Needed to Achieve Desired Future Habitat**															
Pool	**Protect Islands**	**Construct Islands**	**Increase Depth, Dredge**	**Construct Mud/Sand Flats**	**Direct Water Flows**	**Fish Passage**	**Construct Moist Soil Units**	**Pool Draw-downs**	**Land Acquisition**	**Maintain Existing Habitat**	**Reduce Invasive Species**	**Forest Manage-ment**	**Prairie Manage-ment**	**Assist Private Land-owners**	**Water-shed Manage-ment**
Pool 5A	Protect Islands in Lower Pool	Polander Lake Seed Islands	Snyder Lake	Maintain mud flats Polander Islands	Evaluate side channel closures, wing dams and other structures	L&D 5A		Pool-wide	Remaining 1987 Master Plan tracts within floodplain	Polander Phase 1 and 2 HREP	Twin Lakes	Minnesota City bottoms	Prairie Island Natural Area	Hire Private Lands Biologist	Garvin Brook
	Monitor existing islands	Additional islands in Polander	Betsy Slough							Prairie Island Natural Area	Prairie Island Natural Area	Main channel and barrier islands	McNally Landing	Coop Agree. for buffers to reduce runoff	
			Twin Lakes								Prairie Island Dike		Polander Channel Island		
			Polander								McNally Landing		Polander Island		
			Plan with new island construct-ion								Monitor Pool-wide				

Table 4: Refuge Priority Locations and Actions that Contribute to Implementation of Environmental Pool Plans, 2006-2021*, Upper Mississippi River NWFR (Continued)

Environmental Pool Plan Actions Needed to Achieve Desired Future Habitat**															
Pool	**Protect Islands**	**Construct Islands**	**Increase Depth, Dredge**	**Construct Mud/Sand Flats**	**Direct Water Flows**	**Fish Passage**	**Construct Moist Soil Units**	**Pool Draw-downs**	**Land Acquisition**	**Maintain Existing Habitat**	**Reduce Invasive Species**	**Forest Manage-ment**	**Prairie Manage-ment**	**Assist Private Land-owners**	**Water-shed Manage-ment**
Pool 6	Monitor existing islands	Lower Pool 6	Lower Pool (secondary and tertiary islands)	Pools A & E on Tremp-ealeau NWR	Modificat-ion of training structures	L&D 6	Pool C2 Trempealea u NWR	Pool-wide	Remaining 1987 master plan tracts within floodplain	Protect Refuge Islands	Pool 6 Islands	Refuge Islands	Tremp-ealeau NWR	Hire Private Lands Biologist	Tremp-ealeau River
		Pools A & B of Tremp-ealeau NWR	Upper Pool (secondary and tertiary islands)		Modificat-ion of road and railroad embankmen ts, levees			Pool A Tremp-ealeau NWR			Tremp-ealeau NWR	Trempealea u NWR		Coop Agree. for buffers to reduce runoff	Trout Creek
			Pools A & B Tremp-ealeau NWR in conjunction with island construct-ion								Monitor Pool-wide				

Table 4: Refuge Priority Locations and Actions that Contribute to Implementation of Environmental Pool Plans, 2006-2021*, Upper Mississippi River NWFR (Continued)

Environmental Pool Plan Actions Needed to Achieve Desired Future Habitat**															
Pool	**Protect Islands**	**Construct Islands**	**Increase Depth, Dredge**	**Construct Mud/Sand Flats**	**Direct Water Flows**	**Fish Passage**	**Construct Moist Soil Units**	**Pool Draw-downs**	**Land Acquisition**	**Maintain Existing Habitat**	**Reduce Invasive Species**	**Forest Manage-ment**	**Prairie Manage-ment**	**Assist Private Land-owners**	**Water-shed Manage-ment**
Pool 7	Lake Onalaska	Lake Onalaska	Black River bottoms	Lake Onalaska	Black River bottoms	L&D 7	Lower Halfway Creek Marsh	Pool-wide	Black River bottoms	Completed EMP and other habitat projects	Lake Onalaska	Black River bottoms & delta	Midway Railroad Prairie	Hire Private Lands Biologist	Sand Lake Coulee / Halfway Creeks
	Main channel islands		Lake Onalaska		Lake Onalaska				Halfway Creek Addition	Black River bottoms	Black River bottoms	Lake Onalaska Islands	Mathy Prairie	Coop Agree. for buffers to reduce runoff	Black River
			Upper Pool 7		L&D 7				Office site	Halfway Creek Marsh	Halfway Creek Marsh	Barrier Island complex	Brice Prairie	La Crosse County (WI) and Winona County (MN)	
									Remaining 1987 master plan tracts			Main channel islands			

Table 4: Refuge Priority Locations and Actions that Contribute to Implementation of Environmental Pool Plans, 2006-2021*, Upper Mississippi River NWFR (Continued)

Environmental Pool Plan Actions Needed to Achieve Desired Future Habitat**															
Pool	**Protect Islands**	**Construct Islands**	**Increase Depth, Dredge**	**Construct Mud/Sand Flats**	**Direct Water Flows**	**Fish Passage**	**Construct Moist Soil Units**	**Pool Draw-downs**	**Land Acquisition**	**Maintain Existing Habitat**	**Reduce Invasive Species**	**Forest Manage-ment**	**Prairie Manage-ment**	**Assist Private Land-owners**	**Water-shed Manage-ment**
Pool 8	East Island	Phase III/ Pool 8 Islands	Phase III, Pool 8 Islands	Phase III/ Pool 8 Islands	Root River	L&D 8	Root River bottoms	Continue monitoring the 2001-02 drawdowns	1987 Master Plan tracts	Completed EMP and other habitat projects	Lower Pool 8	Root River delta	Root River bottoms	Hire private lands biol.	Root River
	Main channel islands	Shady Maple	Schnicks Bay	Shady Maple	L&D 7			Pool-wide	Root River Addition	Lawrence Lake	Main channel islands	Goose Island		Coop Agree. for buffers to reduce runoff	Gills Coulee Creek/ La Crosse River
	West Channel Island	Phase IV/ Pool 8 Islands	Shady Maple	Phase IV/ Pool 8 Islands	L&D 8					Blue Lake	Shore Acres Road	Main channel islands & barrier islands		Vernon & La Crosse Counties (WI) and Winona & Houston Counties (MN)	Pine Creek
	Running Slough		Running Slough		Shore Acres/ Sheperds Marsh Area					Target Lake	Bluff Slough				Mormon Coulee Creek
			Broken Arrow Slough		Continue Lower Pool 8 Channel Mgmt. Plan					Root River bottoms	Running Slough				Coon Creek
			Lawrence Lake												
			West Channel												
			Black River												

Table 4: Refuge Priority Locations and Actions that Contribute to Implementation of Environmental Pool Plans, 2006-2021*, Upper Mississippi River NWFR (Continued)

Environmental Pool Plan Actions Needed to Achieve Desired Future Habitat**															
Pool	**Protect Islands**	**Construct Islands**	**Increase Depth, Dredge**	**Construct Mud/Sand Flats**	**Direct Water Flows**	**Fish Passage**	**Construct Moist Soil Units**	**Pool Draw-downs**	**Land Acquisition**	**Maintain Existing Habitat**	**Reduce Invasive Species**	**Forest Manage-ment**	**Prairie Manage-ment**	**Assist Private Land-owners**	**Water-shed Manage-ment**
Pool 9	Harpers Slough	Harpers Slough	Harpers Slough	Harpers Slough	Breech berm of Upper Iowa River	L&D 9		Pool-wide	1987 Master Plan tracts	Conway Lake	Rush Creek delta	Conway Lake		Hire Private Lands Biologist	Upper Iowa River
	Capoli Slough	Capoli Slough	Capoli Slough	Capoli Slough	L&D 8					Existing EMP Projects	Cold Springs	Upper Iowa River Delta		Breech berm of Upper Iowa River	Bad Ax River
	Lake Winneshiek	Conway / Phillipi	Conway / Phillipi	Lake Winneshiek						Reno bottoms	Crooked Creek (Reno)	Reno bottoms		Coop Agree. for buffers to reduce runoff	Village Creek
	Willow Island	Lake Winneshiek	Lake Winneshiek	Goose Carcass Lake area							Reno Bottoms	Wexford Creek delta			Kettle Creek (Cold Springs)
	Boot Jack Island	Lower Harpers Slough	Lansing Big Lake area								Winneshiek Creek				Winnebago Creek
			Goose Carcass Lake area												Wexford Creek
															Rush Creek
															Sugar Creek

Table 4: Refuge Priority Locations and Actions that Contribute to Implementation of Environmental Pool Plans, 2006-2021*, Upper Mississippi River NWFR (Continued)

Environmental Pool Plan Actions Needed to Achieve Desired Future Habitat**															
Pool	**Protect Islands**	**Construct Islands**	**Increase Depth, Dredge**	**Construct Mud/Sand Flats**	**Direct Water Flows**	**Fish Passage**	**Construct Moist Soil Units**	**Pool Draw-downs**	**Land Acquisition**	**Maintain Existing Habitat**	**Reduce Invasive Species**	**Forest Manage-ment**	**Prairie Manage-ment**	**Assist Private Land-owners**	**Water-shed Manage-ment**
Pool 10	McGregor Lk.	McGregor Lk.	McGregor Lk.	McGregor Lk.	Jay's Lake/ State Line Slough	L&D 10		Pool-wide	1987 Master Plan Tracts	Pool 10 Islands (lower pool)	Inventory pool	Pool-wide		Hire Private Lands Biologist	Yellow River
	Pool 10 islands (lower pool)	Pool 10 islands (lower pool)	Pool 10 islands (lower pool)	Pool 10 islands (lower pool)						Existing EMP projects					
	East Channel Island (nav channel side)		Harpers Slough (upper pool complex)		Grimmel Lake									Coop Agree. for buffers to reduce runoff	Paint Creek
			Jay's Lake / State Line Slough												Sny McGill
			Frenchtown Lake												Bloody Run
															Wisconsin River Wisconsin River

Table 4: Refuge Priority Locations and Actions that Contribute to Implementation of Environmental Pool Plans, 2006-2021*, Upper Mississippi River NWFR (Continued)

Environmental Pool Plan Actions Needed to Achieve Desired Future Habitat**															
Pool	**Protect Islands**	**Construct Islands**	**Increase Depth, Dredge**	**Construct Mud/Sand Flats**	**Direct Water Flows**	**Fish Passage**	**Construct Moist Soil Units**	**Pool Draw-downs**	**Land Acquisition**	**Maintain Existing Habitat**	**Reduce Invasive Species**	**Forest Manage-ment**	**Prairie Manage-ment**	**Assist Private Land-owners**	**Water-shed Manage-ment**
Pool 11	Patzner Island	Pool 11 Islands incl. Sinnipee Creek Islands	Ball's Island	Pool 11 Islands (lower pool)	Hay Meadow Lake	L&D 10 spillway	Turkey River bottoms	Pool-wide	Turkey River	Hay Meadow Lake bottoms	Inventory pool-wide	Turkey River delta		Hire Private Lands Biologist	Turkey River
	Snyder Island		Snyder Island				Restore Big Pond system		1987 Master Plan tracts	Existing EMP projects		Pool-wide		Coop Agree. for buffers to reduce runoff	Little Maquoketa River
	Coal Pit Slough		Jack Oak Island									Dago Slough			Grant River
	Jack Oak Island		Spring-Dead Lake									Patzner Island			Platte River
	Below L&D 10		Little Maquoketa River delta												

Table 4: Refuge Priority Locations and Actions that Contribute to Implementation of Environmental Pool Plans, 2006-2021*, Upper Mississippi River NWFR (Continued)

Environmental Pool Plan Actions Needed to Achieve Desired Future Habitat**															
Pool	**Protect Islands**	**Construct Islands**	**Increase Depth, Dredge**	**Construct Mud/Sand Flats**	**Direct Water Flows**	**Fish Passage**	**Construct Moist Soil Units**	**Pool Draw-downs**	**Land Acquisition**	**Maintain Existing Habitat**	**Reduce Invasive Species**	**Forest Manage-ment**	**Prairie Manage-ment**	**Assist Private Land-owners**	**Water-shed Manage-ment**
Pool 12	RM 572.2 Menominee Slough	Barrier islands in Lower Pool 12	Sunfish Lake, Fish Trap Lake, Stone Lake		Modify Dam 11 to introduce flows	Include in dam renov.		Pool-wide	1987 Master Plan tracts	EMP projects	Purple loose-strife, Reed canary grass, Cucumber vine, Multiflora rose, Garlic mustard	Nine Mile Island	Control invasives with fire, mechanical, chemical	Hire Private Lands Biologist	Galena River
	RM 559.8		No Name Lake, Kehough, Tippy		Kehough Slough							Mid-pool 12		Coop Agree. for buffers to reduce runoff	Menominee River
	RM 576.8 Island 228		Nine Mile Island		Fish Trap Lake							Bellevue Slough			
	Monitor existing islands along main channel		Wise Lake		Sunfish Lake							Lower Pool 12			
			Frentress Lake, East Dubuque complex												
			White City / Stump Island												

Table 4: Refuge Priority Locations and Actions that Contribute to Implementation of Environmental Pool Plans, 2006-2021*, Upper Mississippi River NWFR (Continued)

Environmental Pool Plan Actions Needed to Achieve Desired Future Habitat**															
Pool	**Protect Islands**	**Construct Islands**	**Increase Depth, Dredge**	**Construct Mud/Sand Flats**	**Direct Water Flows**	**Fish Passage**	**Construct Moist Soil Units**	**Pool Draw-downs**	**Land Acquisition**	**Maintain Existing Habitat**	**Reduce Invasive Species**	**Forest Manage-ment**	**Prairie Manage-ment**	**Assist Private Land-owners**	**Water-shed Manage-ment**
Pool 13	RM 548.6 Maq. River	Lower Pool 13 Islands	Spring Lake		Modify Dam 12 to increase flows / carry silt	Include in dam renov.		Pool-wide	1987 Master Plan tracts	EMP Projects	Purple loose-strife, Reed canary grass, Cucumber vine, Multiflora rose, Garlic mustard	Increase island elevation with dredge material for bottomland trees on main channel islands and barrier islands.	Control invasives with fire, mechanical, chemical	Hire Private Lands Biologist	Maquoketa River
		Elk River islands	Lower Pool and Gomer's Lake											Coop Agree. for buffers to reduce runoff	Elk River
	RM 540.0 Kellers Island	Plan with dredge projects	Crooked Slough		Construct low berm to deflect flow from Elk River								Restore native prairies		Plum River
	RM 540.6		Millers Hollow												Apple River
	Monitor existing islands along main channel		Running Slough												
			Elk River												
			Pin Oak Lk.												

Table 4: Refuge Priority Locations and Actions that Contribute to Implementation of Environmental Pool Plans, 2006-2021*, Upper Mississippi River NWFR (Continued)

Environmental Pool Plan Actions Needed to Achieve Desired Future Habitat**															
Pool	**Protect Islands**	**Construct Islands**	**Increase Depth, Dredge**	**Construct Mud/Sand Flats**	**Direct Water Flows**	**Fish Passage**	**Construct Moist Soil Units**	**Pool Draw-downs**	**Land Acquisition**	**Maintain Existing Habitat**	**Reduce Invasive Species**	**Forest Manage-ment**	**Prairie Manage-ment**	**Assist Private Land-owners**	**Water-shed Manage-ment**
Pool 14	Monitor existing islands along main channel		Beaver Island		Increase flows with modif-ication of Dam 13 to Jacobs Slough	Include in dam renov.			1987 Master Plan Tracts	EMP Projects	Purple loose-strife, Reed canary grass, Cucumber vine, Multiflora rose, Garlic mustard	Increase Island elevation with dredge material for trees: Meredosia Island, Swan Island, Steamboat Island, Wapsi bottoms	Control invasives with fire, mechanical, chemical	Hire Private Lands Biologist	Rock Creek
			Steamboat Island		Restore side channel and braided sloughs: Meredosia Island and Swan Island								Restore native prairies	Coop Agree. for buffers to reduce runoff	Wapsip-inicon River
			Rock Creek Shricker's Lake												
			Wapsipin-icon River bottoms												
Total Actions	37	28	60	18	28	13	7	11	20	27	32	32	21	12	39

* Locations are in priority order within each pool, top to bottom.

**Environmental Pool Plans (Pools 2-11) were endorsed by the River Resources Forum, St. Paul District, US Army Corps of Engineers. Pool Plans were developed by the Forum's Fish and Wildlife Workgroup and reviewed by the public. Pool Plans for Pools 12-14 were endorsed by the River Resources Coordinating Team, Rock Island District, US Army Corps of Engineers and developed by the Team's Fish and Wildlife Interagency Committee.

Table 5: Closed Areas and Sanctuaries* / Alternatives A through E, Upper Mississippi River Refuge

Pool	Name	State	Alt.A No Action (Current Management)		Alt. B Wildlife Focus		Alt. C Public Use Focus		Alt. D Wildlife and Integrated Public Use Focus		Alt. E Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)	
			Acres	Status	Acres	Status	Acres	Status	Acres	Status	Acres	Status
4	Nelson-Trevino	WI	3,773	Closed Area	3,773	Sanctuary	3,773	Closed Area	None		0	Closed Area Drop in 2009
4	Big Lake-Buffalo Slough	WI	None		3,249	Sanctuary	None		3,249	Closed Area; no fishing, no motors	2,461	Closed Area Drop Buffalo Sl. Start 2009, Vol.Avoid. (VA)
4	Peterson Lake	MN-WI	3,111	Closed Area	None		3,111	Closed Area	None		677	Closed Area Start 2009, VA,no motors
4	Rieck's Lake	WI	Part of Peterson Lake		496	Sanctuary	Part of Peterson Lake		496	Closed Area; no fishing, no motors	608	Closed Area, add Buffalo River,start 2009, VA, no motors
5	Weaver Bottoms / Lost Island	MN-WI	3,139	Closed Area	3,780	Sanctuary	3,139	Closed Area	3,508	Closed Area; no fishing, no motors	3,508	Closed Area, VA
5	Spring Lake	WI	None		243	Sanctuary	None		243	Closed Area; no fishing, no motors	243	Closed Area, VA, no motors

Table 5: Closed Areas and Sanctuaries* / Alternatives A through E, Upper Mississippi River Refuge

Pool	Name	State	Alt.A No Action (Current Management)		Alt. B Wildlife Focus		Alt. C Public Use Focus		Alt. D Wildlife and Integrated Public Use Focus		Alt. E Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)	
			Acres	Status	Acres	Status	Acres	Status	Acres	Status	Acres	Status
5A	Fountain City Bay	WI	None		24	Sanctuary	None		None		24	Closed Area if land exchange with WDNR fails, VA, no motors
5A	Polander Lake	MN-WI	1,589	Closed Area	1,910	Sanctuary	1,589	Closed Area	1,910	Closed Area; no fishing, no motors	1,907	Closed Area, VA
6	Trempealeau NWR (functions as closed area; special regulations; 5,520 acres)	WI	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
7	Lake Onalaska	WI	7,348	Closed Area	7,880	Closed Area	7,103	Closed Area	7,400	Closed Area	7,369	Closed Area, no change from current regs.
8	Goose Is. No Hunt Zone	WI	876	No Hunt Zone / Closed Area	1,210	Sanctuary	1,210	No Hunt Zone / Closed Area	1,210	Closed Area; no fishing, no motors	986	Part of Closed Area system, VA, no motors

Table 5: Closed Areas and Sanctuaries* / Alternatives A through E, Upper Mississippi River Refuge

Pool	Name	State	Alt.A No Action (Current Management)		Alt. B Wildlife Focus		Alt. C Public Use Focus		Alt. D Wildlife and Integrated Public Use Focus		Alt. E Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)	
			Acres	Status	Acres	Status	Acres	Status	Acres	Status	Acres	Status
8	Wisconsin Islands	MN-WI	6,510	Closed Area	6,513	Sanctuary	6,483	Closed Area	6,483	Closed Area; no fishing, no motors	6,510	Closed Area, VA
9	Pool Slough	MN-IA	1,112	Closed Area	2,559	Sanctuary	1,112	Closed Area	1,112	Sanctuary	1,112	Sanctuary
9	Harpers Slough	IA-WI	5,209	Closed Area	5,209	Sanctuary	5,209	Closed Area	5,209	Closed Area; no fishing, no motors	5,209	Closed Area, VA
10	Sturgeon Slough	WI	None		None		None		None		340	Closed Area, VA, no motors
10	McGregor Lake	WI	None		None		None		None		0	Dropped
10	WI River Delta	WI	None		1,545	Sanctuary	None		1,545	Closed Area; no fishing, no motors	0	Special Hunt Area, see Text and Appendix Q
10	Bagley Bottoms	WI	None		627	Sanctuary	None		None		None	
10	12-Mile Island	IA	540	Closed Area	540	Sanctuary	540	Closed Area	540	Closed Area; no fishing, no motors	540	Closed Area, VA, no motors
11	Guttenberg Ponds	IA	None		None		None		502	Sanctuary	252	Sanctuary

Table 5: Closed Areas and Sanctuaries* / Alternatives A through E, Upper Mississippi River Refuge

Pool	Name	State	Alt.A No Action (Current Management)		Alt. B Wildlife Focus		Alt. C Public Use Focus		Alt. D Wildlife and Integrated Public Use Focus		Alt. E Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)	
			Acres	Status	Acres	Status	Acres	Status	Acres	Status	Acres	Status
11	12-Mile Island	IA	1,396	Closed Area	1,396	Sanctuary	1,396	Closed Area	894	Closed Area; no fishing, no motors	1,145	Closed Area, VA
11	Hay Meadow Lake	WI	None		None		None		841	Closed Area; no fishing, no motors	None	
11	Bertom-McCartney	WI	2,415	Closed Area	2,385	Sanctuary	2,415	Closed Area	None		2,384	Closed Area, use existing Regs.
11	John Deere Marsh	IA	None		512	Sanctuary	None		512	Closed Area; no fishing, no motors	439	Closed Area, VA, no motors
12	Nine-Mile Island	IA	None		567	Sanctuary	None		None		None	
12	Kehough Slough	IL	None		343	Sanctuary	None		343	Closed Area; no fishing, no motors	343	Closed Area, VA, no motors
12	Wise Lake	IL	None		1,081	Sanctuary	None		None		None	
12	Lower Pool 12	IL	None		478	Sanctuary	None		None		None	
13	Pleasant Creek	IA	2,603	Closed Area	2,603	Sanctuary	2,603	Closed Area	2,067	Closed Area; no fishing, no motors	2,067	Closed Area, VA

Table 5: Closed Areas and Sanctuaries* / Alternatives A through E, Upper Mississippi River Refuge

Pool	Name	State	Alt.A No Action (Current Management)		Alt. B Wildlife Focus		Alt. C Public Use Focus		Alt. D Wildlife and Integrated Public Use Focus		Alt. E Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)	
			Acres	Status	Acres	Status	Acres	Status	Acres	Status	Acres	Status
13	Brown's Lake	IA	None		2,362	Sanctuary	None		None		None	
13	Spring Lake	IL	3,686	Sanctuary	3,686	Sanctuary	3,686	Sanctuary	3,686	Sanctuary	3,686	Sanctuary
13	Elk River	IA	1,237	Closed Area	1,237	Sanctuary	1,237	Closed Area	1,237	Closed Area; no fishing, no motors	1,237	Closed Area, VA
13	Lower Pool 13	IA	None		2,004	Sanctuary	None		None		None	
14	Beaver Island	IA	None		717	Sanctuary	None		717	Closed Area; no fishing, no motors	717	Closed Area, VA, no motors
14	Wapsipinicon	IA	None		1,467	Sanctuary	None		None		None	
Total Acres			44,544		60,396		44,614		43,704		43,764	
Total UMR Refuge Units			15		29		15		21		23	
* Closed Area, Alternatives A and C = closed to all migratory bird hunting. Other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons.									* Sanctuary = No entry October 1 to the end of the regular state duck hunting season.			
* Closed Area, Alternative D = closed to all migratory bird hunting. Other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons. No fishing and no motorized watercraft allowed October 1 to the end of the respective state regular duck hunting season.												
* Closed Area, Alternative E = closed to all migratory bird hunting. Other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons. The public will be asked to practice Voluntary Avoidance (VA), i.e. limiting entry, on all closed areas (“Large” and “Small”) October 15 to the end of the respective state duck hunting season and in addition there will be a “no motor” restriction on Small closed areas October 15 to the end of the regular state duck hunting season. Large closed areas are greater than 1,000 acres and small closed areas are ~1,000 acres or less. “No motors” means the use of motors on watercraft is not allowed.												

Chapter 3: Affected Environment

White Pelicans. Copyright by Sandra Lines

3.1 Physical Environment

The Upper Mississippi River National Wildlife and Fish Refuge (Refuge) encompasses one of the largest blocks of floodplain habitat in the lower 48 states. Bordered by steep wooded bluffs that rise 100 to 600 feet above the river valley, the Mississippi River corridor and Refuge offer scenic beauty, a wild character, and productive fish and wildlife habitat unmatched in mid-America. The Refuge covers 240,220 acres and extends 261 river miles from north to south at the confluence of the Chippewa River in Wisconsin to near Rock Island Illinois.

While extensive wetland habitat losses have occurred well beyond its boundaries in neighboring states, the Refuge has retained much of its biological integrity and is a stronghold of bottomland forests and wetlands vital to breeding and migrating fish and wildlife. Nonetheless, Refuge wetland habitat has degraded significantly over the past 40 years due to human influence and natural processes.

The Refuge is one of several management entities on the Mississippi River. The U.S. Army Corps of Engineers operates the 9-foot navigation project within the Upper Mississippi River System (Public Law 99-662), and overlays the entire Refuge. The navigation project provides a continuous channel for barge traffic through a series of reservoirs created by 29 locks and dams on the Mississippi River and eight on the Illinois River. These reservoirs (pools) create and maintain most of the Refuge's floodplain habitat. The Refuge occurs in Pools 4 through 14.

In addition to Corps and Refuge ownership, the adjoining states of Iowa, Illinois, Minnesota, and Wisconsin own wildlife management units within the floodplain. Many of the 70 counties, towns and other municipalities adjacent to the Refuge have property within the floodplain as well. With all these entities having divergent roles and interests in River management, Congress declared in the Upper Mississippi River Management Act of 1986 that the Upper Mississippi River is both a nationally significant ecosystem and nationally significant commercial navigation system.

Over the past 40 or more years, scientists, managers and other writers have produced an extensive amount of literature addressing the physical, biological, and cultural resources and challenges of the Mississippi River and the Refuge (GREAT I and II, UMRBC Master Plan, Navigation Project EIS,

Status and Trends Report, Refuge Master Plan and EIS, local studies, etc). This EIS will make brief summaries and references to these documents; refer to the literature sited in Chapter 8, References, for details.

3.1.1 Geomorphology – Effects of Water, Wind and Ice

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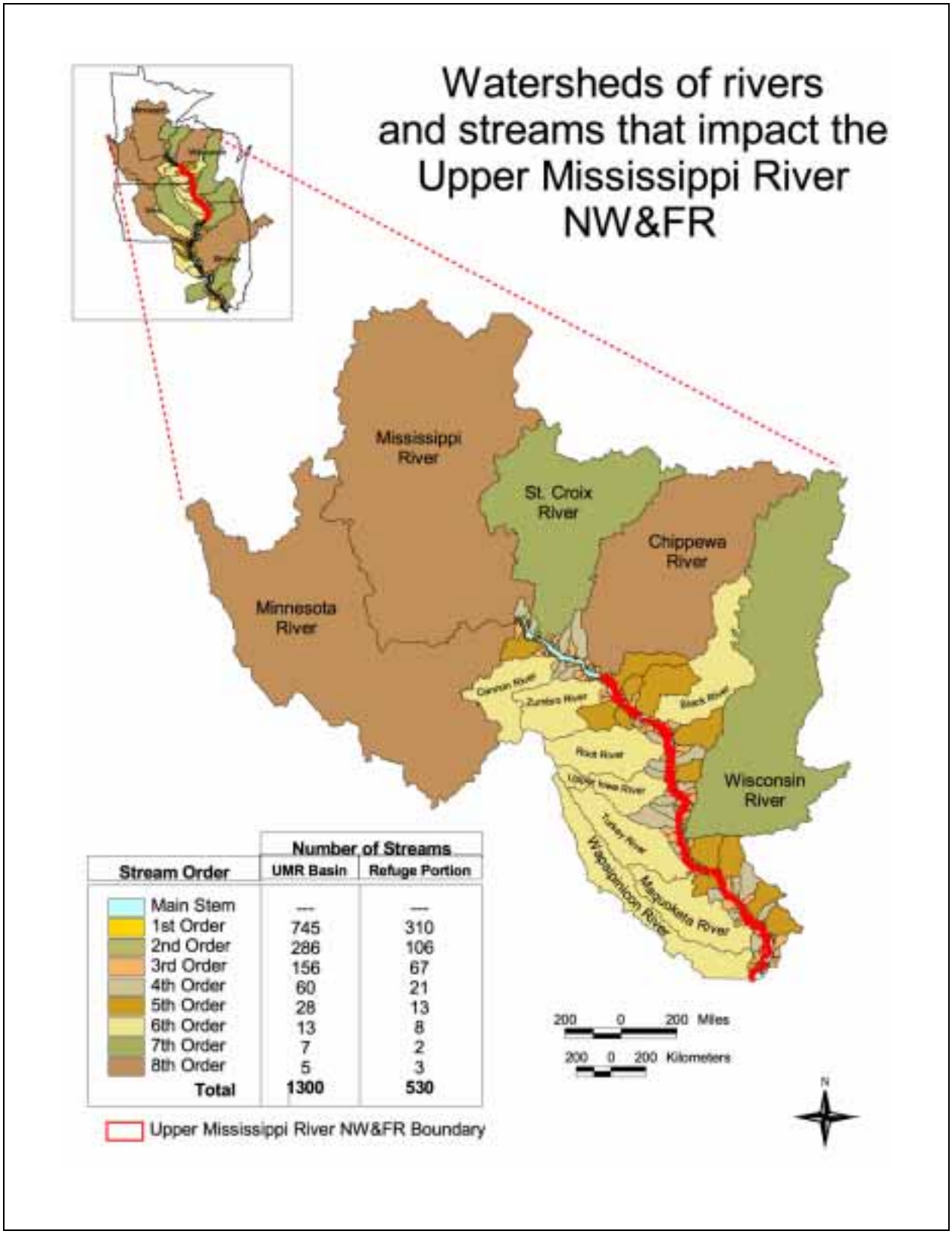
The Refuge lies within the Mississippi River floodplain, an ancient river valley filled with alluvial material (mud, sand, and gravel) carried and deposited by surface water. The river and its tributaries traverse sedimentary rock formations (dolomite, sandstone, and shale) that accumulated under inland seas during the early Paleozoic Era about 400 to 600 million years ago (Fremling and Claflin, 1984).

In more recent geologic times, the river valley has taken shape due to the presence (and absence) of glacial action. Global warming ended the last period of glaciation, about 12,000 years ago, and melted glaciers created huge clear-water lakes. Glacial Lake Agassiz covered much of northern Minnesota, the Dakotas, and central Canada. Most of that lake emptied to the south via the River Warren through which water ran in torrents for about 3000 years, trenching the Mississippi River valley by as much as 200 feet (Fremling and Claflin, 1984). Once the flow from glacial lakes subsided, the river lost much of its velocity and sediment transport capabilities. Sediment deposition ensued, and the valley partially refilled with sand and gravel. Several episodes of flushing and filling of the river valley have followed. Sand terraces that presently flank the river valley are remnants of ancestral floodplains not scoured during the most recent postglacial floods.

Today, over 30,700 miles of streams course through the basin, merge, and eventually enter the Upper Mississippi River Basin (Figure 2). That number does not include many smaller streams not detected by large-scale mapping techniques (Gowda, 1999). The Refuge receives water from 530 of the estimated 1300 streams that occur within the Upper Mississippi River Basin. The illustration of sub-basins by stream order helps depict the relative size of drainage areas and channel lengths. The ordering system (Strahler, 1957) starts with the uppermost channels in a drainage network, they are the first-order streams downstream to their first confluence. A second-order stream is formed below the confluence of two first-order channels. Third-order streams are created when two second-order channels join, and so on. “Tributaries of the Mississippi have steeper gradients than the master stream and they now deliver sediments faster than the Mississippi can remove them; thus the valley floor is slowly agrading once more” (Fremling and Claflin, 1984).

Much of the Refuge follows the Mississippi River as it flows through the carved Driftless Area, a non-glaciated “island” within a huge area of central North America shaped by a series of glaciers (Albert, 1995). This region has minimal amounts of glacial deposits known as “drift” and is therefore known as the Driftless Area. This landscape features a combination of steep, exposed bluffs and eroded ravines that bound the wide floodplain of the Upper Mississippi River, creating an unmatched wild and scenic character so prized by many viewers. The blufftops mark the edge of a plateau, extending many miles from the river, that is capped with loess soils that range in depth from

Figure 2: Watersheds of the Rivers and Streams that Impact Upper Mississippi River Refuge



Stream Order	Number of Streams: UMR Basin	Number of Streams: Refuge Portion
Main Stem	---	---
1st Order	745	310
2nd Order	286	106
3rd Order	156	67
4th Order	60	21
5th Order	28	13
6th Order	13	8
7th Order	7	2
8th Order	5	3
Total	**1300**	**530**

2 to 20 feet, the thinnest being along the valley walls. The Driftless Area includes parts of southwest Wisconsin, southeast Minnesota, northeast Iowa, and northwest Illinois. It also is called the Blufflands or Paleozoic Plateau.

3.1.2 Land Use Characteristics of the Upper Mississippi River Basin

The Upper Mississippi River Basin is a major sub-basin of the entire Mississippi River. It includes approximately 800 miles of river and covers 189,189 square miles, about 15 percent of the entire Mississippi River Basin. More than 60 percent of the land area in the Upper Mississippi River Basin is devoted to cropland or pasture. Between 1945 and 1985, the application rate of commercial fertilizers increased twenty-fold and contributed to nutrient enrichment of the river. The Upper Mississippi River Basin accounted for 31 percent of the total nitrogen delivered from the Mississippi River to the Gulf of Mexico between 1985 and 1988, despite being only 15 percent of the entire basin's land area (Gowda, 1999).

Sediments, nutrients, and pesticides that erode from urban and agricultural lands enter the Mississippi River by many streams. "Because of modern urban and rural drainage networks (tiles, ditches, culverts, etc.), water reaches the rivers [of the basin] more quickly, with greater velocity, and at higher stages than in the past (Bellrose et al, 1983)." Nitrogen and herbicides arrive in pulses that coincide with snow melt, spring rains, and planting and growing seasons. Average soil loss in the Upper Mississippi River Basin is 4.4 tons per acre per year. In 1993, a very wet year, Iowa annual losses approached 20 tons per acre per year (Bhomilk, 1996).

Agricultural practices of the recent past caused extensive erosion of sediments that reached the river and were transported downstream. However, some of these sediments remain in tributary channels and deltas, and thus "present a major problem because treatment to reduce soil erosion on land may not benefit the river until stored sediments are transported by high flows (Gowda, 1999)".

Researcher Prasanna Gowda states, "we do know that basin-level factors (sedimentation, nutrient enrichment, pollution) have degraded environmental quality in the river floodplain and beyond. Previous and ongoing studies have identified land-use practices that create high rates of erosion and runoff. Land management agencies could use this information to implement increasingly cost-effective measures to retain soil and contaminants in the uplands (Gowda, 1999)."

3.1.3 Locks and Dams and River Reaches

People began making structural changes to enhance navigation on the Mississippi River during the 1830s when a 5-foot channel was blasted through the Des Moines Rapids (Theiling, 1999). Snags were pulled, wing dams installed, and channels dredged to 4, 4.5, and 6 feet deep between 1866 and 1907. The current structure originated in 1930 when Congress authorized the 9-foot navigation channel project for the Upper Mississippi River System to be constructed, operated, and maintained by the U.S. Army Corps of Engineers. This navigation system, including 29 locks and dams on the Mississippi River and eight on the Illinois River, has brought the most significant change to the river ecosystem since European settlement (Figure 3). The Refuge occurs within Pools 4-14.

The navigation dams were installed by the late 1930s and created a stairway of reservoirs (navigation pools) from Minneapolis, Minnesota, to St. Louis, Missouri, allowing boats and barges to pass obstacles and readily traverse this 400-foot elevation gradient and 670 mile stretch of the Mississippi River. The navigation pools permanently raised water levels and inundated thousands of acres of floodplain habitat (Figure 4). The newly created backwater wetlands and shallow lakes immediately supported an abundance of fish and wildlife adapted to this new water regime. Some existing plant and animal species did not survive the change, including some migratory fish and associated mussels.

Figure 3: Upper Mississippi River Navigation System with Locks and Dams numbered; Navigation Pools Occur Above Each Lock (Source: Lubinski, 1999)

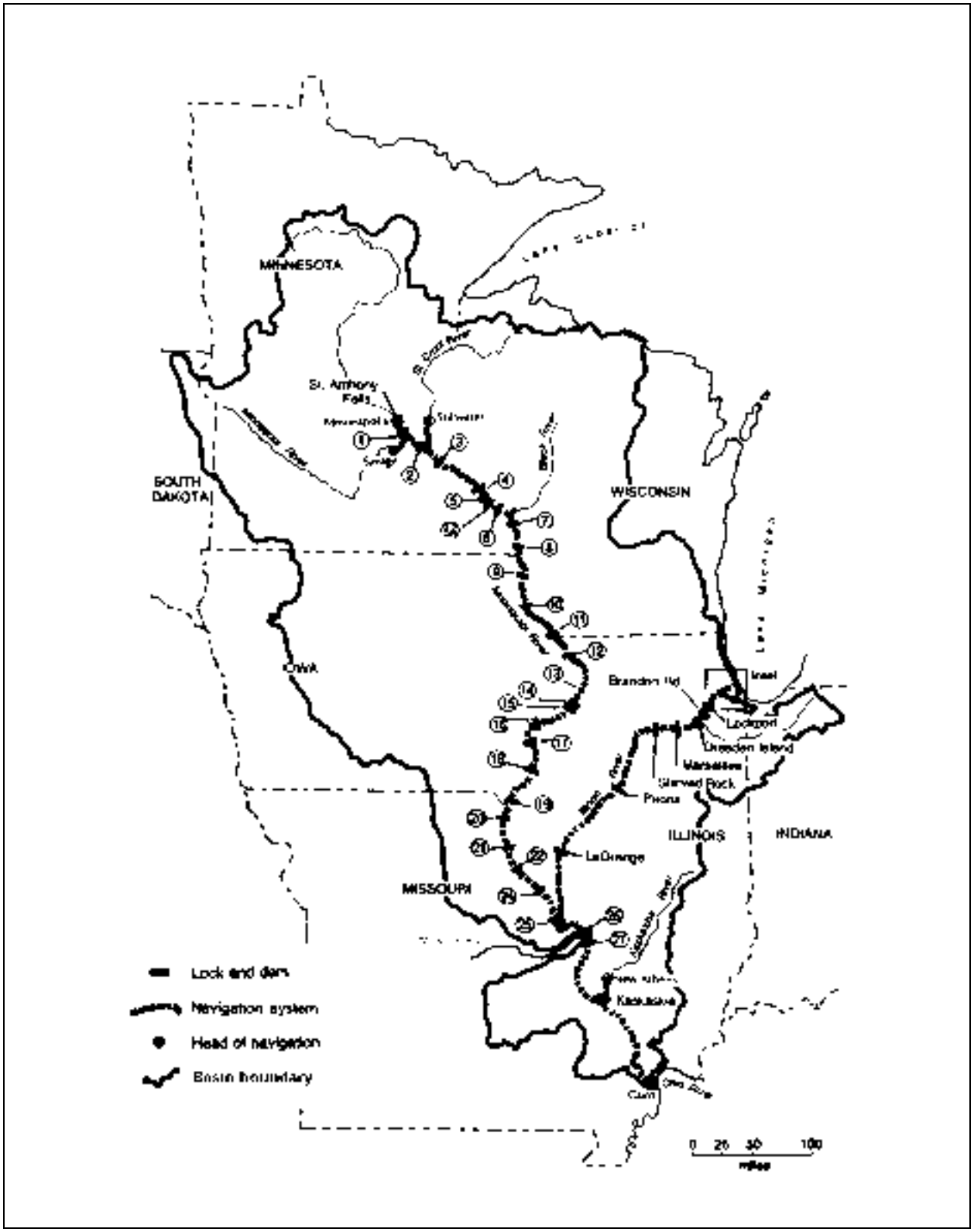
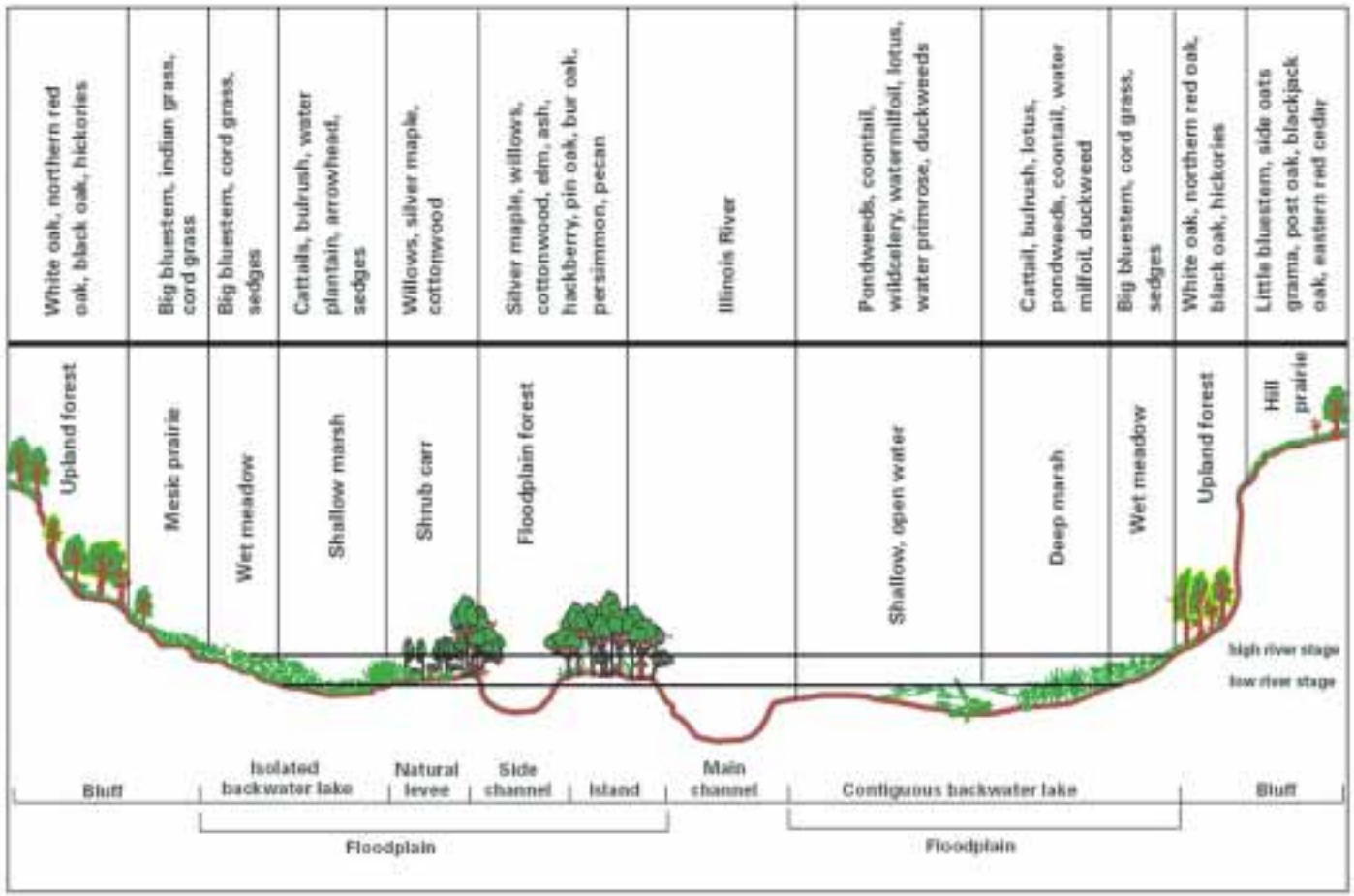


Figure 4: Typical Floodplain and Bluff Habitats of the Upper Mississippi River[1]



1. Source: J.C. Nelson, Illinois Natural History Survey, Great Rivers Field Station, Alton, IL. In Theiling, 1999)

With time, floodplain productivity has declined because sediments from the uplands have filled backwaters, floods and river currents have eroded away plant beds and islands, and relatively stabilized water levels have eliminated natural processes of drying and flooding, key ingredients to maintaining highly productive wetlands.

In order to evaluate habitat needs, the Upper Mississippi River System is categorized into 12 dominant geomorphic areas, or river reaches. The Refuge occurs in Reaches 2-5, or Pools 4-14 (USACE, 2000). The first three reaches (2, 3, 4), Pools 4-13 of the Refuge, are characterized by many braided channels and a mix of open water, aquatic vegetation, floodplain forest, some agricultural and urban areas, numerous islands, and a narrow floodplain (about 1 to 3 miles) that terminates at steep bluffs. The fifth Reach (including Pool 14 of the Refuge) is dominated by agriculture, with occasional floodplain forest and wetland habitats.

3.1.4 Hydrology and Water Quality

Hydrology and water quality play a vital role in maintaining the ecological integrity of the Refuge, a national treasure. A rich assemblage of species requires an appropriate mix of physical, chemical and biological features, such as water flow and depth, adequate but not excessive nutrients in the substrate, appropriate temperature, oxygen and light levels, food sources and escape cover.

Water quantity and quality within the Upper Mississippi River Basin and the floodplain go to the very heart of the conservation conundrum of the Refuge. Besides trying to deal with an increasing array of environmental degradation symptoms, it is important to trace the problems to their sources for long-term solutions. Monitoring on the river has demonstrated that some forms of pollution have actually declined since the federal Water Pollution Control Act was passed in 1972, mandating the secondary treatment of sewage effluents.

However, the river and the Refuge are still being exposed to biotic risks and threats from a growing array of agricultural chemicals and their degradation products, excess nutrients from both point and non-point sources, dissolved heavy metals in water and sediment, and other toxic compounds or invasive organisms.

Water flow within the entire basin is influenced by agriculture, urban development and even the thousands of reservoirs installed throughout the basin. The Corps of Engineers has 76 reservoirs, holding 40 million-acre feet of water; this volume would take three months to flow past St. Louis at average discharges (Wlosinski 1999). An estimated 3,000 more reservoirs with unknown capacity also occur in the basin.

Wetland drainage has affected 26 million acres in the Mississippi River Basin. An estimated 34 to 85 percent of wetlands have been lost in Wisconsin and Minnesota and 85 to 95 percent in Iowa and Illinois (Dahl 1990). These losses are critical because wetlands help regulate hydrology (water movement to tributaries), they filter nutrients from the water, and sustain highly diverse plant and animal populations.

Flow on the mainstem of the Mississippi and Illinois Rivers has been altered by installation of 37 dams, thousands of wing dams, and 8,000 miles of levees. Since 1933, the long-term average hydrologic pattern on the Upper Mississippi River System shows an approximate 11-year cycle of low and high flow, an apparent long-term increase in flow, and an increase in the frequency and amplitude of multiyear fluctuations in flow. Flood heights have increased and the number of days water elevations are above flood stage is increasing; present day floods on the Mississippi River at St. Louis tend to be 9 feet higher than historic floods at the same discharge (780,000 cfs). Major floods at St. Louis now occur once every six years (Wlosinski 1999).

The lock and dam system has permanently inundated lands previously rejuvenated through annual drying and "flood pulse" cycles. While initially the pools supported flourishing, productive wetlands, within a few decades the vast marshes became decadent as they filled with fine sediments, and turbidity from rough fish and wave action suppressed growth of aquatic plants. To compensate for degradation, attempts are now being made to simulate natural cycles of drought with periodic drawdowns and to assist island or channel creation with specially designed habitat projects in cooperation with the Corps of Engineers and the states.

Improved agriculture and development practices can significantly reduce the rates of sediment, nutrient and chemical contaminant delivery and deposition within the Refuge. This translates to better quality habitat for a wider array of species. Progress has been made, but much more can be done. The link between fish and wildlife health, water quality, and inputs from the basin or watershed is well documented. The Refuge has a role in promoting the use of cost-effective measures in the watersheds to enhance its fish and wildlife resources.

3.1.5 Soils

Much of the Upper Mississippi River Basin is covered by loess, a silty soil deposited by postglacial winds. These soils form a mantle over half the Upper Mississippi and Illinois sub-basins and serve as a major source of silt to the Upper Mississippi River System (Nielsen et al, 1984). Floodplain bedrock is covered by up to 150 feet (Pool 10) of alluvial soils (clay, silt, sand and gravel). Soils within the pools vary from silty clay to sand. Sand terraces, occurring at slightly higher elevations bordering the floodplain of the Mississippi and its larger tributaries, consist of glacial outwash deposited during periods of higher average flow.

The soils of the Refuge floodplain from Pools 4 through 6 are alluvial in origin, and vary in texture from silty clay to sand. The composition of the soil at any particular location depends upon the manner in which it was deposited. These irregular strata are composed of clay, silt, sand and gravel. The sands and gravels border many sloughs, while heavy silt loams underlain by sand or gravel can be found on higher terrain between sloughs. Before impoundment and refuge creation, these elevated areas supported bottomland timber, or were cleared and managed for hay or pasture.

Soils of Pools 7 and 8 are derived from a wider variety of parent material, ranging from weathered bedrock to glacial till, alluvium and loess. The weathering of the predominant till has taken place under different vegetative influences, resulting in several soil types. Podzolic soils have formed under deciduous trees with grass cover. The bog soils are represented by muck and peat, formed by decomposition of sedges and grasses at the wet lower margins of sand terraces exposed by river meanders. Regisols consist of deep, soft mineral deposits. Alluvial soils consist of water-borne materials recently deposited on the floodplain. A loess cap of silty particles covers most of the parent material.

Pool 9 parent materials also include loess, alluvium and drift. Pockets and fans of glacial outwash were formed as ice melted at the end of the most recent glacial period, known as the Wisconsin epoch. The main soil associations are Fayette-Dubuque-Stonyland, or "FDS." The FDS association is characterized by a high percentage of shallow limestone soils over steep slopes that are susceptible to erosion. Sediment subsequently delivered to Pool 9 by the Upper Iowa River causes extensive siltation in backwaters and channels. The primary soil type of islands and upland peninsulas in this area is Dorchester silt loam, which is a light-colored soil that lacks a B-horizon. It forms on relatively flat sites over black soils that are usually flooded annually after spring thaw or after heavy rains.

Some of the high terraces bordering Pool 10 have sandy loam soils developed under prairie or savanna vegetation. The bottomlands have diverse soils of alluvial origin that are composed of sand, silt and clay layers deposited by flood events. In areas of annual flooding, there is little soil

development, since humus is mostly removed or covered. Higher elevation terraces may have a thin layer of humus over sandy material. A grey layer of sticky, fine clay with blue-green mottling from reduced iron is present on bottomland soils, indicating poor internal drainage and anaerobic soil conditions. Soils information for navigation pools 4-10 was obtained from the Mississippi River Operational Management Plan (USACE, 1993).

In the lower portion of the Refuge (pools 11-14), three major zones are identified for the river ecosystem in the current Operational Management Plan of the Corps of Engineers, Rock Island District: the streamside buffer zone, a higher elevation natural levee zone, and a lower elevation floodplain zone.

The buffer zone is an area close to the stream bank that is distinguished by floodplain edges and point bars. This zone is subjected to a rapidly aggrading alluvium, harsh stream velocities, and heavy debris accumulation. Common soil textures include coarse loams or sandy loams which have poor moisture holding capacity and high infiltration rates causing rapid drainage after flooding cessation. This zone has the most dynamic land/water interfaces.

Natural levee areas are associated in or near buffer zones. The elevation is often higher than the surrounding floodplain due to high silt aggradation. Soil textures are often fairly coarse loams and are moderately drained to well drained sites. Even though levees are relatively close to the stream, they flood less frequently and soils have high infiltration rates and are often dissected with drainage channels which facilitate rapid removal of flood waters.

The lower elevational flood plains consist of more poorly drained silty loams and silty clay loams best suited for moderately flood tolerant to very tolerant bottomland hardwoods. These flood plains are often inundated for longer periods due to their low elevation and high soil moisture holding capacity. The Natural Resource Inventory System (NRIS), which provides basic soil information for soils on project lands between pools 11 and 14, can be found in Section 3.043 of the Army Corps of Engineers Mississippi River Operational Management Plan, Rock Island District, 1989 (http://www.mvr.usace.army.mil/missriver/).

Soil association maps and descriptions for the Refuge are available for review at the Refuge Headquarters.

Iced vegetation. Copyright Sandra Lines

3.1.6 Climate

The climate of the Mississippi River Basin is subhumid continental with cold dry winters and warm moist summers. Average annual precipitation varies from about 22 inches in the western part of the basin to 34 inches or more in the east. About 75 percent of the total annual precipitation falls between April and September. Basin-wide, the average monthly temperature ranges from about 11 degrees F in January to 74 degrees F in July. Most of the river within the refuge usually freezes solid each winter. Refer to Table 6 for Refuge climate data.

The global warming trend documented nationally and globally in recent years has affected precipitation patterns in the Midwest, resulting in unusual flooding intensity and duration.

Table 6: Climate Data, Upper Mississippi River National Wildlife and Fish Refuge, River Mile 764 to 503.

Location	Average Maximum Summer Temp (Jun, July, Aug) (degrees Fahrenheit)	Average Minimum Winter Temp (Dec, Jan, Feb) (degrees Fahrenheit)	Average Annual Precipitation (inches)	Average Annual Snow Fall (inches)
La Crosse, Wisconsin (River Mile 700)	83.0	10.9	32.36	44.3
Moline, Illinois (River Mile 485)	84.2	16.3	38.04	35.0

As noted above, unusually high floods of long duration have occurred on the Upper Mississippi River over the past decade. Professor James Knox at the University of Wisconsin-Madison has found that "model results and instrument records both support the idea that global warming magnifies hydrologic variability and enhances the hydrologic cycle of the Upper Mississippi River basin (Knox, 2002)." He continues, "analyses of sediment properties [in Wisconsin] indicate that large floods on the Upper Mississippi River have commonly accompanied the beginning of warm and dry climate episodes in the region, but long-term persistence of warming and drought eventually results in smaller floods of high short-term variability.

"Short-term occurrences of large floods were common about 4700, 2500-2200, 1800-1500, 1280, 1000-750, and 550-400 calendar years B.P. [before present], all times that approximate rapid warming and drought in the upper Midwest identified by others. The recent high frequency of large floods on the Upper Mississippi River since the early 1990s may be a modern analogue because these floods have accompanied major hemispheric warming during the same period."

The research by Knox and others indicates that climate is less stable and predictable than people previously thought, and this means that resilience must be a primary consideration in making management decisions. Resilience requires a largely preventive or precautionary approach that leaves an adequate margin for error. The floodplain marshes and forested islands or bluffs of the Upper Mississippi River corridor could have important future roles to play in excess nutrient processing and carbon sequestration, as a means of mitigating effects of climate change.

3.1.7 Contaminants

3.1.7.1 Refuge and Vicinity on the Upper Mississippi River

Land use practices, floods, other natural events, spills, and other human caused incidents within the watershed affect contaminant levels in river water and sediments. These, in turn affect quality and quantity of fish and wildlife habitat. Dissolved oxygen (DO) is crucial to fish and invertebrate survival and DO levels are good indicators of pollution (Soballe and Wiener, 1999). For example, for decades, untreated sewage entering the river in metropolitan Twin Cities depleted DO level in Pools 2, 3, and 4 had an adverse impact on fish and invertebrates. Between 1978 and 1995, treatment plants were installed and storm water was separated from sewage lines; fish and wildlife has responded favorably. Current measurements by Long Term Resource Monitoring Program show that DO levels on 3 Pools of the Refuge (4, 8, and 13) are generally above 5 parts per million (the level considered marginal for aquatic biota). DO levels below that threshold usually occur in backwaters with low current velocities. This has direct bearing on distribution of backwater fish species.

Agricultural fields, animal feedlots, and urban areas are principle sources for plant nutrients that enter the river (Soballe and Wiener, 1999). Excessive inputs of nitrogen and phosphorus can cause algal blooms, contribute to excessive plant growth and subsequent decomposition that depletes DO (limiting fish ant other aquatic life distribution and survival), and cause public health concerns. This same enrichment may contribute to degraded water quality (hypoxia) in the Gulf of Mexico. Plant decomposition in the sediment can also be a source of ammonia that adversely affects burrowing organisms such as fingernail clams and mayflies.

The Upper Mississippi River transports moderate to high quantities of sediments that enter the river from row crop farming, mining, and urban development. Turbidity levels, a measure of suspended sediments, at the Maquoketa River (Pool 13) in Iowa are more than double all up-river inputs combined. This reflects a substantial increase in inputs from erodible agricultural lands. Sediments fill backwaters and reduce the diversity of water depths, thereby reducing biological diversity of the system. Sediments also reduce light penetration necessary for plant growth, as well as absorb and transport containments.

In summary, water quality of the Upper Mississippi River has improved in recent decades in the area of gross sewage pollution, but the river still receives a wide array of agricultural, industrial, and urban contaminants. The risks and threats of certain herbicides, such as atrazine, on the aquatic biota are largely unknown. Excessive nutrients cause excessive plant growth, which upon decomposition, can impact benthic organisms such as fingernail clams.

Polychlorinated biphenyls (PCBs) have been linked to a contaminated Upper Mississippi River food web affecting fish, mink, and burrowing mayflies (Soballe and Wiener, 1999). For additional information see the book *Contaminants in the Upper Mississippi River* (Wiener, et. al., 1984).

Contaminant levels in great blue herons of the Upper Mississippi River have been studied since the mid-1970s (Custer et al, 1997). Levels of PCBs in great blue heron chicks were 29 times greater on the Upper Mississippi River below St. Paul, Minnesota than above St. Paul in the mid 1970s. In 1978 great blue heron eggs had average PCB levels (14.1 µg/g = parts per million) that were possibly sufficient to induce adverse effects on embryos. In 1993, investigators collected great blue heron eggs from 10 colonies on the Upper Mississippi River (8 on the Refuge) to determine the effect of organochlorines, mercury, and selenium on heron nesting (Custer et al, 1997). The authors concluded that these contaminants do not seem to be a serious threat to nesting great blue herons on the Upper Mississippi River. Organochlorine concentrations (including DDE, the metabolite of the insecticide DDT or dichlordiephenyltrichloroethane) were generally low (mean DDE = 1.3 µg/g; PCB = 3.0 µg/g; TCDD [dioxin] = 11.5 µg/g). Eggshell thickness was negatively correlated with DDE concentrations but eggshell averaged only 2.3 percent thinner than eggs collected during the years prior to the use of DDT. Mercury and selenium concentrations (mean = 0.8 and 3.1 µg/g, respectively) in eggs were within background levels.

Mercury, a heavy metal, and PCBs are present in fish of the Mississippi River. Sources of mercury are both natural and man-made.; PCBs do not occur naturally. Both contaminants build up through the food chain and the highest levels occur in predatory fish (walleyes, bass, and northern pike), scavengers (catfish) and bottom feeders (carp). Fish consumption advisories are issued by the Health Departments of the four states overlapping the Refuge. Iowa had an active advisory against consumption of fish by children in 1998-1999. This advisory addressed elevated PCB levels in fish along an 11-mile stretch of the Mississippi River in Pool 14 near Davenport, Iowa; it is no longer active.

Minnesota, Wisconsin, and Illinois all have advisories directed primarily toward reducing intake of mercury and PCBs by pregnant women and children under the age of 15. In Illinois, channel catfish, less than 18 inches should be consumed at the rate no greater than one meal per week; catfish over

18 inches, at the rate of one meal per month. Illinois also has carp recommendations, but does not have advisories on walleye, bass, or northern pike taken from the Mississippi River.

Minnesota and Wisconsin have detailed advisories for consumption of fish taken from various pools of the Refuge. However, the extent of consumption and the number of species included on the lists vary between states along the same pool. In order to address PCB concerns in Wisconsin waters of the Mississippi River, buffalo (>15 inches), carp (> 15 inches), catfish (> 20 inches), walleye (>25 inches) , and white bass (all sizes) taken in Pool 4 are limited to one meal per month for pregnant women and for children under 15. In Pools further down river (Pools 5-12) channel catfish, rather than all catfish are on the list, and buffalo, white bass and walleye are removed at various intervals along the Refuge pools. In the case of mercury, Wisconsin advisories indicate that pregnant women and children should consume only one meal of any sport fish per month, state-wide. The Wisconsin advisory brochure defines sport fish as "any fish you catch or are given, such as bass, walleye, northern, perch, or crappie. Sport fish are not fish you purchase in a store or restaurant."

Minnesota advisories limit consumption of 10 to 14 species of fish for mercury and/or PCB concerns in Minnesota waters of Pools 4-9. In general, targeted fish less than 20 inches (except pan fish) are limited to one meal per week, larger fish are limited to one meal per month, again for pregnant women and children under 15 years of age. Species included on the Minnesota list include: crappie, flathead catfish, channel catfish, freshwater drum, largemouth bass, smallmouth bass, northern pike, walleye, white bass, white sucker, bluegill sunfish, carp, sauger, smallmouth buffalo, and bigmouth buffalo. Snapping turtles are also on the list for Pool 4.

3.1.7.2 Lost Mound Unit

The Lost Mound Unit of the Refuge (formerly the Savanna Army Depot) was placed on the National Priorities List for Superfund cleanup in 1989. This addressed the Comprehensive Environmental Response Compensation and Liability Act requirements. Approximately $198 million may be budgeted during the next 20 years for contaminants removal. Presently 69 environmental sites may require cleanup. Some of these contaminants include solvent, petroleum, lead, cadmium, and mercury. TNT contamination has been confirmed to have reached the groundwater and has spread three-fourths of a mile westward toward the Mississippi River. It is reported that 70 percent of the Depot has the potential to contain some unexploded ordnance to include 155 mm and 75 mm howitzers, mortars, grenades, and small arms ammunition.

These environmental contamination, health, and safety issues will be considered in identifying areas for public access to Lost Mound Unit. The 9,715 acres of the Lost Mound unit are to be used for conservation purposes, therefore the degree of clean-up will not be as strict as if housing or industry were proposed for the site. The U.S. Environmental Protection Agency (EPA), the Illinois Environmental Protection Agency (IEPA), Rock Island Ecological Services Office (FWS) and the Department of Army (DA) will ultimately determine when, and if, the contaminated sites are cleaned up to the extent that there are no environmental contamination, health, and safety concerns.

3.2 Fish, Wildlife and Habitat

3.2.1 Navigation Pools and Habitat Change

The area of river between two dams is called a "pool," each numbered according to the dam that creates it. Pools are river-like in nature having various flow velocities extending laterally from the navigation channel to the backwaters. Upon impoundment, water levels were permanently raised and stabilized, profoundly changing the character of the river (Green, 1970).

Turn-of-the-century (1890s) and modern (1989) land-cover maps of Pool 8 demonstrate the effect of impoundment on the river in the vicinity of the Refuge (Figure 5). Water levels were increased permanently in the lower half of the pools to create open water areas close to the dam and marshy areas near the middle of the pools. The upstream reaches scoured deeper but were largely unchanged in shape (Theiling, 1999).

Three prominent ecologic zones developed within each pool, particularly in the upper reaches of the Upper Mississippi River System. The lower, impounded zone occurs in roughly the lower half of the pools and generally contains the deepest water of the pool where open water and heavy silts cover former marshes and the lower terrestrial areas. This zone is interspersed with islands that once were high ground and ridges in the pre-lock and dam floodplain. The middle zones of the pools contain extensive backwater marshes and shallow lakes interspersed with tree stump fields where former forests, wet meadows and marshes occurred within the floodplain. These backwaters are, or were at one time, extremely productive. The upper pool zones extend downstream of dams, and retain a system of braided channels and forested islands that occurred prior to installation of the locks and dams. Many of the wet meadows that existed prior to inundation in the upper and middle zones are now forested due to succession and elimination of fire.

The pools are now almost 70 years old and are changing due to sediment accumulation, long-term inundation, and erosional processes that typically occur as shallow reservoirs age. Many of the productive marshes of mid-pool backwaters have lost their vegetative habitats and converted to open water, wind-swept, riverine lakes (Fremling et al, 1976). Sediment continues to fill and degrade aquatic habitats. Other backwaters have attained equilibrium with riverine conditions and maintain aquatic habitat. Erosional action of river currents, wind-driven waves, and boat-generated waves have reduced shorelines and eliminated thousands of islands in the mid-pool to lower impounded areas of the pools (Theiling, 1999) (Figure 6). In many backwaters, heavy wind and wave action has resuspended bottom sediments, resulting in the erosion of shallow areas and the filling of deeper ones. This geomorphic action has eliminated much of the “bathymetric diversity” (e.g., high spots, pockets and channels) that once punctuated the wetland bottoms, making the area so productive for fish and wildlife. In addition, resuspended sediment has increased turbidity levels in the water, thus reducing the amount of sunlight that penetrates the water and is available for aquatic plant growth.

Island loss in the lower one half of UMR pools has occurred since the locks and dams were installed in the mid 1930s, resulting in decreases in habitat for plants and animals. Islands eroded away due to current and wind- and boat-generated waves (Theiling, 1999).

Since the mid 1980s, large-scale projects have been constructed to slow habitat loss in backwaters by combating geomorphic processes of sedimentation and erosion. These projects include installation of low levees to block sediment-laden water from entering the backwaters, dredging channels and pockets to provide bathymetric diversity, constructing islands to reduce wind fetch and direct flows, and protecting (armoring) existing islands from erosion. Experiments have also been done with pool-scale (Pool 8) water level management, drawdowns, to replicate natural low-water conditions and thereby, promote growth of marsh vegetation.

Various river entities recognize there is a critical need to stop the accelerated loss of habitat and general decline of the river. In 1993, the Upper Mississippi River Conservation Committee first sent out a call for action in “Facing the Threat: An Ecosystem Management Strategy for the Upper Mississippi River (UMRCC, 1993).” The same committee repeated the sounds of urgency and warning in its recent publication, “A River that Works and a Working River” (UMRCC 2000):

> “If the UMRS is to continue to survive as a nationally and internationally significant ecological and economic resource we, who are its beneficiaries and stewards, will have to develop, very soon, more efficient and effective restoration and management strategies.”

Figure 5: Landcover Maps of Pool 8, 1890s and 1989; Upper Mississippi River Refuge

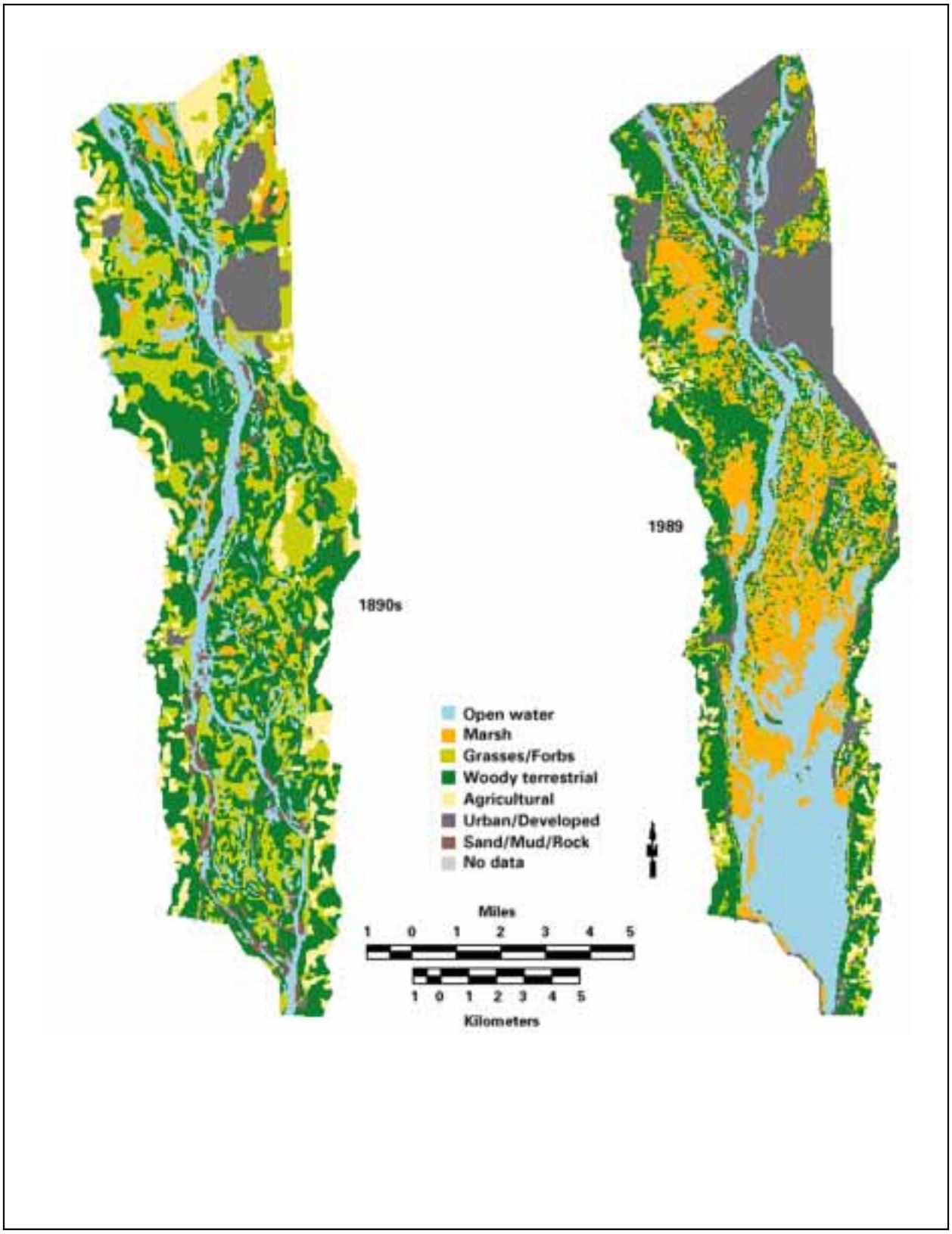
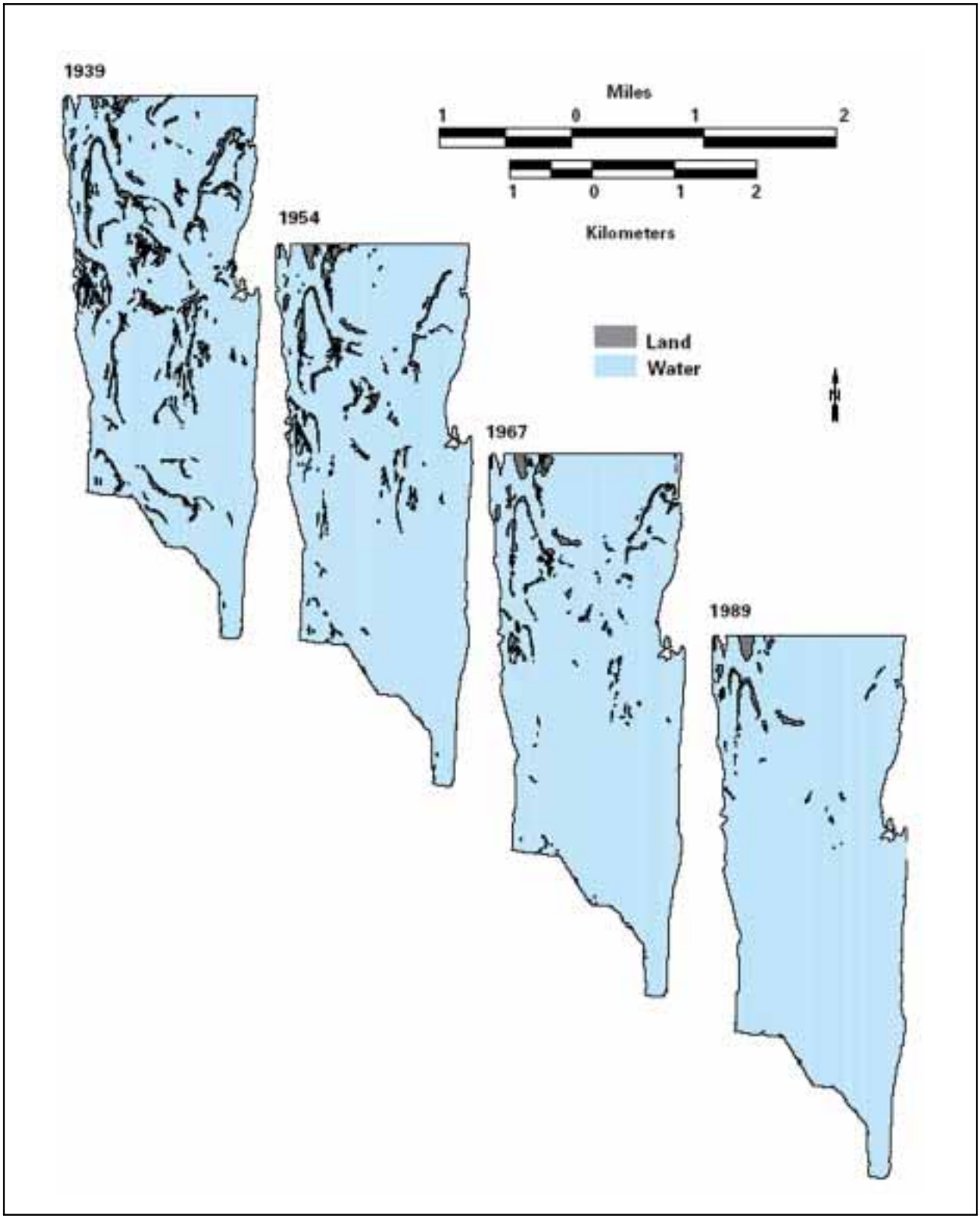


Figure 6: Island Loss in the Lower Half of the Upper Mississippi River Pools, Upper Mississipi River Refuge



The publication identifies nine tools and measures to restore natural river processes, some of which include improving water quality, providing for seasonal low flow (drawdown) conditions, creating islands, severing pathways for exotic species and providing for fish passage. The actions proposed by this CCP match the Upper Mississippi River Conservation Committee tools for achieving restoration of the ecosystem.

In a more specific follow-up to the Upper Mississippi River Conservation Committee publication, the River Resources Forum, an interagency advisory group to the St. Paul District of the Corps of Engineers, has endorsed Environmental Pool Plans that include practices and plans to achieve desired future environmental conditions of Pools 1-10 (River Resources Forum, 2004). The Rock Island District counterpart to the River Resources Forum is the River Resource Action Team which has also endorsed Environmental Pool Plans for Pools 11-22. This CCP will promote the same strategies described in the Environmental Pool Plans documents to meet Refuge goals and objectives. Refer to Appendix N for examples of Environmental Pool Plan maps.

The Izaak Walton League of America recognizes an uncertain future for the Refuge in terms of development pressures, impacts of navigation, and ever-increasing recreational use (Izaak Walton League, 1999).

In addressing concerns about the future health and sustainability of the Upper Mississippi River Basin, The Nature Conservancy has identified areas of greatest freshwater biodiversity in the basin. Its purpose is to “galvanize conservation and restoration action by all stakeholders at the critical places within the UMRB” (Weitzell, et al., 2003).

3.2.2 Special Management Areas

3.2.2.1 Wilderness

Lands within the existing Refuge boundary and proposed expansions have been evaluated for wilderness suitability as part of this planning process. No lands were found to be suitable for designation as wilderness, defined in the Wilderness Act of 1964 and subsequent amendments. Roadless areas within the larger bottomlands associated with major river deltas are too small and too frequently accessed or impacted by human activities to meet Wilderness designation criteria. However, some of these areas do satisfy the criteria for other categories of special management designation, such as Research Natural Areas, which recognize wild qualities and fragility of habitats by restricting the nature or intensity of activities that disturb wildlife or damage habitat.

3.2.2.2 Special Designated Areas

Within the refuge, there are currently four designated Research Natural Areas (RNA), one National Natural Landmark (NNA) that partially overlaps a Research Natural Area, and one state-designated Scientific and Natural Area (SNA) (Table 7). These areas total 6,946 acres.

These areas assist in the preservation of examples of significant natural ecosystems for comparison with those that are more influenced by human activities. They provide educational and research areas where ecological observations and studies can be conducted with minimal disturbance, and natural processes can evolve without significant human intervention. Under certain circumstances, some manipulation of the environment through active management may be allowed to maintain special features. Hunting, fishing, bird watching, photography, wildlife observation, nature interpretation and environmental education may be allowed with adequate justification.

3.2.2.3 Conservation Easements

When the Farm Services Agency (FSA), formerly known as the Farmers Home Administration (FMHA), acquires property through default on loans, it is required to protect wetland and floodplain resources on the property prior to public resale. The U.S. Fish and Wildlife Service assists the Farm

Table 7: Special Designated Areas Within the Upper Mississippi River Refuge

Name of Area	Category[1]	State	Acres	Habitat Type	Pool	River Mile(s)
Winona District						
Nelson-Trevino Bottoms	RNA SNA NNA	Wisconsin	3,740	Silver Maple; American Elm	4	760-763
La Crosse District						
Midway Railroad Prairie	SNA	Wisconsin	5	Bluestem Grassland	7	706
McGregor District						
Reno Bottoms	RNA	Minnesota	1,980	Silver Maple; American Elm	9	679-681
Twelve-Mile Island	RNA	Iowa	900	Silver Maple; American Elm	11	610-614
Savanna District						
Thomson-Fulton Sand Prairie	RNA	Illinois	321	Bluestem Grassland	13	525-527
Total Acreage			6,946			

1.RNA = Research Natural Area; SNA = Scientific and Natural Area; NNA = National Natural Area.

Services Agency in identifying important floodplain and wetland resources for protection with perpetual conservation easements. Management responsibility for the easement may be transferred to a state or federal agency for administration. The Refuge has held a number of such easements since the late 1980s, and may, in the future, hold more of these or other types of conservation easements which are becoming popular tools for maintenance of water quality and wildlife diversity through habitat protection.

The authority for the Farm Services Agency easements comes from the Consolidated Farm and Rural Development Act (7 U.S.C. 1981 and 1985, as amended); Executive Order 11990 providing for the protection of wetlands; and Executive Order 11988 providing for the management of floodplain resources. The U.S. Fish and Wildlife Service administers the easements through the National Wildlife Refuge System. This Refuge maintains a total of 30 conservation easements totaling approximately 1,178 acres, located in 16 counties of three states, Minnesota, Wisconsin, and Iowa (Table 8). Widely dispersed easements have proven difficult to adequately manage with limited refuge private lands staff. Easements need regular inspection and management to prevent encroachment and resource degradation.

Table 8: Conservation Easements Maintained by Upper Mississippi River Refuge

Name	Habitat	Acres	Year	State	County
Winona District					
Haney	Riparian	38	1989	Minnesota	Mower
Jeche	Wetland	1	1989	Minnesota	Fillmore
McCabe	Riparian	36	1989	Minnesota	Fillmore
Gardemann	Riparian	35	1990	Minnesota	Fillmore
Heggedahl	Riparian	8	1990	Minnesota	Dodge
Rediske	Riparian	6	1990	Minnesota	Fillmore
Yenter	Riparian	51	1990	Minnesota	Fillmore
La Crosse District					
Engh	Riparian	30	1988	Wisconsin	Vernon
Nerison	Riparian	18	1988	Wisconsin	Vernon
Barton	Riparian	16	1989	Wisconsin	La Crosse
Straight	Wetland	5	1995	Wisconsin	Richland
Schminick	Wetland	25	1999	Wisconsin	Sauk
McGregor District					
Riley	Wetland	10	1989	Wisconsin	Grant
Rosonke	Wetland	157	1989	Iowa	Chickasaw
Engle	Wetland	87	1990	Iowa	Floyd
Quade	Wetland	47	1990	Iowa	Bremer
Beine	Wetland	20	1991	Iowa	Bremer
Gott	Wetland	18	1995	Iowa	Bremer
Rossol	Wetland	24	1995	Iowa	Bremer
Kleve	Wetland	29	2000	Iowa	Clayton
Hartwig	Wetland	20	2001	Iowa	LaFayette
Savanna District					
Reese	Grassland	42	1990	Iowa	Blackhawk
Atkinson	Timber	107	1990	Iowa	Delaware
Krogman	Timber	66	1991	Iowa	Delaware
Dickel	Timber	108	1990	Iowa	Iowa
Telandis	Wetland	235	1992	Iowa	Scott

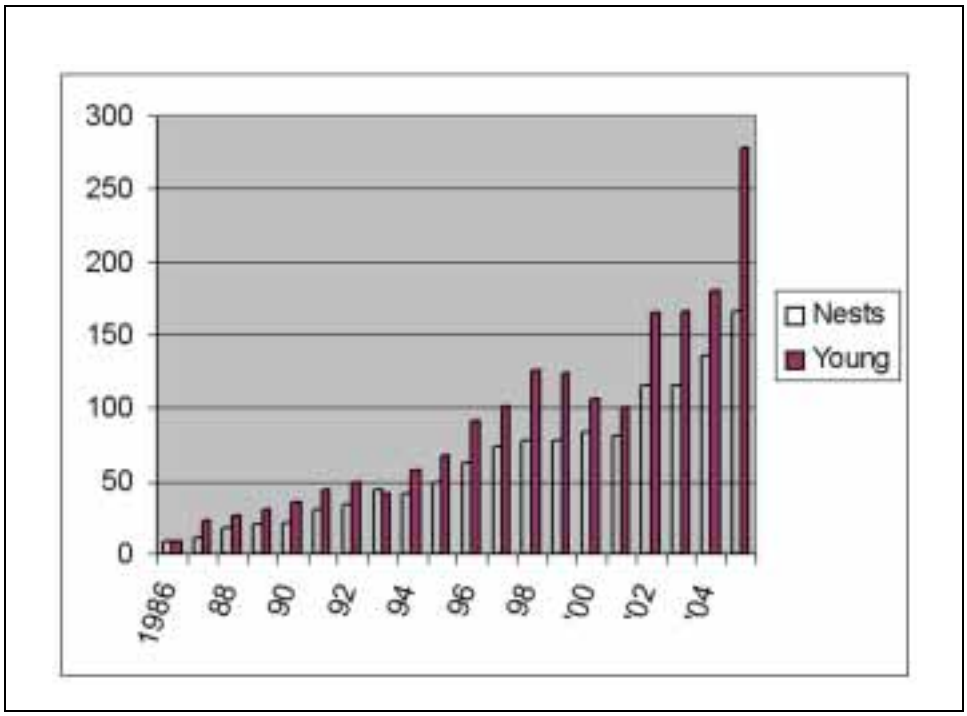
3.2.3 Notable State Management Areas

The states manage some important and often magnificent wildlife management areas, parks, and forests adjacent to the Refuge, both in and outside the floodplain. Coordination of similar land management needs and programs is regular and ongoing since fish and wildlife, and at times the public, do not distinguish between administrative boundaries. Table 9 shows the notable state resource lands next to the Refuge.

Table 9: Notable State Management Areas

Location	Area (acres)
Minnesota	
Pool 4 Wildlife Management Area	146
McCarthy Lake Wildlife Management Area	2,873
Kellogg-Weaver Dunes Scientific and Natural Area	1,004
John A. Latsch State Park	1,654
Thorpe Wildlife Management Area	139
Great River Bluffs State Park	3,067
Total for Minnesota	8,883
Wisconsin	
Tiffany Bottoms Wildlife Area	12,740
Whitman Dam Wildlife Area	2,173
Merrick State Park	320
Perrot State Park	1,270
Van Loon Wildlife Area	3,981
Rush Creek State Natural Area	2,265
Wyalusing State Park	2,628
Wyalusing Unit Lower Wisconsin State Riverway	690
Total For Wisconsin	26,067
Great River State Trail	24 miles
Iowa	
Pool Slough Wildlife Management Area	555
Fish Farm Mounds Wildlife Management Area	576
Village Creek Area	52
Yellow River State Forest	8,503
Pike's Peak State Park	970
Mines of Spain State Recreation Area	1,387
Bellevue State Park	770
Green Island Wildlife Management Area	3,722
Princeton Wildlife Management Area	1,208
Total for Iowa	17,743
Illinois	
Palisades State Park	2,500
Total for Illinois	2,500

Figure 7: Annual Bald Eagle Production on Upper Mississippi River Refuge, 1986-2005



3.2.4 Threatened and Endangered Species

This section and Section 3.2.5 address two federally listed threatened and endangered species and three candidate threatened and endangered species that occur on or very near the Refuge. State listed threatened and endangered species are not described in this section but will be addressed in the CCP and appropriate step-down plans. The state listed species that occur on Refuge include: six mammals, 40 birds, 18 fish, seven reptiles, three amphibians, and 20 mussels (Appendix K).

3.2.4.1 Bald Eagle

The Bald Eagle *(Haliaeetus leucocephalus)* was declared an endangered species in 1973 due to low populations that existed following a century of persecution and habitat loss and several decades of poisoning from hard core pesticides (DDT, dieldrin, endrin, etc.). The species began to recover after these pesticides were banned in 1972 and public awareness and management provided protection for the bird. It continues to recover and its full recovery is possible. The success story of Bald Eagle recovery is reflected in the number of active nests found on the Refuge since 1972 when one nest was present. In 1986, nine nests produced nine young, and by 1996, 62 active territories produced an estimated 91 fledged young (Figure 7). In 2005, 167 active territories produced and estimated 279 young, 98 more eaglets than in 2004. This was the largest annual increase in production recorded on the Refuge. Total production estimates were based upon the average number of young (1.67 young per nest) on 106 nests with known outcomes. Bald Eagle nesting territories occur over the length of the Refuge and are most numerous within the McGregor District which has over 90 active nests. Annual Bald Eagle production on the Refuge has shown a 31-fold increase in the 19 years between 1986 and 2005.

3.2.4.2 Higgins Eye Pearlymussel

The Higgins eye pearlymussel *(Lampsilis higginsii)* was listed as endangered in 1976 due to declines in abundance and distribution. Causes include commercial harvest, creation of impoundments in the 9-foot navigation system, channel maintenance dredging and disposal

activities, changes in water quality from municipal, industrial, and agricultural activities, unavailability of appropriate fish hosts for mussel larval stages, disease (USFWS, 1983), and exotic species (especially zebra mussels).

The biological assessment of the navigation system (USACE, 2004a) indicates that *L. higginsii* occurs most frequently in medium to large rivers with current velocities of 0.49 to 1.51 feet per second and in depths of 2 to 19.7 feet. It appears to prefer water with dissolved oxygen greater than 5 parts per million and calcium carbonate levels greater than 50 parts per million. The species is significantly correlated with a firm, coarse sand substrate. *L. higginsii* is usually found in large, stable mussel beds with relatively high species and age diversity.

Nearly all remaining habitat on the Upper Mississippi River for *L. higginsii* is within the 9-foot navigation project. Higgins eye pearlymussel recovery teams have identified Essential Habitat Areas that are believed to contain viable reproducing *L. higginsii* populations. These teams indicate that recovery of the species could not be accomplished without maintaining the Essential Habitat Area populations. Five of the 10 identified Essential Habitat Areas are within or near the Refuge (USACE, 2004a) as follows:

- Wisconsin (River Mile 0 - 0.2)
- Upper Mississippi River at Whiskey Rock, Ferryville, Wisconsin, Pool 9 (River Mile 655.8 - 658.4)
- Upper Mississippi River at Harpers Slough, Pool 10 (River Mile 639.0 - 641.4); Upper Mississippi River Main and East Channels at Prairie du Chien, Wisconsin, and Marquette, Iowa, Pool 10 (River Mile 633.4 - 637)
- Upper Mississippi River at McMillan Island, Pool 10 (River Mile 616.4 - 619.1)
- the Upper Mississippi River at Cordova, Illinois, Pool 14 (River Mile 503.0 - 505.5)

Recent Refuge activities involving Higgins eye pearlymussel include limited participation in recruitment projects, monitoring zebra mussels, reviewing permits for river projects, designing habitat projects, and environmental education.

3.2.5 Candidate Threatened and Endangered Species

3.2.5.1 Eastern Massasauga Rattlesnake

The Eastern massasauga rattlesnake *(Sistrurus catenatus catenatus)* has declined throughout its range, an area that extends from New York and southern Ontario westward to Iowa and Missouri. The decline is from 33 percent in Michigan to 100 percent in Minnesota. The primary causes are habitat loss and persecution. Past anti-rattlesnake campaigns have reduced some populations beyond a recoverable threshold. Habitat (wet sedge meadow, emergent wetland, shrub-carr) has been lost to natural succession, conversion, changes in hydrology (prolonged saturation of soil), and fragmentation (USFWS, 2003).

Eastern massasaugas occur at only one known site (Nelson-Trevino Research Natural Area, Pool 4) within the Refuge, although potential habitat exists elsewhere within the system. The snake occurs within the Black River Bottoms (Pool 7) on private land, adjacent to the Refuge and within the approved acquisition boundary of the Refuge. Small populations of massasaugas are scattered along the length of the lower Wapsipincon River in Scott and Clinton Counties, Iowa (VanDeWalle and Christiansen, 2002). The most recent records of live specimens found in that area were near Long Grove and Calamus, 13 and 30 miles west of the Upper Mississippi River floodplain. Searches in 2001 and 2002 found no live specimens in these counties.

The Refuge is participating in developing and implementing Candidate Conservation Agreements for massasaugas at Nelson-Trevino, the Black River Bottoms, and adjacent private and state land in Wisconsin.

3.2.5.2 Sheepnose

This summary is from the sheepnose *(Plethobasus cyphyus)* status report (USFWS, 2002a). The sheepnose has been eliminated from two-thirds of the total number of streams from which it was historically known (26 streams versus 77, historically). It was uncommon in what are now Mississippi River Pools 13-23.

In the upper Mississippi River, the sheepnose is an example of a rare species becoming rarer. Despite the discovery of juvenile recruitment in Pool 7, the sheepnose population levels appear to be very small and of questionable long-term viability given the threats outlined below. Along with other mussels of the Upper Mississippi River, the sheepnose is seriously threatened by zebra mussels. Other threats include channel maintenance dredging and sedimentation from tributary systems. Sediment accumulations above lock and dams generally preclude the occurrence of sheepnose.

The majority of the remaining populations of the sheepnose are generally small and geographically isolated, which makes them much more susceptible to extirpation from single catastrophic events such as toxic chemical spills. Furthermore, this level of isolation makes natural repopulation impossible without human intervention. Isolation prohibits the natural interchange of genetic material between populations, which can lead to inbreeding depression.

Conservation activities that would benefit the species include funding programs, research and surveys, outreach, and habitat improvements and conservation.

3.2.5.3 Spectaclecase

The spectaclecase *(Cumberlandia monodonta)* was declared a candidate species May 4, 2004 (USFWS, 2002b). As reported in the Federal Register, the spectaclecase is apparently more of a habitat specialist than are most mussel species. Primarily a large-river species, it can occur on outside river bends below bluff lines. It often inhabits riverine microhabitats sheltered from the main force of current. It occurs in substrates from mud and sand to gravel, cobble, and boulders in relatively shallow riffles and shoals with slow to swift current.

The spectaclecase occurred historically in at least 45 streams in the Mississippi, Ohio, and Missouri Basins. Extant populations of the spectaclecase are known from 20 streams. Seven of those populations are represented by a single specimen each. Only three or four populations could be characterized as large or stable. Threats to the continued existence of the spectaclecase appear to include exotic species, especially zebra mussels; delivery and deposition of fine sediments; small population sizes; isolation of populations; livestock grazing; wastewater effluents; mine runoff; unstable and coldwater flows downstream of dams; gravel mining; and channel dredging. Although there are ongoing attempts to alleviate some of these threats at some locations, there appear to be no populations without significant threats and many threats are without obvious or readily available solutions. In addition, the fish host of the spectaclecase is unknown; thus, propagation to reestablish the species in restored habitats and to maintain nonreproducing populations and focused conservation of its fish host are not yet possible. Therefore, the threats to spectaclecase are considered to be of high magnitude. However, 10 populations are reproducing or supported via immigration from large populations, and three or four of these populations may be described as large.

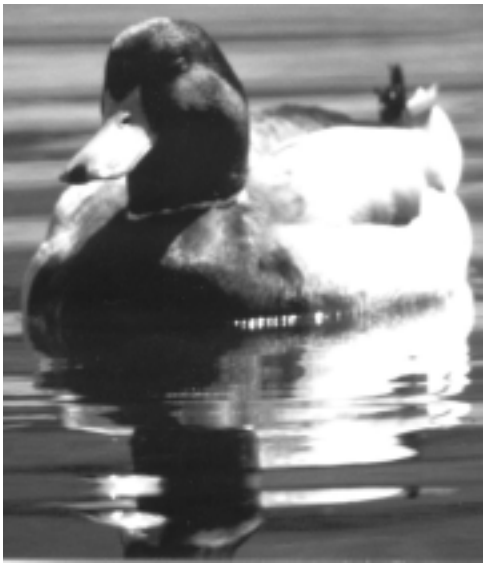
The spectaclecase disappeared from the Prairie du Chien, Wisconsin area in the 1920s. A 1981 survey failed to locate living spectaclecase in the Wisconsin portion of the upper Mississippi River (between Pool 3-11) using brail and SCUBA, but reported dead shells in Pool 11. The only live

specimens found recently on the Upper Mississippi River were in Pool 15 and further down river; none on the Refuge portion of the Upper Mississippi River, Pools 4-14.

3.2.6 Wildlife Resource Conservation Priorities

The U.S. Fish and Wildlife Service's Region 3 list of Resource Conservation Priorities contains 243 species of fish and wildlife, of which, 65 birds, three mammals, six fish, two reptiles, 26 invertebrates, and 13 plants occur on the Refuge (Appendix K). These species are considered to be in the greatest need of attention under the Service's full span of authorities. The Resource Conservation Priorities identifies strategies that will contribute to the conservation, protection, and recovery of migratory birds, threatened and endangered species, and interjurisdictional fish, as well as the habitats on which they depend, thus assisting in fulfilling Service missions.

The fact that a species is not included on the Resource Conservation Priorities list does not mean it is unimportant; it means only that when faced with the choice of addressing the needs of several species, the Service should place emphasis on those identified as priority from a Regional perspective. Many species not listed will receive incidental benefits from Refuge management. The Resource Conservation Priorities list will assist in prioritizing workloads, focusing conservation actions, identifying research priorities and training needs, preparing of Refuge plans, and developing budgets.



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3.2.7 Migratory Birds

The U.S. Fish and Wildlife Service is responsible for the conservation and management of more than 800 species of migratory birds that occur in the country. In 2004, the Service released the Migratory Bird Program's ten-year strategic plan, "A Blueprint for the Future of Migratory Birds" (USFWS, 2004). It calls for cooperation from all governments and partners to ensure the continued survival of migratory birds. The Blueprint identifies three priorities for the Service's Migratory Bird Program: 1) address the loss and degradation of migratory bird habitat, 2) improve scientific information on bird populations, and 3) increase partnerships to achieve bird conservation. Implementation of Refuge plans will compliment these priorities by addressing needs of some Birds of Management Concern listed in an appendix to the Blueprint.

3.2.7.1 Waterfowl

National Wildlife Refuges play a crucial role in providing breeding, migrational, and wintering ground habitat for waterfowl. Over the past 75 years, the U.S. Fish and Wildlife Service has strategically established many of its refuges to help meet widely held waterfowl conservation goals. Features common to refuges is the inclusion of closed areas, which provide waterfowl the opportunity to feed and rest without disturbance during migration and at wintering locations. Without disturbance, waterfowl are provided opportunity for molting, preening, pair bonding and fat storage, all of which help build healthier populations. Closed areas also help keep regional populations in and around refuges, providing hunting opportunity on adjacent public and private lands. The value of closed areas to waterfowl would decline if they were frequently moved around or rotated.

Refuge Waterfowl

The Refuge lies within the Mississippi Flyway, through which an estimated 40 percent of the continent's waterfowl migrate. It is a critical migration corridor (Reid et al. 1989) for 10 species including Tundra Swans, Ring-necked Duck and Hooded Merganser. The other seven species are also on the U.S. Fish & Wildlife Service's Region 3 Resource Conservation Priority List and include: Lesser Snow Geese, Canada Geese, Wood Duck, Mallard, Blue-winged Teal, Canvasback, and Lesser Scaup. The corridor is also important for an additional eight species of waterfowl.

Waterfowl populations on the Refuge can fluctuate widely from year to year due to variations in flyway populations, water, and food conditions off-river, food availability in the backwaters, and weather (Korschgen et al. 1999). These factors, combined with survey variability over the years, are considered when analyzing waterfowl use data collected on the Refuge.

Biologists have conducted various types of ground counts and aerial waterfowl surveys of the Refuge since the 1920s. These surveys are not all-inclusive counts, but rather indices to the number of birds present on the Refuge. Changes in methods, observers, survey routes, and aircraft types preclude direct comparisons of one year or group of years to another. However, general trends and descriptions of changes in distribution of the birds can be made using the data. These variables need to be considered when interpreting data presented below.

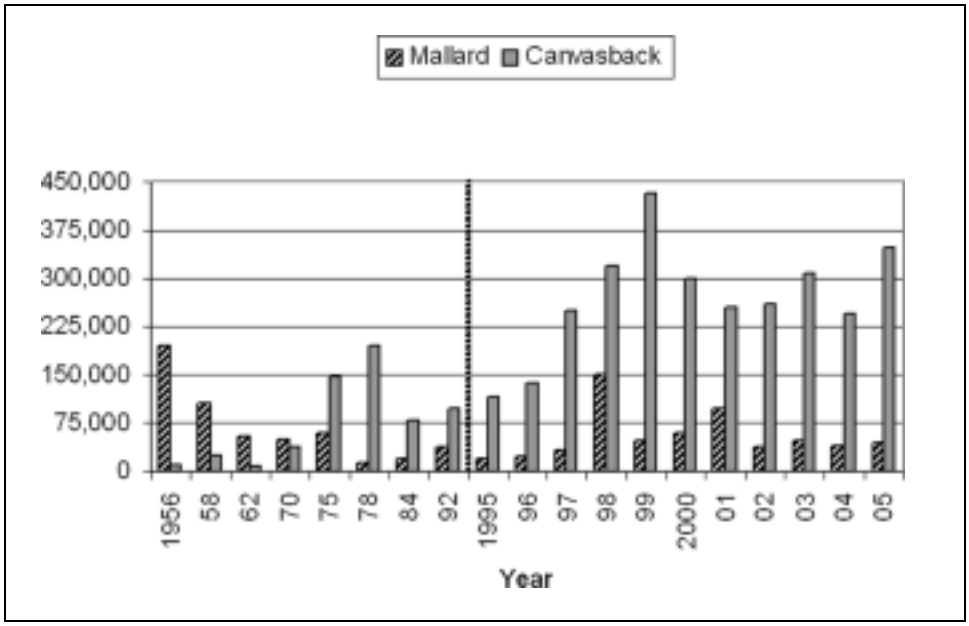
The following discussion addresses four main groups of waterfowl: diving ducks, puddle ducks (also called dabbling ducks), geese, and swans. Common diving duck species on the Refuge are the Canvasback, Lesser Scaup, Common Goldeneye, Ring-necked Duck, Bufflehead, Ruddy Duck, and mergansers (Hooded, Common and Red-breasted). Diving ducks are recognized by their generally white, black, and gray colors. Their wings are relatively small compared to their body size, so divers must use rapid wing beats when they fly, and when launching into flight, most of this group patter along the water before becoming airborne. Divers have large feet, placed well back on the body and are not agile on land. They frequent large deep marshes, lakes, rivers, and coastal bays. They dive, sometimes to great depths, to feed on aquatic plants, fish, clams, and snails. Favorite diver foods on the Upper Mississippi River are wild celery, sago pondweed, fingernail clams, and snails.

The most common puddle duck species on the Refuge are the Wood Duck, Mallard, Blue-winged Teal, Wigeon, Gadwall, Pintail, and Green-winged Teal. Puddle ducks often have brightly colored wing patches (speculum) and males are colorful throughout, while females are generally a camouflage brown. Puddle ducks are sure-footed, often seen feeding or roosting on land. They typically utilize freshwater, shallow marshes, rivers, and ponds where they feed by dabbling on the water surface or tipping, rather than diving. Puddlers feed on aquatic insects and plants, acorns, or grain. On the Upper Mississippi River, they frequent backwater marshes containing arrowhead, river bulrush, cattail, and other emergent and submergent vegetation. These plant communities are steadily declining on the Refuge.

In the early years of the Refuge (1924-1935), when no locks and dams were present, lesser and greater scaup were the most common migrants (Green 1970). They utilized riverine conditions of the main and secondary channels. In the pre-lock and dam era, most of the many sloughs and wetland pockets were dried out by the fall season and not suitable for migrating waterfowl. During spring, when the bottoms were flooded, there was a greater waterfowl use and diversity.

Installation of the locks and dams brought about instant change with stabilized water levels creating productive shallow marshes and aquatic areas. Increase in waterfowl use was "phenomenal", with both diving ducks and puddle ducks migrating and staging on the Refuge. After flooding and until the 1960s, puddle ducks (such as Mallards) were more abundant than divers (such as Canvasbacks) in the fall (Figure 8). In 1956, the peak count of Mallards reached 190,000 birds while Canvasbacks reached only 10,000. By 1978, those numbers were almost reversed, with 195,000 Canvasbacks counted on Pools 7 and 8 only and 12,000 Mallards counted, Refuge-wide.

Figure 8: Peak Number of Mallards and Canvasback Ducks on Upper Mississippi River Refuge, Selected Years 1956 to 2005[1]



1.Canvasback numbers for the years 1962-1975 are for Pools 7 and 8 only. Years 1978 and 1984 are for Pools 7, 8 and 9 only.

Puddle ducks declined in response to losses of secure emergent habitat due to sedimentation, wind and wave action, and continuous flooding regimes. Divers responded to habitat changes on the river toward more open water conditions that support underwater plants. At the same time, crucial diving duck habitat was lost in adjacent states due to habitat degradation and drainage.

During the 1980s, numbers of Canvasbacks declined to about 80,000 birds and mallard numbers increased to about 40,000. These declines reflected reductions in continental populations and losses in Refuge habitat. Since 1997, canvasback peak numbers on the Refuge have exceeded 250,000 birds each year, with a peak of 431,000 observed October 25, 1999. The Refuge generally supports 60 to 75 percent (82 percent in 2005) of the Canvasbacks counted in the eastern U.S during annual Coordinated Canvasback surveys (Figure 9).

Canada Goose and Tundra Swan numbers were much lower between 1924 to 1965 than they are today (Figure 10). Canada Goose peaks ranged from less than 1000 to about 7,500 during that period. Recent peaks range from 10,000 to 30,000 geese. The increase reflects higher populations of geese in the flyway and the availability of habitat on the river.

Tundra Swans did not begin to use the Mississippi River as a significant migration stop-over until the mid-1980s when peak numbers reached nearly 15,000 swans in 1984. Only about 100 were counted in the 1950s. Peak counts have exceeded 30,000 birds in recent years and it is estimated that 20 percent of the Eastern continental population migrates through the Refuge each fall. The Refuge is an important rest stop for family groups of swans during migration. Aerial surveys and video surveys in 1998-99 revealed that “at one point in late November, Pools 4-9 could have been used by 51.7 percent of all cygnets in the eastern population” of Tundra Swans (Thorson, 2002).

The Refuge supports breeding waterfowl populations of Mallards, Wood Ducks, Hooded Mergansers and Canada Geese. Mallard duckling production on islands in Pools 7 and 8 has been monitored most years since 1981 by Wisconsin Department of Natural Resources (Nelson and Andersen, 2003).

Figure 9: Percent of the Eastern Population of Canvasbacks that Occurred on Upper Mississippi River Refuge During the Coordinated Canvasback Survey, 1974-2005

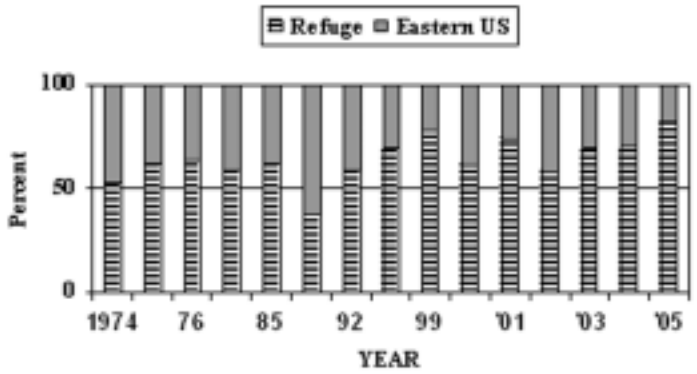
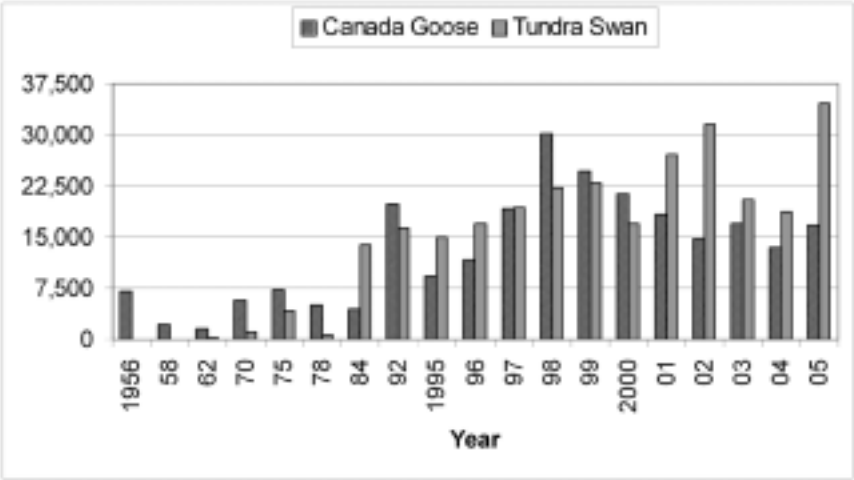


Figure 10: Peak Number of Canada Geese and Tundra Swans on Upper Mississippi River Refuge, Selected Years 1956-2005



Success rates range from 11 percent to 89 percent (average is 66 percent in Pool 7 and 52 percent in Pool 8). Nest success reflects the extent of predator-free conditions on islands. Annual production (duckling hatched) averages 785 on Pool 7 and 229 on Pool 8 islands. State biologists and managers are interested in promoting local mallard production on natural and man-made islands of the Refuge. Grassland nesting cover is difficult to maintain in floodplain habitat where natural processes are promoted.

Waterfowl Management Challenges

Waterfowl management challenges on the Refuge center around the need to provide secure resting and feeding habitat for birds in migration, as well as distribute hunting opportunities throughout the Refuge. Optimal bird distribution is achieved by providing adequate food resources (carrying capacity) where birds will not be disturbed. Managers consider various factors that influence waterfowl distribution on the Refuge including the affects of hunting and other forms of human

Figure 11: Average Dabbling Duck Use-days by Pool, 1997-2004, Upper Mississppi River Refuge

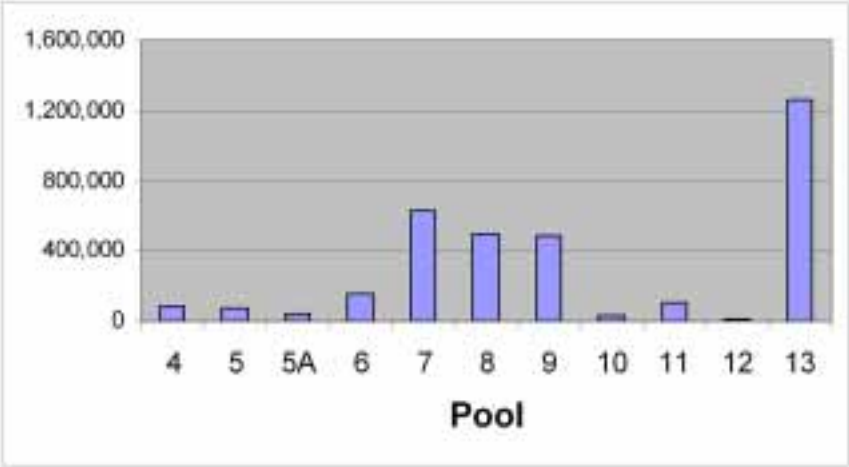
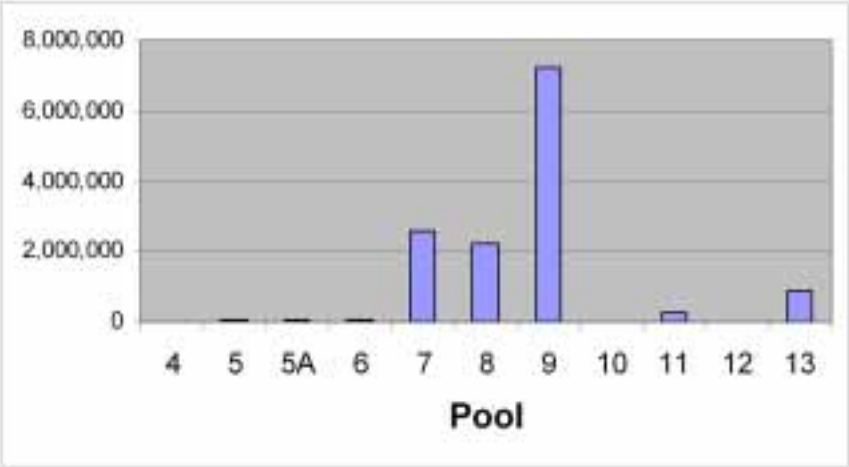


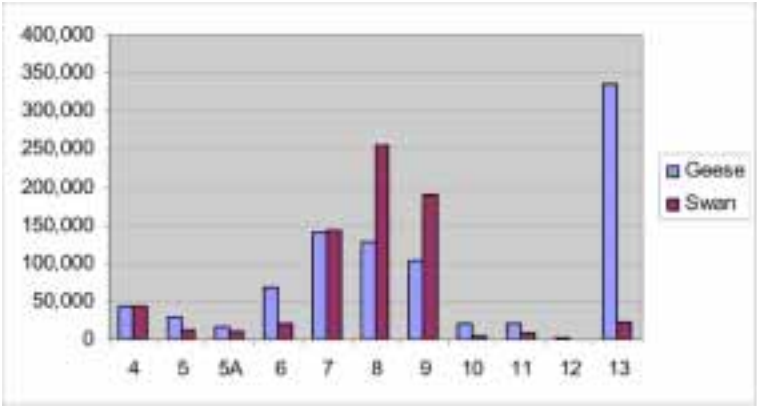
Figure 12: Average Diving Duck Use-days by Pool, 1997-2004, Upper Mississippi River Refuge



disturbance on waterfowl, the amount of available food, the longitudinal distribution of food resources on the river, the distances ducks are known to fly from roosting to feeding sites, and other biological needs.

Current observations and survey data clearly show that ducks, swans and geese are not evenly distributed on the Refuge during fall migration (Figure 11, Figure 12, and Figure 13). This is validated with weekly aerial waterfowl survey data that are converted to use-day numbers. Such data help describe the carrying capacity of an area, i.e., how many birds can be supported with food and resting sites for how long. Use-days are the product of the average the number of birds counted between two counts multiplied by the number of days between those counts. For example, first count has 1,000 birds, second count eight days later has 2000 birds (1500 x 8 = 12,000 use-days). Between 1997 and 2004, most of the annual use-days occurred in four of 12 Pools on the Refuge (Pools 7, 8, 9,

Figure 13: Average Tundra Swan and Canada Goose Use-days by Pool, 1997-2002, Upper Mississippi River Refuge



and 13). These pools total 91,143 acres, or 38 percent of the entire Refuge, but have over 80 percent of the total waterfowl use-days over the past 8 years. On average, 86 percent of the puddle duck use-days were in these four pools, as were 98 percent of the diving duck, 81 percent of the Canada Goose, and 87 percent of the Tundra Swan use-days .

This uneven distribution is attributed to the presence or absence of abundant food resources that occur in areas with reduced levels of human disturbance (closed areas). Optimal conditions occur best in Pools 7, 8, 9, and 13 and are nearly absent in other Pools. Management intends to achieve a more even distribution by enhancing habitat conditions and minimizing human disturbance factors for all waterfowl groups throughout the Refuge.

If habitat quality and levels of protection were similar in all Refuge pools, waterfowl distribution would continue to be somewhat uneven along the Refuge because of inherent differences in size, geomorphology, and hydrology among the pools. However, a more optimal distribution is possible if carrying capacity and habitat security are improved in pools up and downstream of Pools 7, 8, and 9.

It is widely understood that human disturbance of waterfowl on the breeding grounds can be detrimental to production of young birds. Human disturbance of migrating waterfowl can "have dramatic effects on the bird's energy balance" (Korschgen et al., 1985) and influence survival and production of young in subsequent years. The better the quality of habitat, with no disturbance, the quicker birds replenish fat reserves during migration.

Four major categories of human disturbance have varying impacts on waterfowl (Korschgen and Dahlgren, 1992). These factors, listed in order of decreasing disturbance, include "rapid over water movement with loud noise (power boats, airboats, low-flying airplanes, and helicopters), over water movement with little noise (sail boats, canoes, kayaks), little overwater movement or noise (wading or swimming), and shoreline activities (bank fishing, birdwatching, hiking, car traffic)." Raptors and mammals (Bald Eagles, raccoon) can also disturb waterfowl.

The "closed area" system on the Refuge attempts to provide reduced disturbance to waterfowl within an established area via the following closed area regulations:

> "closed to all migratory bird hunting; other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons."

Complete sanctuary conditions do not occur in Refuge closed areas with one exception, Spring Lake on Pool 13, because public entry is allowed for other purposes, including recreational boating, angling and commercial fishing.

Upon establishment of the Refuge in 1924, the entire Refuge was closed to entry. Soon, in the 1930s, the Refuge was open to hunting except for 20 closed areas, totaling 34,150 acres (see Appendix Q). Closed areas were on U.S. Fish and Wildlife Service fee-title lands only and did not have easily recognizable boundaries, nor did they protect the best habitats for migrating waterfowl. Actually, these early closed areas were put in place for reasons of management convenience more so than meeting needs of migrating waterfowl. Eventually, modifications were made in 1957-58 to include 14 units, covering 41,600 acres. At the time of establishment, these closed areas were all quite functional in harboring birds because they had adequate habitat and successfully reduced impacts of hunting and other disturbance factors. These closed areas continue to provide core elements of the existing system of 15 areas (14 closed areas and one sanctuary) that total 44,544 acres.

Over the years, boundary adjustments have been made which have reduced the size of many closed areas. An exception is the Trempealeau National Wildlife Refuge which has increased from about 700 acres in 1957 to nearly 6,226 acres today. One new closed area, the Pool Slough Closed Area, became operational on Pool 9 in 2003. About 1,100 acres of this 1,350-acre closed area are located on the Refuge. The Iowa Department of Natural Resources owns the remaining acres and has designated the site a waterfowl refuge and closed to all trespass from September 15 through December 25, then open to hunting and trapping.

In the 45 year interval since 1957, changes have occurred within the closed area system so that not all closed areas are functioning as intended. Changes include habitat loss and associated amount of available food, waterfowl population changes, dominant species present, and extent and type of public use. This imbalance in closed area ecology has contributed to the uneven distribution of waterfowl on the Refuge as noted in the discussion above. For example, Canvasback use has greatly increased in some closed areas and “open” areas of Pools 7, 8 and 9, but declined precipitously in others due to habitat losses and possible disturbance factors. The extensive loss of shallow- and deep-water marshes of the Refuge, both within and outside closed areas has resulted in declines in puddle duck use of the Refuge.

Canvasback Ducks, USFWS

A key factor influencing waterfowl distribution and use of closed areas is carrying capacity, or the amount of available food for waterfowl, such as plant seeds and tubers and fingernail clams and mayflies. This carrying capacity component “is probably the most important variable for evaluating criteria for managing waterfowl closed areas” (Kenow, et al. 2003). The availability of plant food resources has been assessed for various aquatic, marsh, and wet meadow plant communities in Pools 7 and 8 (Kenow, et al. 2003). Kenow acquired seeds and tubers from 9 selected vegetation types within Pools 7 and 8 to generate production estimates for each type. These estimates were then extrapolated to the larger Upper Mississippi River landscape using a GIS application model. Plant food production is expressed in terms of gross energy value to

waterfowl. The investigators note that plant food productivity estimates are inherently variable. Consequently, production variance estimates are large and need be considered when using extrapolated production estimates.

Tuber production, primarily from arrowheads and wild celery, provided the most significant contribution to overall gross plant food energy available to waterfowl. Arrowheads are found primarily in deep marsh perennial vegetation types, while wild celery occurs in submerged vegetation types.

Slivinski (2004) conducted a GIS analysis (based on year 2000 photography) of the potential waterfowl carrying capacity for the entire Refuge, and for existing and proposed closed areas within the Refuge. Refuge-wide, total gross energy available in eight vegetative types was calculated to be 66.2 billion kilocalories. If all that energy were present in just wild rice, it would equal 33.2 million pounds of wild rice; if it were all arrowhead tubers it would equal 45.6 million pounds of tubers. The actual usable (metabolizable) energy for seed and tuber resources are about one half to three fourths of the gross energy values, depending on the plant species. Variations in plant species, growing conditions, availability, human disturbance, and weather are important factors in determining the number of birds that might utilize this energy source on the Refuge.

A disproportionately high amount (63 percent) of this total energy source occurs in Pools 7, 8 and 9 and is an important factor in accounting for the uneven distribution of waterfowl using the Refuge during the fall migration (refer to discussion above). This GIS investigation shows that the presence (or addition) of deep marsh perennial and submerged vegetation types, along with the shallow marsh perennial type, is crucial to the improvement of the carrying capacity for waterfowl in the Refuge's closed area system.

Existing closed areas now encompass approximately 20 percent of the total energy present in eight vegetation types studied (Table 10). This analysis did not include forest cover types, to which future investigations should be directed. Results of total energy comparisons made of proposed closed area configurations under each alternative are presented in Objective 4.2 in Chapter 2. The entire report and appendices are posted on the Region 3 planning web site http://midwest.fws.gov/planning/uppermiss/index.html.

Table 10 shows estimates of waterfowl food plant production (gross energy) in closed areas on Pools 4-14 of the Upper Mississippi River under four alternative closed area configurations. The table is an energetics summary comparing alternatives to the existing Refuge closed area (Slivinski, 2004). Since Alternative E was developed after Slivinski's report, it is not included in the table. However, Alternative E values would be similar to Alternative D since the core areas changed little in Alternative E.

Waterfowl managers and biologists have identified the need for refuges to be placed along migration corridors at intervals that provide secure habitat in the form of "stepping stones" or "a string of pearls." One factor used in selecting refuge or closed area locations along the corridor is the flight distance various waterfowl species will take in order to roost and/or find food free from disturbance. In general, puddle ducks fly shorter distances (Wood Ducks 1 mile; Black Ducks 4 miles; Mallards 4-25 miles; and Pintails 12-30 miles), while Canvasbacks, a diver, will fly up to 24 miles. We have a double management challenge in this regard because some of the existing Refuge closed areas are 37 to 46 miles apart, while others are 4-16 miles distant, but have minimal waterfowl use because food resources are inadequate and/or human disturbance factors are present.

In 1978, and again in the early 1980s, river biologists and managers made three assessments of the existing closed area system in regards to its functionality in holding birds for feeding and resting, as well as providing hunting opportunities. The Wildlife Technical Committee of the Upper Mississippi

Table 10: Estimated Waterfowl Food Plant Energy Production in Closed Areas on Pools 4-14 Under Four Alternatives, Upper Mississippi River Refuge[1]

Selected Land Cover Types	Refuge		Alternative A Closed Areas		Alternative B Closed Areas			Alternative C Closed Areas			Alternative D Closed Areas		
	Total Area (Acres)	Plant Food Energy (million Kcal)	Total Area (Acres)	Plant Food Energy (million Kcal)	Total Area (Acres)	Plant Food Energy (million Kcal)	Percent Change from Alt. A	Total Area (Acres)	Plant Food Energy (million Kcal)	Percent Change From Alt. A	Total Area (Acres)	Plant Food Energy (million Kcal)	Percent Change From Alt. A
Deep Marsh Annual	482	300	280	174	280	170	0%	280	174	0%	240	150	-14%
Deep Marsh Perennial	5,496	39,606	852	6,142	1,431	10,313	68 %	863	6,222	1%	1,119	8,064	31%
Open Water	95,734	1,110	18,771	218	22,819	265	22%	18,823	218	0%	18,777	218	0%
Rooted Floating Aquatic	19,091	4,051	3,957	840	5,743	1,219	45%	3,984	845	1%	4,428	940	12%
Shallow Marsh Perennial	11,354	5,112	1,202	541	2,579	1,161	115%	1,192	537	-1%	1,534	691	28%
Sub-merged Vegeta-tion	20,978	14,801	7,659	5,404	9,009	6,356	18%	7,649	5,396	0%	7,937	5,600	4%
Wet Meadow	10,586	1,237	1,281	150	1,770	207	38%	1,292	151	1%	1,280	150	0%
Other Cover	70,112	0	9.968	0	16,846	0		10,008	0		8,506	0	
Total	234,327	66,127	43,970	13,625	60,476	19,694	45%	44,091	13,701	1%	43,821	15,811	16%

1. Acreage values were made at the time of the Slivinski study (2004); values shown in Table 5 are current and correct.

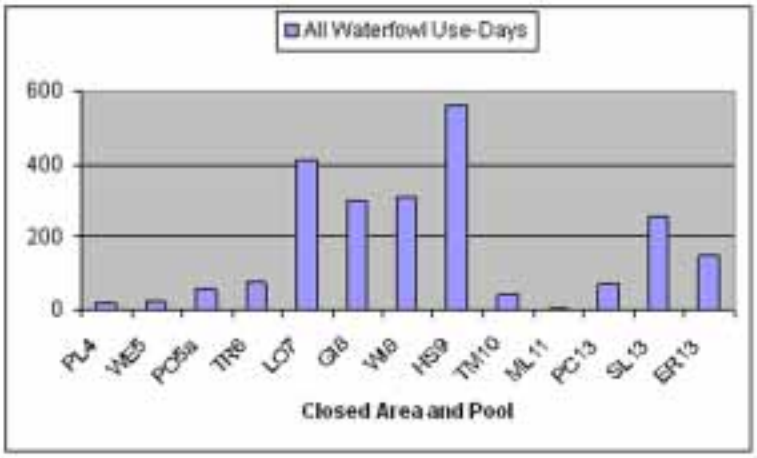
River Conservation Committee proposed changes in reports completed in 1978 and 1985. The committee recommended changes to closed areas in Pools 4, 5A, 8, 9, 10, 13, and 14, but none were implemented.

Further considerations were made to modify closed areas during early stages of preparing the Refuge's 1987 Master Plan (USFWS, 1987). At that point, two new options were drafted to increase the number of acres of closed areas, but no closed area changes were included in the final Master Plan. Instead, the Plan recommended to delay any changes, pending completion of closed area studies about impacts of recreation on waterfowl concentrations and the effectiveness of voluntary waterfowl avoidance areas.

A voluntary waterfowl avoidance area (VWAA) was established, in cooperation with state and local governments and conservation organizations, on Lake Onalaska in Pool 7 in 1986 to reduce boating disturbance to waterfowl within the existing closed area. Studies on boater compliance were conducted in 1993 and 1997 (Kenow et al., 2003a). Despite a 60 percent increase in boating traffic from 1986 to 1997, lake-wide disturbance rates were comparable to 1981 levels. Investigators reported that about one third of the observed intrusions in the VWAA were by anglers and commercial fisherman. The avoidance areas contributed to the value of Lake Onalaska as a waterfowl refuge and demonstrated an effective collaboration among government agencies and non-government organizations. Further studies of the Lake Onalaska VWAA in the fall of 2004 revealed similar trends in boating activity and disturbance rates (Kenow et al., 2005).

In some areas, waterfowl hunters concentrate along sections of closed area boundaries. The quality of the hunting experience may be lessened in areas where this occurs as waterfowlers compete for prime locations. Other characteristics of these "firing line" conditions include crowding and excessive "skybusting", which can result in an increase in the number of un-retrieved birds.

Figure 14: Average Number of Duck-use-days per Acre of Closed Area, 2000-2003, Upper Mississippi River Refuge[1]



1.Abbreviations: PL = Peterson Lake, WE = Weaver Bottoms, PO = Polander Lake, TR = Trempealeau NWR, LO = Lake Onalaska, GI = Goose Island, WI = Wisconsin Islands, HS = Harpers Slough, TM = Twelve Mile Island, ML = McCartney Lake, PC = Pleasant Creek, SL = Spring Lake, EL = Elk River. Data based on aerial surveys, except ground surveys at TR.

On a continental scale, the Refuge is a key component of the Upper Mississippi River and Great Lakes Region Joint Venture of the North American Waterfowl Management Plan. The continental plan seeks to restore waterfowl populations to levels observed in the 1970s. The goal of the Joint Venture is to increase populations by habitat enhancement in the area, which includes Wisconsin, Michigan, and parts of Minnesota, Iowa, Illinois, and Indiana. Population objectives are set at 1,542,000 breeding ducks and 773 million duck use-days during fall migration. The goals will contribute to the continental goals of 62 million breeding ducks and 100 million ducks in the fall flight.

Recent fall migration counts reveal a peak in 1998 of nearly 33 million use-days on surveyed areas of the Refuge; more recent years range between 12 and 16 million use days. Joint Venture goals for carrying capacities of fall migration habitat are 500 duck use-day per acre in states with mid-migration habitat (in Illinois) and 200 duck use-days per acre in habitats within production focus areas (Iowa, Minnesota, and Wisconsin).

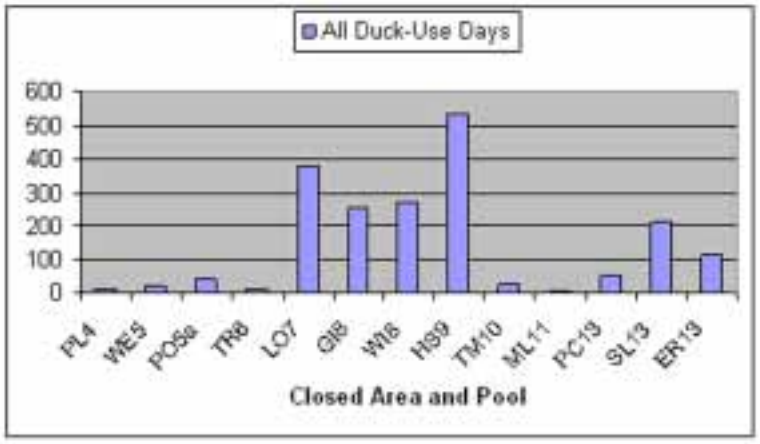
Refuge closed areas secured an average of 48 to 73 percent of the duck use-days for the period 2000-03. The closed areas of Pools 7, 8, 9 and 13 exceeded the 200 duck use-day per acre goal for divers, but puddle duck goals were met only in the Goose Island closed area of Pool 8 (Figure 14, Figure 15, and Figure 16). Harpers Slough closed area of Pool 9 was the only closed area of the Refuge to exceed the 500 duck use-day per acre goal for waterfowl, in this case it was met for diving ducks.

3.2.8 Other Migratory Birds

3.2.8.1 Songbirds

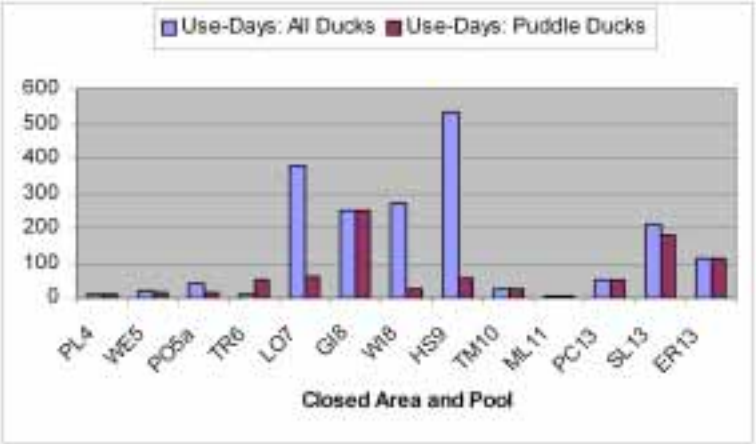
Songbirds include a wide array of landbirds such as hummingbirds and woodpeckers, as well as the large order of birds called passerines or “perching” birds. Passerines comprise more than half the world’s species of birds and all have a perching foot that includes three toes forward and one toe

Figure 15: Average Number of Waterfowl (Ducks, Geese, and Swans) Use-days per Acre of Closed Area, 2000-2003, Upper Mississippi River Refuge[1]



1.Abbreviations: PL = Peterson Lake, WE = Weaver Bottoms, PO = Polander Lake, TR = Trempealeau NWR, LO = Lake Onalaska, GI = Goose Island, WI = Wisconsin Islands, HS = Harpers Slough, TM = Twelve Mile Island, ML = McCartney Lake, PC = Pleasant Creek, SL = Spring Lake, EL = Elk River. Data based on aerial surveys, except ground surveys at TR.

Figure 16: Puddle Duck Portion of the Average Number of Duck Use-days per Acre of Closed Area, 2000-2003, Upper Mississippi River Refuge[1]

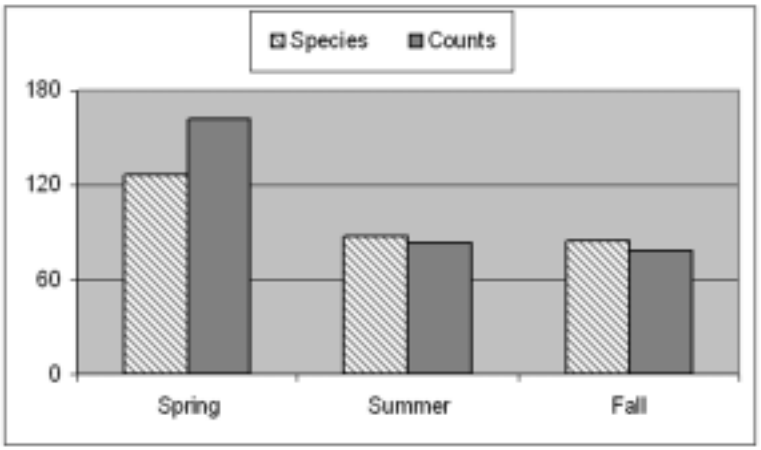


1.Abbreviations: PL = Peterson Lake, WE = Weaver Bottoms, PO = Polander Lake, TR = Trempealeau NWR, LO = Lake Onalaska, GI = Goose Island, WI = Wisconsin Islands, HS = Harpers Slough, TM = Twelve Mile Island, ML = McCartney Lake, PC = Pleasant Creek, SL = Spring Lake, EL = Elk River. Data based on aerial surveys, except ground surveys at TR.

backward. They range in size from wrens to ravens. Many passerines eat insects as well as fruit, and include flycatchers, shrikes, vireos, crows, jays, chickadees, nuthatches, tanagers, cardinals, sparrows, and finches.

Prior to the 20th century, songbirds were abundant beyond our imaginations. However, in the last 75 years scientists have documented declines in many songbird species (Terborgh, 1989; Finch, 1991), particularly the "neotropical migrants," those that breed in North America and overwinter in the

Figure 17: Average Number of Bird Species Observed and Number of Counts Conducted,1994-99, Upper Mississippi River Refuge



neotropics of Mexico, Central and South America and the Caribbean. Habitat loss here and there is the main culprit. Nonetheless, the Refuge still provides a vital migration corridor for songbirds, many of which fly thousands of miles each year between Central and South America and the United States and Canada. We estimate that millions of birds migrate through the area each year. Volunteer "birders" and researchers have documented over 160 species of songbirds, including 32 species of warblers, on the Refuge. "Point count" surveys (Ralph, et al., 1993) have detected a total of 199 species of birds on the Refuge. During the period 1994-2003, observers conducted an average of 323 counts per year. The surveys reveal an average of about 120 species during spring migration (the first two weeks of May are the Refuge's peak spring migration dates), and about 80 species of summer nesting residents (Figure 17). Nesters include the American Robin, Downy Woodpecker, Great-crested Flycatcher, Prothonotary Warbler, Tree Swallow, Yellow-headed Blackbird, Belted Kingfisher, Northern Cardinal, Brown Creeper, and the rare Cerulean Warbler.

The Refuge is developing a cooperative project with U.S. Geological Survey, Upper Midwest Environmental Sciences Center, La Crosse, Wisconsin to analyze the songbird point count data in terms of bird habitat associations and seasonal abundance. Population trend analysis is pending.

The U.S. Fish and Wildlife Service and various conservation organizations have identified several bird species of management concern that occur on the Refuge (see Appendix K for a complete bird list). Five of seven species singled out for priority work by Partners in Flight in its Bird Conservation Plan for Physiographic Region 16 (in which most of the Refuge occurs) are found on or adjacent to the Refuge (Knutson et al., 2001). Some use the Refuge only in migration, others nest there (Table 11).

The U.S. Fish and Wildlife Service's Region 3 identified 26 songbirds as Regional Conservation Priority (RCP) species that occur on the Refuge (Appendix K, bird list).

American Bird Conservancy (ABC), a not-for-profit organization, whose mission is to conserve wild birds and their habitats throughout the Americas, produces a "Green List" that contains all the highest priority birds for conservation in the continental United States and Canada (American Bird Conservancy, 2004). This list builds on the Partners in Flight assessments and expands the list to all taxa and divides it into three broad categories. The Highest Continental Concern birds suffer multiple problems and include federally listed threatened and endangered species. The only two species of this category on the Refuge are the Golden-winged Warbler, seen in migration, and the

Table 11: Partners in Flight, Physiographic Region 16 Priority Bird Species Found on Upper Mississippi River Refuge Including Seasonal Occurrence and Habitat Associations.

Species	Habitat Association[1]					
	Bottomland Forest	Emergent Wetland	Mixed Wetland - Upland	Prairie	Upland Forest / Bluff	Wet Meadow
Sedge Wren		1,2,3	2	1,2		1,2,3
Golden-wing Warbler	1,		1,	1, 2	1	
Cerulean Warbler	1, 2, 3		1		1, 2	
Black-billed Cuckoo	1, 2	2, 3	2	2	1, 2	
Red-headed Woodpecker	1, 2, 3	1,2, 3	1,2, 3	1, 2, 3	1, 2, 3	

1. 1 = spring migrant; 2 = summer (potential nesters), 3 = autumn migrant

Whooping Crane, recently observed in Refuge floodplain wetlands. The cranes are part of an experimental flock released at Necedah National Wildlife Refuge in central Wisconsin, over the past 3 years.

The second American Bird Conservancy category, Moderately Abundant Species with Declines or High Threats lists birds with relatively high numbers but are declining at an alarming rate. Of this group (see Appendix K, bird list), the Refuge harbors 32 species of waterbirds, shorebirds, woodpeckers, warblers, and blackbirds.

The Blue-winged Warbler is the only bird that occurs on the Refuge that is included in American Bird Conservancy's third category, Species with Restricted Distributions or Low Population Size, a group with populations stable and threats apparently limited, but are limited in number or range.

American Bird Conservancy also designates Important Bird Areas that are exceptionally important and essential for bird conservation (American Bird Conservancy, 2004). The goal of the Important Bird Areas program is not just to recognize the sites as important, but also to mobilize the resources needed to protect them. One-third of the areas are on national wildlife refuges.

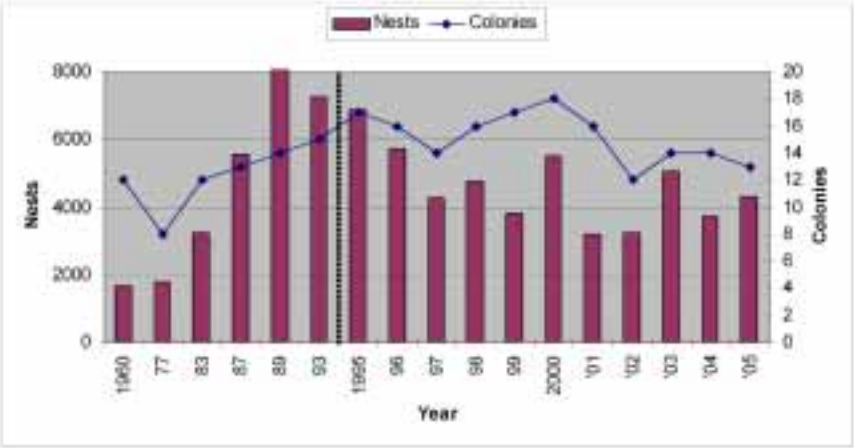
American Bird Conservancy designated the Upper Mississippi River Refuge a Globally-Important Bird Area in 1997 because it had, at that time, over 70 breeding pairs of Bald Eagles, which was over 1 percent of the United States breeding population; greater than 16,900 Tundra Swans, over 20 percent of the eastern population; and greater than 136,000 Canvasbacks, also over 20 percent of the world's population. Numbers of eagle pairs, swans and Canvasback have been significantly larger in the over the past 5 years. In addition, the Refuge had over 5,700 pairs of Great Blue Herons, concentrations of nesting neotropical migrants, and 78,500 hectares (200,000 acres) of wetlands.

3.2.8.2 Colonial Nesting Birds

Colonial nesters on the Refuge include species that nest on floating mats of aquatic vegetation, such as the Black Tern, and tree-nesting species, including Great Blue Herons, Double-crested Cormorants, Great Egrets, and Green Herons. The later species nest in small trees and shrubs throughout the Refuge, but little is known of their nesting status.

The herons, egrets and cormorants utilize floodplain forest trees (usually silver maple, cottonwood, or swamp white oak) in colonies (rookeries) containing 15 to 1,000 nests. Colonies are often on

Figure 18: Number of Colonies and Number of Nests of Great Blue Herons on the Upper Mississippi River Refuge, Selected Years 1960-2005.



islands and/or located in the upper third of the pools where forests are most extensive. Maintenance of the floodplain forest is crucial to sustaining these tree-nesting birds.

A few colonies have been active for 15 or more years. Many colonies are abandoned within a few years and new ones show up taking their places. Great Blue Herons will generally feed near their colony within the floodplain and do not venture near other colonies (Dr. C. Custer, USGS, La Crosse, Wisconsin, personal communication). There are between 12 and 16 Great Blue Heron colonies on the Refuge, supporting a total of about 5,000 nests (Figure 18). In the 1960s there were only about 2,000 nests, but expanded to peak numbers of over 8,000 nest in 1989. The average number of nests between 1999 and 2005 was about 4,100.

Double-crested Cormorants nest in single-species colonies or in colonies shared with Great Blue Herons and Great Egrets. The Refuge's largest concentration of nesting Cormorants occurs on two adjacent islands in lower Pool 13 where more than 1,000 nests have been counted. These islands had only 16 Great Blue Heron nests present in 2003 and 2004. In the remainder of the Refuge, Cormorant nests comprise less than 20 percent of all nests in three or four colonies dominated by Great Blue Herons. Double-crested Cormorants migrate and stage along the Upper Mississippi River where up to 90,000 were observed in the 1940s. Recent counts reveal about 5,000 Cormorants staging on the Refuge in the fall. This species is on the Regional Resources Conservation Priority list.

Great Egrets occur in three to five colonies dominated by Great Blue Herons on the Refuge, with a total of 90 to 400 nests present over the past 3 years. Great Egrets were rarely seen on the Refuge prior to the 1950s.

Black Terns prefer shallow-water marsh and backwater lake habitat with sparse emergent vegetation that consists of water lily, burreed, or bulrush. Dense cattail stands are avoided. Breeding habitat is variable within backwaters and the birds do not necessarily nest in the same area each year but utilize available sparsely vegetated sites. Water level is an important factor, with high water delaying or ending breeding seasons, low water facilitating access to tern colonies by predators. Terns are often in areas generally inaccessible to boaters, except airboats. Custer et al. (1998) indicated that a proposed pool-wide drawdown in Pool 8 could have a detrimental affect on nesting birds but could also enhance wetland habitat for Black Terns. Faber (1992) surveyed Black Terns

Pools 4, 5, 6, 7 and 8 and found variable nest success at 7 colonies, influenced by high water and possible mammalian predators, ranging from 0 to 67 percent hatching success. The Black Tern is on the Regional Resource Conservation Priority list.

The American White Pelican is a relatively new, but common, visitor to the Refuge in spring, summer and fall. The bird does not nest on the Refuge. The closest nesting colonies are in western Minnesota (Marsh Lake) and east-central Wisconsin (Horicon National Wildlife Refuge). Large numbers (less than 100) of pelicans first showed up on the Refuge in the early 1980s, with sudden build-ups of more than 1,000 in the mid-1980s. This increase in numbers coincides with a continental increase following the ban on DDT and other pesticides in 1972. The pelican joined other species that are high on the food chain (Bald Eagle, Peregrine Falcon, Great Blue Herons, and Double-crested Cormorants) in making a strong population recovery.

Great Blue Heron. Copyright by Sandra Lines

Seasonal aerial and ground surveys since 1994 reveal that flocks ranging from 2 to 600 birds occur at many locations throughout the Refuge (and adjacent Trempealeau National Wildlife Refuge) spring, summer and fall. Refuge-wide, total numbers in the summer have reached nearly 1,500 birds. Aerial survey fall counts peak in late September or early October and have ranged from 442 birds in 1994 to 3,222 in 2001. Prior to 2000, pelicans had departed the Refuge by November 11; since then birds have remained until late November.

While no nesting occurs on the Refuge it is anticipated that pelicans may nest there in the future. Breeders might originate from the western Minnesota colonies, therefore, Refuge staff have color-marked nearly 1,000 flightless young birds at Marsh Lake between 1999 and 2002. Four observations of these color-marked (pink, numbered patagial tags) pelicans have been made on the Refuge and Trempealeau National Wildlife Refuge since then.

The public has indicated a concern that pelicans (as well as Double-crested Cormorants) are consuming game fish or competing with game fish for food. Food habitat studies, which require the collection of birds for stomach analysis, have not been conducted. However, cursory fish sampling in Pools 5 and 7 in 1997 indicated that primarily gizzard shad and shiner minnows were present in areas where pelicans were actively feeding. A few individuals of game fish were also present.

3.2.8.3 Secretive Marsh Birds

Secretive marsh birds include bitterns and rails that utilize wet meadow and emergent wetland habitats, both of which are declining on the Refuge. Surveys (tape play-backs) conducted during the breeding season, 1994-1999, show that Virginia Rails comprise 70 percent of the secretive marsh birds detected, followed by Sora (20 percent), Least Bittern (7 percent), and American Bittern (2 percent). More recent surveys show that Virginia Rails and Soras have about equal detectability, and the bitterns remain uncommon. The two bittern species are on the Regional Resource Conservation Priority list.

3.2.8.4 Raptors

Raptors are birds of prey that include vultures, hawks, and eagles. Several species nest on the Refuge and more migrate along the Mississippi River Corridor. The Refuge supports approximately 160 nesting pairs of Bald Eagles (see Endangered Species section), 30 Red-shouldered Hawk pairs, and probably less than 10 Osprey nest sites.

Red-shouldered Hawk breeding populations in the midwestern states have declined since the 1960s. The floodplain of the Upper Mississippi River provides habitat for nesting Red-shouldered Hawks. Nest territories on the Upper Mississippi River floodplain typically are in blocks of mature timber greater than 500 acres in size (nests may be found on the edges of the blocks), include both floodplain and upland slope forest types within the tract, are within 200 yards of ponds or small streams, and are greater than 500 yards from the main channel (Stravers and McKay, 1994). These investigators recommended to restrict logging in nesting areas, avoid fragmentation of large forest tracts, allow some thinning of younger forest stands to assist in development of overhead canopy cover, and combat invasion of reed canary grass that might inhibit growth of cottonwood and silver maple.
The fall raptor migration along the river corridor has been monitored along the bluffs adjacent to Pools 4, 5A, 8, 10 and 13. Migration data can be used to monitor raptor populations but surveys on the Upper Mississippi River are inadequate to reflect population trends in the Midwest. In the mid-1990s, observers at Eagle Valley Nature Preserve, Glen Haven, Wisconsin, (on bluffs overlooking Lock & Dam 10), documented between 14,600 and 30,700 raptors, of 17 species, during standard observation periods (Mandernack, et al. 1997). Peak daily counts totaled over 1,000 individuals on three different occasions. Four species comprised 87 percent of the count in 1996: Bald Eagle, Broad-winged Hawk, Sharp-shinned Hawk and Red-tailed Hawk. The majority of the migration occurs from mid-September to mid-October.

The Bald Eagle, Northern Goshawk, Red-shouldered Hawk, and Peregrine Falcon occur on the Refuge and are on the Regional Resource Conservation Priority list.

3.2.9 Fish

The Refuge supports at least 119 species of fish, including sport fish (a $250 million industry river-wide), commercial fish (a $5 million industry), forage fish (gizzard shad, minnows and other small fish on which predatory fish feed), ancient fish (paddlefish and sturgeon), and many other unique species that make the river's fishery so diverse (Gutreuter and Theiling, 1999). Populations of at least 41 fish species are in such poor shape that they are listed as threatened or of concern by state or federal agencies along the Upper Mississippi River (see Appendix K). Loss of habitat, the navigation system, over-exploitation, and impacts of exotic species (see discussion below) are the main causes. Pools 4, 8 and 13 each support 55 to 80 species of fish, as determined from recent surveys.

Unlike most Refuges, Congress established the Upper Mississippi River Refuge (1924) for both fish and wildlife, not just wildlife as in most cases. Specific concern was noticed over fish being stranded due to low water conditions (see discussion below), the lack of habitat for black bass (largemouth bass), and prospects of converting the floodplain to agriculture. During this period prior to locks and dams, the river was free flowing and fish migrated north and south. The most prevalent fish were species adapted to river flow, such as walleye, skip-jack herring, paddlefish, sturgeon, and catfish. Buffalo fish and catfish were primary commercial fish at the time.

Species that required ponded, slack-water habitats, such as bass, northern pike and sunfish were present but not as common. Unfortunately, the northerns and bass would get stranded when floodplain ponds dried up in the summer. In fact, a major function of the Refuge in the 1920s was to "rescue" these fish, sometimes netting hundreds of thousands of pounds, some shipped by train across the country, others released in area lakes and rivers. With construction of the locks and dams, flooding solved the stranding problem and since then backwater fish have become abundant.

3.2.9.1 Sport Fish

Favorite sport fish on the Refuge include walleye, sauger, white bass, largemouth bass, smallmouth bass, channel catfish, northern pike, bluegill, and crappies. Fishing tournaments are ever-increasing and may put extra pressure on local fish populations. The following fish species accounts are largely based upon data supplied in the Upper Mississippi River Conservation Committee's Fisheries Compendium, Third Edition (UMRCC, 2004a).

Walleye populations flourish in the Upper Mississippi River due to high quality habitat meeting life requirements. Recent creel surveys show they rank third in harvest behind white bass and sauger in Pool 4. A 15-inch length limit, implemented in 1990, has increased harvest weights by 50 percent on Pools 11 and 13, as well as catch rates. Upper Mississippi River Conservation Committee biologists concluded in the 2004 report that a continuous open season on walleye should continue on the Upper Mississippi River while agencies continue to monitor population trends. Similar conclusions were made concerning sauger populations on the Upper Mississippi River.

Summer creel surveys of white bass in Pools 11 and 13 from 1993 to 2000 showed the species ranked from third to seventh in the annual numerical harvest. On the Upper Mississippi River, creel limits are liberal, as over-harvest does not appear to be a problem.

Prior to locks and dams, prime smallmouth bass fishing grounds were found between Wabasha and Minneapolis, Minnesota, and near Lansing, Iowa. Presently, smallmouth bass populations in Pools 1-14 are increasing and are a significant component of the fishery. This species is prominent in bass tournaments. For example, Minnesota's records of four tournaments held between 1996 and 2000, show that all the largest fish were smallies (20 to 21.5 inches long) and 66 to 85 percent of the bass caught were also smallmouths. The public is showing interest in managing this species separate from largemouth bass (UMRCC, 2004a).

Recent creel surveys show that largemouth bass ranked second to fifth in numeric harvest in backwater complexes of the Upper Mississippi River. This species is the number one preference of anglers fishing in backwater habitats. Catch and release has become a common practice; of 19,000 largemouths caught by interviewed anglers, 87 percent were released. Largemouth bass are intensively managed by state agencies. In 1991, a 14-inch minimum limit was established. "Under present conditions, it appears that largemouth bass are not being over-harvested, except possibly during winter where bass are concentrated in over-wintering areas and are subject to high angling pressure. Harvest regulations between adjoining states should attempt to be uniform if possible" (UMRCC, 2004a).

Bluegills are the number one harvested fish species of the Upper Mississippi River backwaters. Loss of suitable spawning and over-wintering backwaters due to sedimentation poses the most serious threat to bluegill survival. Overwinter survival is directly related to sufficient oxygen level and sufficient water depth to maintain ingress and egress under thick ice and snow cover. Preferred winter habitat for bluegill on the Upper Mississippi River contains depths in excess of 3 feet, temperatures above 34.7 degrees Fahrenheit, and no continuous flow (UMRCC, 2004a). Quality sized bluegill (> 7 inches) in Pool 5 and 5A backwaters experienced over 80 percent percent winter angling exploitation in 1997-98. Bluegills are very prolific and therefore have few harvest restrictions, although there is a 25 bag limit on the Minnesota-Wisconsin border waters. Minnesota has an experimental bag limit of 10 fish daily on the Minnesota side of Pools 5, 5A, and 8. The lack of uniform regulations between states has created recurrent controversy between anglers and biologists in areas where restrictive bag limits exist (UMRCC, 2004a). Bluegills are an important prey species for flathead catfish, largemouth bass, and bowfin. They are host to 14 species of mussels found in the Upper Mississippi River.

Recent creel surveys of various pools of the Upper Mississippi River show that crappies ranked as one of the top two most harvested sport fish. Data from 1990-1997 reveal abundance is variable and no observable trend in population. No new changes in regulations of crappie harvest are recommended at this time (UMRCC, 2004a).

3.2.9.2 Other Fish

Paddlefish

The paddlefish is one of the ancient fish of the Upper Mississippi River and is distinguished from all other fish by its broad, flat bill-like snout. It may weigh up to 90 pounds. They spawn in flowing water. People consume paddlefish meat and roe (caviar). The worldwide protection of sturgeon species in 1998 is expected to have a dramatic impact on commercial paddlefish harvest by creating a greater demand for paddlefish caviar as a surrogate to sturgeon roe. It has declined throughout its range due to habitat loss and over-harvest. Its northern-most range on the Upper Mississippi River is in the Minnesota – Wisconsin border area. They migrate along the Upper Mississippi River and will move between pools, usually over dams in high water. They feed on plankton in both fast flowing main channel areas and in the backwaters. Competition from invasive species such as silver and big head carp, plankton eaters, is a potential serious threat to paddlefish if these species move up the Upper Mississippi River (UMRCC, 2004a). Paddlefish are a protected species in Minnesota and Wisconsin.

Sturgeon

Included in the list of "ancient species" three kinds of sturgeon inhabit the Upper Mississippi River: the lake, pallid and shovelnose. These species date back to 50 million years ago. The pallid sturgeon is endangered and occurs in waters well south of the Refuge. Lake and shovelnose are rare or uncommon in most Refuge waters, but the shovelnose can be an important commercial species in some areas.

The shovelnose feeds on aquatic insects and fish, and grows to about 24 inches. They spawn on gravel in fast flowing water. They are harvested for their meat and roe. Shovelnose populations are limited due to over-harvest, habitat degradation, and water pollution of the last century. Flow alteration and habitat fragmentation by dams has jeopardized the long term health of the species. However, present commercial harvest of sturgeon on the Upper Mississippi River does not appear to be affecting shovelnose. The shovelnose is the host to three species of mussels and is the only known host of the hickorynut mussel, which inhabits water of 3.9-5.9 feet deep over sand or gravel in good current. This coincides with shovelnose sturgeon habitat (UMRCC, 2004a).

A framework for the management of paddlefish and sturgeon in the United States was developed under the auspices of the U.S. Fish and Wildlife Service, National Paddlefish and Sturgeon Steering Committee. Eleven management recommendations were made but little funding is available to address these issues. Sturgeon management on the Upper Mississippi River should focus on: 1) structural habitat features, 2) alterations of flow variability necessary to maintain and enhance natural and manmade habitat, 3) harvest restrictions, and 4) supplementation of population numbers through aquaculture (UMRCC, 2004a).

Invasive Fish

See Section 3.2.12.1 on page 256 for a discussion of invasive fish species.

3.2.9.3 Fish Passage

Fish that migrate in rivers are classified as potamodromous. There are at least 34 species of fish that migrate on the Upper Mississippi River, some of which include: paddlefish, sturgeon, gar, skipjack herring, suckers, redhorse, channel catfish, flathead catfish, northern pike, white bass, largemouth bass, smallmouth bass, walleye, sauger and freshwater drum.

Locks and dams disrupt the ecological integrity of the river systems and have been implicated in the decline of numerous fish species (UMRCC, 2004a). These structures restrict upstream movement of fish, alter migration behavior, and impede access to foraging habitat and wintering areas. The Upper Mississippi River System dams create a head and current velocity that exceeds the swimming speed (about 1-4 feet per second.) of most fish known to migrate in the Upper Mississippi River. Current velocities are sufficiently low when the dam gates are out of the water during high discharge conditions to allow some fish to move upstream.

Fish passage can be enhanced with modifications to operation of the dam gates, locking fish through a dam similar to boat lockage, modifying water level management plans (to allow longer periods of open river conditions), and modifying the lock filling and emptying system. Structural alternatives include Denil fishways, fish elevators, and bypass channels. It is recommended that if fishways are selected they first be done on an experimental basis and selected on physical, biological, and economic factors, and in the interest of management partners (UMRCC, 2004a).

3.2.10 Freshwater Mussels

There are 297 species of freshwater mussels in North America. About 50 species have been recorded on the mainstem of the Upper Mississippi River. A recently completed Conservation Plan for Freshwater Mussels of the Upper Mississippi River System (UMRCC, 2004b) says that "no other group of animals in North America is in such grave danger" of population declines and extinctions. In North America, it is estimated that 55 percent of the freshwater mussel species are in danger of extinction and only 25 percent are considered stable. Over-exploitation, water pollution and habitat alteration are responsible.

Prior to the 1800s, an estimated 44 species occurred on the Refuge portion of the Upper Mississippi River. Since then, five species have been extirpated, and four are extremely rare (Appendix K, Freshwater Mussels) (Mike Davis, Minnesota Department of Natural Resources, personal communication). The remaining 39 species that occur in the Refuge (Pools 4-14) vary in distribution from localized populations (e.g. mucket in Pool 11) to Refuge-wide occurrences (e.g. pink papershell and giant floater).

The main mussel beds found on the Refuge occur in main channel areas, secondary channels, and adjacent backwater habitats. The East Channel area at Prairie du Chien Wisconsin (Pool 10) is historically the premier mussel bed of the Refuge. It suffered near-catastrophic loses due to zebra mussel infestations in the late 1990s and early 2000s (see Invasive Species section). General locations of crucial mussel beds for Higgins eye pearlymussel are described above in the section on Candidate, Threatened and Endangered Species. Some of the historically important mussel beds of the Upper Mississippi River that occur on the Refuge are:

- Winters, Wisconsin – Pool 7
- Harpers Slough, Iowa – Pool 9
- Whiskey, Iowa – Pool 9
- East Channel, Wisconsin – Pool 10
- McMillian, Iowa – Pool 10
- Cassville, Wisconsin – Pool 11
- Bellevue, Iowa – Pool 13
- Cordova, Illinois (near Refuge) – Pool 14.

An unexplained massive mussel die-off occurred in 1983-1985 between La Crosse, Wisconsin, and Hannibal, Missouri. This unknown aspect of mussel ecology stimulated further agency cooperation and mussel research that continues today (Tucker and Theiling, 1999).

The endangered species, Higgins eye pearlymussel, and the candidate species, spectaclecase and sheepnose, occur within, or near the Refuge. See Section 3.2.4 and Section 3.2.5 for a full description of their status.

3.2.11 Reptiles and Amphibians

There are 22 species of reptiles and 13 species of amphibians that occur on the Refuge (Appendix K). See the section on Candidate, Threatened and Endangered Species for a discussion of massasauga rattlesnake on the Refuge.

3.2.11.1 Turtles

Our most current reptile information concerns the 11 species of turtles found on the Upper Mississippi River. Some turtle species prefer the river's quiet backwater habitats (such as Blanding's, painted, snapping and common map turtles) while others occupy more riverine or faster flowing waters (smooth and spiny softshells, and Ouachita and false map turtles). The Blanding's turtle population is threatened in states bordering the Upper Mississippi River, but one of its largest populations in the world is located on the Minnesota side of Pool 5 and is found on Refuge, state and private lands. "Turtle crossing" caution signs are posted where Blanding's must cross county roads during their annual trek from shallow wetlands to nesting sites in local sand dunes.

Good turtle habitat along the river proper includes sandy shorelines (nesting habitat) that border the main navigation channel and are close to backwater marshes (hatchling nurseries). Potential human conflicts occur when people camp and picnic, or where channel maintenance dredge material is piled for storage on sandy beaches used by nesting turtles. An added threat comes from egg-eating predators, particularly raccoons, which are extremely efficient in finding nests concentrated in areas where prime sand and moisture conditions prevail.

To avoid turtle mortality by cars and trucks, caution signs are posted along roads that are crossed by rare Blanding's turtles near Kellogg, Minn., in June 2004. USFWS

Research and habitat modeling work is needed to determine baseline information on the distribution (current and historical), relative abundance, and reproductive success of turtles on the Refuge. Concerns about harvest rates and population levels of snapping turtles lead to radio-telemetry studies of snappers by Wisconsin Department of Natural Resources in 1997-2001 (Andersen, 2003). Investigators found survival rates to be high; average home ranges were between about 50 and 108 acres in size; hibernation sites were in various habitats but mostly in backwaters and secondary channels in depths of 0.1 to 5.6 feet; woody structure is important in winter and summer habitat; snappers utilized runs and lodges of muskrat and beaver; and the turtles have strong homing abilities. Public educational materials will be produced, emphasizing the need to protect adult females and inform harvesters how to distinguish males and females.

Investigations are also needed to determine human impacts of operation and maintenance of the 9-foot navigation channel project and of recreational use of sandy islands and shorelines. Results of studies will be used in developing science-based turtle management on the Refuge.

Table 12: Occurrence of Frogs and Toads on Upper Mississippi River Refuge, 1994 to 2004

District	No. of Routes	No. of Survey Years	Number of Years Species Detected										
			Wood Frog	Chorus Frog	Spring Peeper	Leopard Frog	Pickerel Frog	Am. Toad	East Gray Tree	Copes Gray Tree	Cricket Frog	Green Frog	Bull Frog
Winona	1	7	1	3	6	2	2	6	6			5	
La Crosse	3	11	7	11	11	11	6	11	11	4	3	11	1
McGregor	2	10	1	10	10	10	3	10	10	4	7	10	10
Savanna	2	11		10	10	10	1	9	11	11	11	11	11

The conservation of riverine turtles is a world-wide problem in which this group of turtles is subject to over-exploitation, habitat alteration, run-off and siltation, changes in predator populations, and alteration of river flows through dams, wing dam and channelization (Moll and Moll, 2000). These authors recommended conservation measures to include establishment of sanctuaries, protection of nest areas and hatcheries, public education, and captive breeding.

3.2.11.2 Frogs and Toads

Nine species of frogs and one toad occur on the Upper Mississippi River. Current Refuge knowledge of frog and toad distribution on the Refuge is based upon call surveys conducted by staff and volunteers. An extensive long term monitoring study is being conducted by Dr. Walt Sadinski of the Upper Midwest Environmental Sciences Center in La Crosse, Wisconsin, as part of the nation-wide Amphibian Research and Monitoring Initiative (ARMI).

Standardized frog and toad surveys were initiated on the Refuge in 1994 due to concern about the apparent rarity, decline and/or population die-offs of certain species in the surrounding states. Populations of these amphibians serve as an index to environmental quality. Survey routes consist of 10 wetland sites which are visited 3 times annually. Observers identify species present, based on their calls, and make simple estimates of abundance. The survey periods and corresponding minimum water temperatures (Wisconsin) are April 15-30, 50 degrees Fahrenheit; May 20-June 5, 60 degrees Fahrenheit; and July 1-15, 70 degrees Fahrenheit. Eight routes are surveyed most years (Table 12).

The bull frog occurs in all Districts but has not been detected on survey routes in the Winona District. Detection rates of wood and pickerel frogs are lower than other species on the Refuge. In addition, Blanchard's cricket frog has not been detected on survey routes but three individuals were heard by herpetologists visiting the Refuge near Winona, Minnesota, during the summer of 2004.

3.2.12 Invasive Species

Invasive and exotic species are the "greatest threat to ecosystem integrity within the refuge system" (USFWS, 2004a). The Refuge and Upper Mississippi River System are inundated with invasive fish, plants, and invertebrates. Invasive species are those that dominate an ecosystem at the expense of other species, causing population crashes and ecological changes. These species invade or increase within the ecosystem as the result of a disturbance or degradation of the natural system. A healthy native system usually will not experience the invasions. Many invasive species are not indigenous (native) to North America, but are imported intentionally or by accident from another continent. Newly arrived species often exhibit population explosions due to lack of competition or natural control.

Examples of invasive species threatening wildlife populations and habitat are varied. Native mussels, particularly the Higgins eye pearlymussel, are threatened by zebra mussels imported from Europe via ship's ballast water (USACE, 2004a). Asian carp threaten native paddlefish via competition for plankton. These carp also can potentially eliminate vegetation beds, snail and mussel populations, and deplete the commercial fishing industry on the Upper Mississippi River System.

3.2.12.1 Invasive Fish

An ever-increasing list of uninvited fish to the Upper Mississippi River is cause for alarm by anglers, commercial fishermen, ecologists, biologists, and others who also admire the river. Exotic fish originate from other parts of the world and these fish eat other fish, out-compete native fish for food, can wipe out vegetation beds, and even cause bodily harm to boaters.

The common carp, a native of Europe and Asia, was first found in the Upper Mississippi River in 1883 and presently comprises most of the commercial harvest of fish in the Upper Mississippi River. It has increased in abundance in Pools 4, 8, 13, and 26 of the Upper Mississippi River from 1990-94 (Gutrueter and Theiling 1999). As the common carp increased, the native buffalo fish, the ecological equivalent, has declined in the harvest by about 50 percent.

Four species of asian carp (big head, black, silver, and grass) were imported to control weeds, snails, or plankton at fish farms. They escaped the farms and are moving from southern United States into the river basin (UMRCC, 2004a). They are large, voracious eaters that consume so much they could even affect aquatic life beyond just fish, including waterfowl, clams and mussels, and marshbirds. The bighead carp, a plankton eater in competition with paddlefish, buffalo fish and gizzard shad, and larval forms of native fish, can grow to 90 pounds. The silver carp, another planktivore grows up to 110 pounds. When bothered by sounds of a boat motor, silver carp often jump 4-6 feet or more out of the water, literally landing in boats or crashing into people, causing bodily harm.

Another invasive fish, the round goby, will likely be a species of concern in the near future. These small but voracious fish are already halfway down the Illinois River, having moved from Lake Michigan.

Control of these invasive fish is crucial to retention of the river's ecological integrity. The Corps of Engineers has recently installed an electrical aquatic nuisance species dispersal barrier in the Chicago Sanitary and Ship Canal to prevent interbasin movement between the Great Lakes and the Upper Mississippi River. However, exotic species have passed the barrier and a second barrier further downstream will be installed in the spring of 2005 (UMRCC, 2004a). Findings of a recent feasibility study funded by Minnesota Department of Natural Resources noted "that an acoustic deterrent such as a Sound Projector Array based acoustic bubble curtain downstream of a lock location perhaps in conjunction with attractants (i.e. pheromones, plankton, lights, etc.), and an integrated management/harvest plan may provide the most feasible opportunity to limit or slow the upstream invasion of Asian Carp" (FishPro, 2004).

Control of these species and prevention of additional invasions will be addressed in Refuge step-down plans for fish, wildlife, and habitat management. Control will only be achieved through cooperative efforts of all agencies and partners on the Upper Mississippi River System. A potential avenue of cooperation in control of invasive species is through the Mississippi River Basin Aquatic Nuisance Species Panel (UMRCC, 2004a).

3.2.12.2 Invasive Plants

Of the 591 plant species known to occur within the Upper Mississippi River, 36 are not indigenous to North America (Appendix K, plant list). Approximately 15 of these non-native species and aggressive native species adversely affect Refuge native plants and habitat (Table 13). Native species, such as reed canary grass, can take on invasive qualities when natural processes like fire,

Table 13: Invasive Plants and Their Control on the Upper Mississippi River Refuge

Plant Name (Native or non-native)	Scientific name	Control method	Comments
Purple loosestrife (non-native)	*Lythrum salicaria*	Beetles (*Galerucella* and *Hylobius*) pulling, herbicide (glyphosate)	Large-scale, Refuge-wide problem. Biological control is effective.
Eurasian milfoil (non-native)	*Myriophyllum spicatum*	Public education to prevent spread to other bodies of water	Wide-spread, but not considered a major threat to aquatic habitats
Spotted knapweed (non-native)	*Centaurea maculosa*	Mowing	Increasing problem in Sand prairies
Garlic mustard (non-native)	*Alliaria petiolata*	Pulling	Widespread in shady upland habitats
Reed canary grass (native and non-native ecotypes)	*Phalaris arundinacea*	Root Pruned Method (RPM) trees; mowing	Wide-spread problem; threat to forest regeneration
Crown vetch (non-native)	*Coronilla varia*		Widespread
Siberian or Chinese elm (non-native)	*Ulmus pumila*	Cutting; herbicide (Triclopyr)	Localized problem
Honey locust (native)	*Gleditsia tricanthos*	Cutting; herbicide (Triclopyr)	Localized problem
European (common) buckthorn (non-native)	*Rhamnus cathartica*	Cutting; herbicide	Widespread
Leafy spurge (non-native)	*Euphorbia esula*	Biological control	Localized problem
Black locust (native, imported from Appalachia and the Ozarks)	*Robinia pseudoacacia*	Cutting; herbicide	Localized problem
Japanese Bamboo (Japanese knotweed)	*Polygonum cuspdatum*	Pulling; grubbing roots; herbicides	Localized problem
Bush Honeysuckles (non-native)	*Lonicera tatarica and others*	Pulling; herbicides	Localized problem

drought, and flooding are altered. Over the past five years, the Refuge has attempted to control several plant species using various techniques, including biological control, mowing, cutting, exchanges of ornamental plants, and the use of herbicides.

It is estimated that purple loosestrife has invaded thousands of acres of the Refuge, replacing large blocks of native vegetation, decreasing species diversity, and affecting local wildlife populations by reducing available wetland habitat. Control efforts include the release of beetles (*Galerucella* sp. and *Hylobius* sp.) that consume only this plant. Success in controlling loosestrife via biological methods, and restoring native plants has been documented throughout the Refuge. Each Refuge District has raised beetles in nurseries and conducted beetle “releases” to control loosestrife over the past decade. Releases have ranged from 500 to 20,000 beetles per site. The herbicide glyphosate was used in the 1990s throughout the Refuge and was used in 2002 on a limited basis in the Savanna District.

No control efforts are under way to combat Eurasian milfoil, other than through public education efforts that encourage people to remove all vegetation from their boats and boat trailers upon exiting the water. This combats spread of the plant between water bodies.

Reed canary grass ecotypes of both native and non-indigenous origins have invaded Refuge wetlands. It is virtually impossible to distinguish native from non-native plants. This species is preventing regeneration of native forest trees and other floodplain vegetation (UMRCC 2002). Mowing and the use of mats around planted trees controls competition and discourages voles that may girdle newly planted trees. Experimental control using soil scarifying techniques, followed by herbicide treatments, have been attempted in cooperation with the U.S. Army Corps of Engineers at small timber harvest areas of the Refuge. The Refuge is supporting research to develop an effective means of stopping the spread of reed canary grass.

Illinois garlic mustard invades woodland habitats, smothering most of the native herbaceous vegetation. It occurs on higher sites of the floodplain forest (e.g. Goose Island in Pool 8 and Potosi River delta of Pool 11) in Pools 8-14. Control efforts have included the use of herbicides and pulling operations.

3.2.12.3 Invasive Invertebrates

The zebra mussel is a threat to native mussel populations. Based on North American studies, zebra mussels are believed to impact native mussels by interfering with siphoning, feeding, gamete release, reproductive displays, and respiration. This species presumably was brought to North America from Europe in ballast water of ocean-going vessels. In 1991 the zebra mussel was found first in the Upper Mississippi River and Refuge near La Crosse, Wisconsin (UMRCC 2004b). Since their appearance, zebra mussel populations have expanded exponentially, sometimes reaching population densities of 60,000 per square meter (on Pool 13).

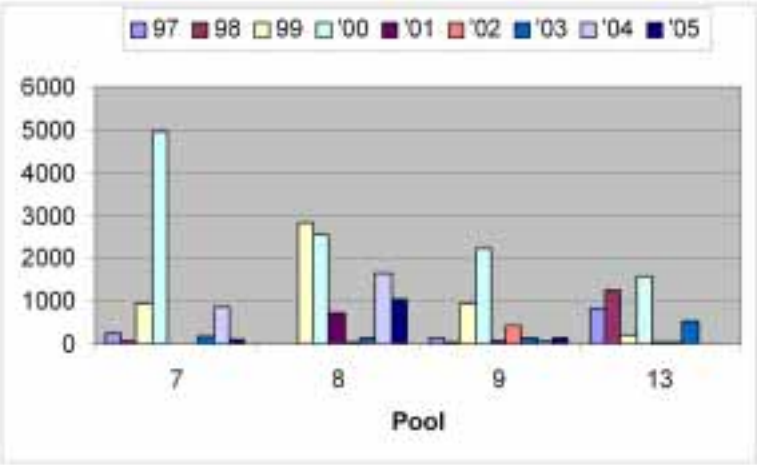
The native mussel community of Pool 10 at Prairie du Chien, Wisconsin, (East and West Channels) was valuable and well known to biologists and commercial mussel fishermen. In particular, this area was considered to be the most valuable Essential Habitat Area for the federally endangered Higgins eye pearlymussel. In the late 1990s, the native mussel community at Prairie du Chien was devastated by zebra mussels. Zebra mussel densities in the East Channel rose dramatically from 2 per square meter in 1993 to 56,507 per square meter in 1999. Consequently, density of native mussels in the East Channel fell from 59.2 per square meter in 1996 to 1.7 per square meter in 1999; no juvenile native mussels were found between 1999 and 2001.

Like the rest of the mussel community there, the abundance of Higgins eye pearlymussel in the East Channel drastically declined with the expanding zebra mussel population. Zebra mussel population assessments are an important component of the Higgins eye pearlymussel recovery plan.

Zebra mussels have appeared in bottom samples collected by the Refuge and states during the fall to assess available food sources for migrating waterfowl in Pools 2-13. These samples come from both open water and backwater habitats. Peak numbers of zebra mussels in Pools 7, 8, 9, and 13 appeared in 2000 (Figure 19). Maximum average densities ranged from 1,500 to 5,000 per meter square. Numbers declined throughout the Upper Mississippi River in 2001, probably due to warm water conditions and the stresses of flooding. Numbers have risen since 2004 and 2005. Zebra mussel numbers were sparse in Pools 4, 5, 5A, and 11 throughout the 1997-2005 period.

The faucet snail or mud bithynia (*Bithynia tentaculata*) is an invasive snail first introduced to the Great Lakes in about 1870 from Europe (Scandinavia to Greece), possibly with packing material. This snail is an intermediate host for two intestinal trematodes (flukes), *Sphaeridiotrema globulus*

Figure 19: Average Number of Zebra Mussels per Meter Square Collected During Fall Sampling Periods in Selected Areas of Pools 7, 8, 9, and 13, 1997-2005, Upper Mississippi River Refuge



and *Cyathocotyle buchiensis* that cause mortality in waterfowl and coots. The incidence of trematode-infected faucet snails collected in bottom samples has reached over 50 percent in some parts of Lake Onalaska (Pool 7).

Bird mortality caused by these trematodes was first detected in the spring of 2002 when one lesser scaup was found dead in upper Pool 8. In the fall of 2002, the trematodes killed an estimated 1,500 to 1,900 diving ducks and Coots on Pool 7 and 8. In the same season, nearly 100 Coots and diving ducks were collected in open water between Ferryville and Lynxville, Wisconsin, on Pool 9. Spring and fall die-offs also occurred on Pools 7 and 8 in 2003, killing an estimated 8,000 waterbirds. Species affected include Lesser Scaup, Ring-necked Ducks, Canvasback, Bufflehead , and Coots. Raptors that scavenge these birds are not susceptible to the trematodes.

Researchers and managers are investigating potential actions to prevent major die-offs caused by the presence of this snail. Population monitoring and removal of bird carcasses is a continuing practice.

3.2.13 Other Aquatic Invertebrates

Aquatic invertebrates play an important role in fish and wildlife ecology on the Refuge and are a useful indicator of environmental quality. Fingernail clams and burrowing mayflies are often target organisms of studies and monitoring. They are important foods in the Upper Mississippi River System for diving ducks, sport fish and commercial fish. Declines in diving ducks using the Illinois River valley during the 1950s was attributed to the loss of the fingernail clam community (Sauer and Lubinski, 1999). Long-term monitoring on the Upper Mississippi River System shows that Pool 13 backwaters have held the highest densities of mayflies and fingernail clams, possibly because Pool 13 is outside the pollution gradient that extends downstream from Minneapolis, Minnesota, and that Pool 13 substrates are especially suitable for these critters.

The Refuge and the states sample invertebrates in the fall to assess available food sources for migrating waterfowl in Pools 4-13. Our most complete data are for pools 7, 8, 9 and 13. Mayfly numbers are generally highest in pools 8, 9 and 13 (Figure 20). Off-refuge data from pools 2 and 3 show even higher mayfly densities. Fingernail clam numbers are ususally greatest in Pool 9

Figure 20: Average Number of Mayflies per Meter Square Collected During Fall Sampling Periods From Selected Areas on Pools 7, 8, 9 and 13, 1995-2003, Upper Mississippi River Refuge

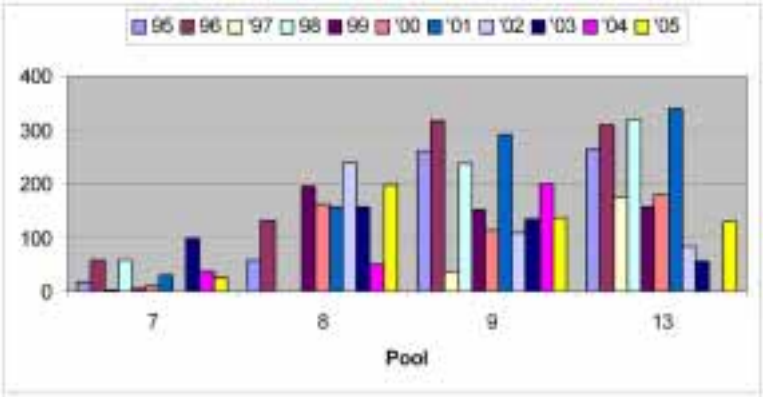
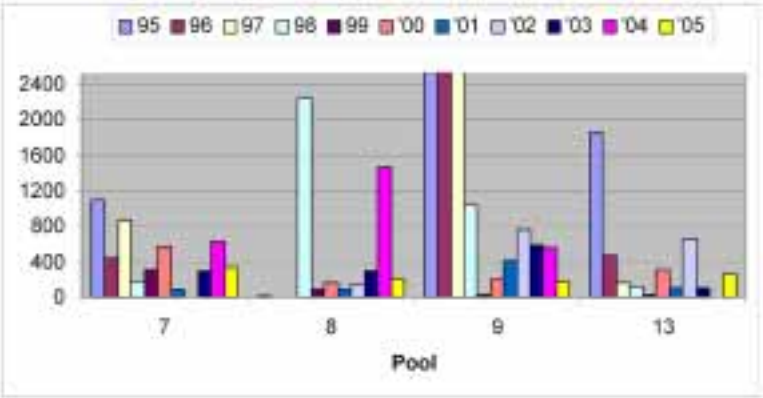


Figure 21: Average Number of Fingernail Clams per Meter Square Collected During Fall Sampling Periods From Selected Areas on Pools 7, 8, 9 and 13, 1995-2005 Upper Mississippi River Refuge[1]



1. High values for Pool 9 are: 1995 (5,985); 1996 (5,856); 1997 (3,790).

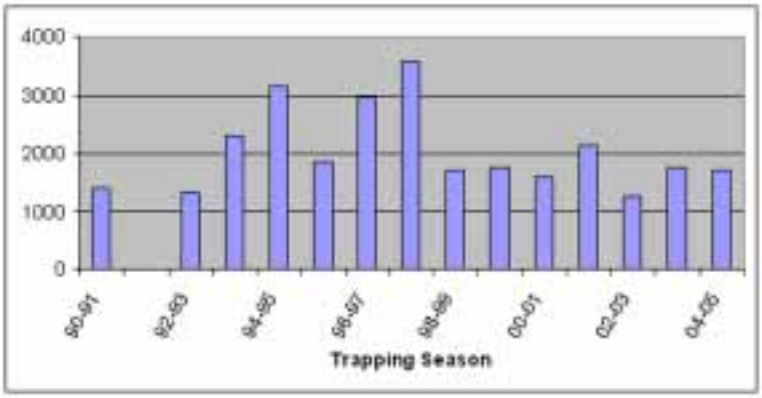
(Figure 21). Values for both fingernail clams and mayflies in pools 4, 5, 5A, 10, 11, and 12 are consistently much lower than the pools listed above. Differences in invertebrate densities between pools is often controlled by local conditions and not necessarily due to whole-river factors (Sauer and Lubinski, 1999).

Refuge data indicate that when fingernail clam densities exceed about 200 clams per meter square, diving duck use-days on that pool can exceed 500,000 use-days or peak numbers over 80,000 birds. Data also indicate that fingernail clams were abundant in years when submerged aquatics were lacking during the early 1990s and were crucial to migrating diving ducks during those years.

3.2.14 Mammals

The 51 species of mammals that occur on the Refuge play an important role in Upper Mississippi River System ecology and some are the object of furbearer management on the Refuge. Prior to

Figure 22: Number of Beaver Harvested, 1990-91 Through the 2004-2005 Seasons, Upper Mississippi River Refuge[1]



1. Note that 1991-1992 data are not included in this figure.

locks and dams, the high, semi-dry river bottoms held higher populations of skunk, badger, foxes, and rabbits than occur at present. The marsh conditions of today now support higher numbers of muskrat, mink, and especially raccoon than in the past.

Furbearing mammals (beaver and river otter) were key elements in the development and exploitation of the Mississippi River Basin. Early explorers and trappers established settlements (Prairie du Chien, Wisconsin, for example) to carry on the fur trade. Over-exploitation nearly extirpated beaver from the Upper Mississippi River by the mid-1800s. They made a comeback in the 20th century with reintroductions (1927 and 1928), control of the harvest, and new habitat created by the lock and dams in the 1930s. Beaver lodges and cuttings are now a moderately common sight on the Refuge. About 2,100 beaver are harvested each year (1990-2003) (Figure 22) .

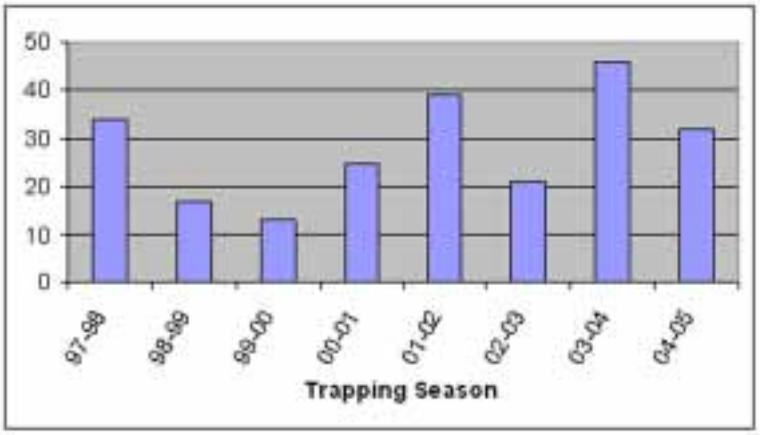
Beaver lodge surveys conducted in Pools 12-14 from 1993 to 2002 revealed an average of 41 lodges per year along established survey routes. Numbers ranged from a high of 62 in 1993 to a low of 20 in 2002.

River otter were also trapped extensively at the time of early European settlement. These predators probably maintained small populations in tributaries of the UMR. Today they are an uncommon sight, but occupy most areas of the Refuge, as evidenced by trapping records, local observations, and radio-tracking studies.

Currently, Wisconsin is the only state that allows the take of river otter on the Refuge, one per season. Otter are taken incidentally on the Refuge in Minnesota, Iowa, and Illinois for which State conservation officers may allow retention of the fur on a case by case basis. Since 1997, an average of 28 otter have been trapped on the Refuge, ranging from 13 to 46 animals per season (Figure 23). Approximately 90 percent of the otter harvested on the Refuge are taken in Wisconsin. In the past eight years, the state-wide annual otter harvest in Wisconsin has been about 2,000 animals, except in 1998-99 and 2003-04 when it was near 1,500 otter.

The State of Minnesota is investigating home range characteristics, habitat selection and survival of river otters in southeast Minnesota and portions of the Refuge (T. Gorman, student at Mankato State University, personal communication). Data from this study will be used in decisions whether to have a trapping season on these animals in southeastern Minnesota. Preliminary reports indicate

Figure 23: Number of River Otter Harvested Between 1997-1998 and 2004-2005, Upper Mississippi River Refuge



radio-tracked river otters established natal dens along fence rows and up to several miles away from streams. Investigators reported four of 24 radio-marked otters died of incidental take; one of 24 was a road-kill mortality.

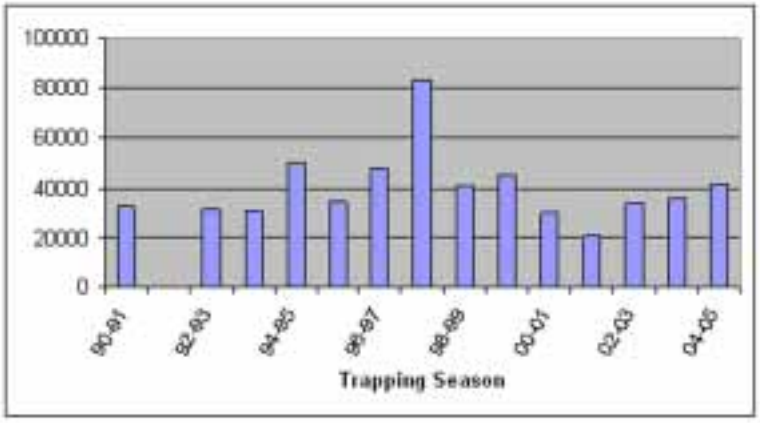
Prior to locks and dams, muskrats were wide-spread, but not abundant on the Upper Mississippi River System. At that time the shallow lakes and marshes often dried up each fall, forcing muskrats to dig bank dens, rather than build typical "rat houses". Muskrats flourished after the 1930s when permanent shallow wetlands were created by installation of the locks and dams. High muskrat numbers coincided with those of puddle ducks, bitterns and rails, sunfish and bass in the hey-day of shallow wetland productivity witnessed in the 1935-65 period. Since then, the decline of cattail, burreed, arrowhead, and bulrush has resulted in reductions in muskrat populations, although "rats" still utilize muddy banks along the many side channels now coursing through the bottomlands.

Trappers have harvested millions of muskrats from the Refuge since the 1940s. Between 1940 and 1970, over 2.25 million rats were harvested (average of 83,000 per year) by an average of 750 Refuge-permitted trappers per year. Recent annual harvest reports (1991-2004) show about 40,000 animals taken by 290 trappers per year (Figure 24 and Figure 25). Muskrats reproduce prolifically and changes in their populations generally reflect ebb and flow of habitat, rather than the extent of harvest.

Recent population status and distribution data are available from studies, inventories, and fur catch reports submitted by trapping permittees. Muskrats were studied in the early 1980s in Pool 9 to determine density, survival and harvest rates (Clay and Clark, 1985). The authors reported that muskrat populations on Pool 9 "showed the characteristic resiliency for the species with great reproductive capability and consistent survival." They also found that distribution and harvest was not uniform, which support the idea of management by zones to provide sustained harvest.

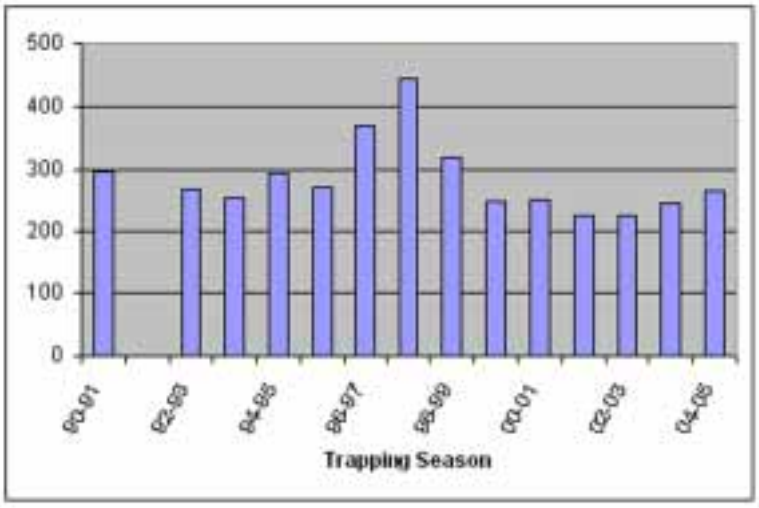
Are muskrat harvests affected by water level fluctuations? Regression analyses said "no" in tests of water levels (at tailwaters and headwaters) in Refuge Pools 4 through 14 compared to muskrat harvest for the period 1990 and 1992 to 1996 (Wlosinski and Wlosinski, 1998). The authors concluded that water levels did not affect muskrat harvest on the Refuge, but noted that numerous other studies showed that muskrat populations are affected by water levels. Other factors affecting harvest include length of trapping season, fur prices, weather conditions, habitat changes, and trapping effort. The authors concluded that "although sometimes used as a surrogate for population

Figure 24: Number of Muskrats Harvested, 1990-91 Through 2004-2005 Season, Upper Mississippi River Refuge[1]



1. *Note that 1991-1992 data are not included in this figure.*

Figure 25: Number of Active Trappers, 1990-91 Through the 2004-2005 Season, Upper Mississippi River Refuge[1]

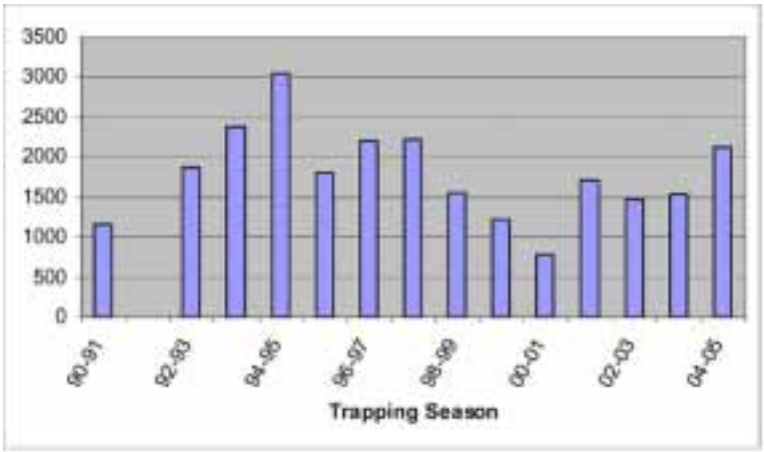


1. *Note that 1991-92 data are not included in this figure.*

estimates, harvest may not be a good estimator for muskrat populations." The same authors reported that the average number of muskrats trapped is positively correlated to differences in aquatic vegetation coverage estimates (1989 emergents and floating leaved aquatics).

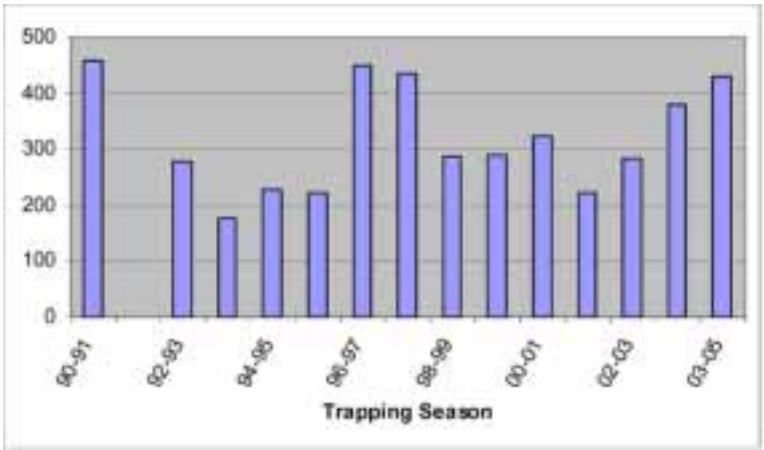
In 1988, the Wisconsin Department of Natural Resources began making annual muskrat house counts at specific locations within Pools 4-11 (WDNR, 2004). Fewer houses have been found in the past four years compared to 1989-91. Counts are on the rise in the last 2 years, however. These data reflect variability observed in trapping data over the past 40 years.

Figure 26: Number of Raccoon Harvested, 1990-91 Through the 2004-2005 Season, Upper Mississippi River Refuge[1]



1. Note that 1991-92 data are not included.

Figure 27: Number of Mink Harvested, 1990-91 Through the 2004-2005 Season, Upper Mississippi River Refuge[1]



1. Note that 1991-92 data are not included.

The recent (1990-2003), average annual raccoon harvest on the Refuge has averaged 1,793 animals, ranging from 800 to over 3,000 per year (Figure 26). Raccoon numbers have increased dramatically since the early 1990s in each of the four states in which the Refuge occurs. Scientists estimate that there are more raccoons in Illinois today that when the first European settlers arrived there.

The annual mink harvest averaged 310 animals, ranging from about 175 to 450 per year (Figure 27). Minnesota, Wisconsin, and Illinois report that mink populations are stable in areas with adequate wetland resources.

3.2.15 Vegetation

A diversity of plant communities occurs on the Refuge, located in aquatic to upland bluff terrains. These communities have been classified for management and research purposes specific to the Mississippi River by the U.S. Geological Survey's Upper Midwest Environmental Sciences Center (UMESC) (web site is www.umesc.usgs.gov) and the U.S. Army Corps of Engineers, Habitat Needs Assessment program (USACE, 2000). The Refuge uses these mapping sources on a daily basis for developing Geographic Information System management and habitat maps.

On a national level, the Federal Geographic Data Committee has established the National Vegetation and Information Standard (NVCS) to produce uniform statistics in vegetation resources from data collected nation-wide. These three classification systems have three distinct descriptors of vegetation types which have been cross-referenced ("cross-walked') by the Upper Midwest Environmental Sciences Center (Appendix O). An example of the NVCS maps for the Refuge (Pool 8) appears in Appendix O as well. Land cover maps, based on UMESC interpretation and digitization of 2000 photography, for the entire Refuge are available at Refuge headquarters.

3.2.15.1 Submerged Aquatic Vegetation

Submerged aquatic vegetation includes plants that grow below the surface of the water and are usually anchored to the bottom by their roots. Examples are wild celery, water milfoil, and sago pondweed (see the plant list in Appendix K). This group of plants generate dissolved oxygen, filter suspended material, stabilize bottom sediments, and cycle nutrients (Rogers and Theiling, 1999). Submerged aquatics provide crucial fish habitat, provide substrate for invertebrate growth, and are important foods for mammals and migratory birds. They are most often found in backwater areas of low water velocity, adequate light penetration and relatively stable water levels.

Prior to locks and dams most species that are now present occurred in localized wetland pockets and channel border areas, but their group was not a major component of the floodplain vegetation community (Green, 1970). Many aquatic areas dried up by the end of the summer growing season. At that time, floodplain forests dominated the river bottoms with hundreds of lakes and ponds scattered through the wooded areas. Wet meadows and hay fields were also present. After inundation, the stabilized water levels created shallow and deep water wetlands that supported an abundance of submerged plants. The response by wetland fish and wildlife was phenomenal in its diversity and abundance. In the 1940s, refuge biologist, Bill "Doc" Green noted that he could find "two dozen species of submergent plants in a matter of minutes anywhere in the better marshes and aquatic beds." Backwater sport fish (bluegill, bass, and crappies) and diving ducks (Canvasbacks, Scaup, and Ring-necked Ducks) utilize submerged plants extensively.

Beginning in the 1960s and 1970s, river scientists and users noted declines in submerged (and emergent) vegetation cover throughout the Refuge. Factors included wind and wave action, poor light penetration due to highly turbid water conditions, sedimentation and filling of backwaters, major flooding events, and long term inundation with few drying periods.

Due to these factors, there is an uneven distribution of submerged plants through the length of the Refuge. Recovery of lost submerged plant beds has occurred naturally or through habitat rehabilitation projects in Pools 4, 5A, 7, 8, 9, and 13. More work is necessary in other Refuge pools to gain a more even distribution of aquatic plant growth and associated fish and wildlife use.

3.2.15.2 Emergent Aquatic Vegetation

Emergent aquatic vegetation (emergents) are plants whose roots are anchored under water with much of the plant extending above the water surface. They include cattail, river bulrush, giant reed grass, burreed, arrowheads and wild rice. They are backwater plants adapted to low water velocities and shallow- to deep-water marsh conditions.

Prior to the lock and dams, river bulrush was the most abundant marsh species and continues to be prominent today. Cattail was uncommon, as it is today on the floodplain. Burreed was common before inundation, became abundant soon after, but has since declined. The arrowheads were present before, but after became widespread and abundant, until suffering declines since the 1970s. The arrowheads (rigid and duck potato) are important waterfowl and muskrat foods.

The lack of emergent vegetation on the Refuge is a key concern in management and restoration of puddle duck and tundra swan migration habitat. Studies of available kilocalories (bioenergetics) for waterfowl reveal that deep marsh perennial emergent vegetation (particularly arrowhead tubers), provides some of the highest valued resources on the Refuge (Kenow et al., 2003).

3.2.15.3 Floodplain Forest

Floodplain forests are important to the biological integrity of the Upper Mississippi River System (UMRCC, 2002). They provide rich habitat for wildlife (and fish during high-water events), reduce soil erosion, improve water quality and provide a scenic and recreational landscape. Among vegetation communities of the Upper Mississippi River, the highest number of birds species observed during spring migration in 1995 and 1996 were found in floodplain forest habitat (Yin, 1999).

Floodplain forests are declining in the Upper Mississippi River System and the Refuge due to agricultural and urban developments, changes in natural riverine flood pulses, the rising water table, and island loss due to wind and wave action. The forests that remain are changing in composition from a diversity of species, including mast producing trees, to a more monotypic forest dominated by silver maple and herbaceous openings. In some pools, many forest stands are even aged mature trees with little or no understory or seedling regeneration (UMRCC, 2002).

Cardinal flower in the forest. Copyright by Sandra Lines

River mangers and biologists have identified what an “ideal” floodplain forest would look like (UMRCC, 2002). Basically, it would contain a diversity of tree species to include existing silver maple and potential codominant species such as eastern cottonwood, elm, green ash and river birch. The forest would also contain mast producing species such as oak, pecan and hickory whose seeds are food sources for Wood Ducks, squirrels, deer and Blue Jays. Diversity would also be evident in size and age, with older mature woods available for nesting eagles and herons.

The driving forces of forest change or succession in the floodplain environment is ecological disturbance, such as flooding, tornados, severe winds, disease, pests, and occasional fire. The great flood of 1993 caused relatively minor tree mortality above Pool 13, but below that pool mortality escalated sharply. Mortality rates were positively correlated with flood duration and negatively correlated with the diameter of the trees (Yin et al., 1994).

Recommended forest management practices would replicate these natural processes (UMRCC, 2002). These practices include: forest regeneration, shelterwood harvest methods, seed tree methods, group selection methods, tree planting, the use of herbicides, water level management, and potential modification of site elevation (increase) to promote growth. Invasive species (particularly reed canary grass) present problems in forest regeneration within the upper pools of the Refuge. Research and experimental cuts will need to be conducted to achieve successful regeneration in these areas.

Reforestation projects may include increasing land elevations to avoid impacts of flooding. Those impacts may also be avoided by selecting appropriate tree species and locating tree plantings in areas less prone to flooding. Foresters have a tool to determine predicted flood potential throughout the pools in models available at the Upper Midwest Environmental Science Center's web site (Wlosinski and Wlosinski, 2001).

The Refuge is cooperating with Corps of Engineers foresters in completing a forest inventory of both the Corps-acquired land and U.S. Fish and Wildlife Service-acquired lands in the St. Paul and Rock Island Corps Districts. This is crucial to establishing objectives and meeting management goals in the Refuge's future forest management plan.

3.2.15.4 Grasslands

Grassland and prairie habitats are generally uncommon in the floodplain, but there are several units that occur on islands or sand terraces adjacent to the floodplain. There are two prominent prairie systems within the Refuge adjoining Pool 13. One is the newly acquired Lost Mound Unit (the former U.S. Army Savanna Depot) that protects a seven-mile long sand dune along the river's edge and contains approximately 4,000 acres of sand prairie and oak-ash savanna associations. There are 488 buildings, left over from the Depot operations, scattered throughout the unit. The Refuge's Thomson Prairie protects similar habitat 25 miles down river of Lost Mound. These units contain some of the last remaining habitats of their kind in the state of Illinois. Habitat management of these areas includes burning, limited grazing, and mechanical, biological and chemical treatments.

Upper Mississippi River Refuge staff. USFWS

There are 39 other grassland units (ranging in size from 1.4 to 125 acres) distributed throughout the Refuge for which fire prescriptions have been developed. These units are managed primarily for migratory bird nesting cover, moist soil feeding sites, and to enhance biological diversity. Grassland habitats support state-listed plant and animal species of concern, such as crucial nesting habitat for the Blanding's turtle.

3.2.16 Natural and Current Role of Fire

The following discussion is from the Refuge Fire Plan, approved in 2002.

There is no recorded history of fire on the Refuge prior to its establishment in 1924. Our best estimate is that fire played a minor role within the river valley. That is not to say wildfires did not occur on lands now managed as part of the Refuge, as the river was certainly heavily used by Native Americans and fire surely occurred in the historic meadows and grasslands that were once part of the original river valley. However, since the placement of the locks and dams the areas that would have been influenced by fire are now mostly under water.

As wildfires have been limited in scope on the Refuge there is little documentation as to their impact on the areas burned with regard to the vegetation, wildlife and/or soils.

Prescribed fire has been mostly confined to the prairie areas of the Refuge for the purpose of restoring and/or maintaining the diverse native plant community. This is very important in areas which have remnant native prairie vegetation. To date fire has been used successfully to maintain the native plant species on these areas.

Fire has had no negative impact on threatened and/or endangered species on the Refuge.

3.2.16.1 Wild Fires and Prescribed Burns

Between 1989 and 2000, there were 29 reported wildfires on the Refuge. Of those, 23 were 10 acres or less in size and of these 14 burned 1 acre or less. Eighteen wildfires occurred in the March-May period and 4 in October. The remaining fires were scattered throughout the rest of the year with only January, August and September wildfire free. The main causes of wildfires were arson or escaped campfires. It should be noted that arson fires have accounted for all fires over 10 acres in size except for one escaped campfire which burned 60 acres. In looking at the past fire data most wildfires are contained almost immediately upon attack.

A total of 80 prescribed burns were completed on the Refuge between 1991 and 2000, covering 1,592 total acres. The Savanna District had the most active burning program due to the abundance of native prairie and grasslands; see District summary below.

Winona District	19 burns 170 acres
La Crosse District	10 burns 103 acres
McGregor District	10 burns 295 acres (1996-2000)
Savanna District	41 burns 1,100 acres

3.2.17 Environmental Management Program.

Spring Lake, Upper Mississippi River Refuge, USFWS

The Upper Mississippi River System Environmental Management Program (EMP) was created due to controversies surrounding the replacement of Lock and Dam No. 26 near Alton, Illinois. The debate began in the 1970s when environmental groups and area railroads opposed the proposed construction of two 1,200-foot locks at the site. In 1978, Congress authorized construction of a new dam with one 1,200-foot lock and directed the Upper Mississippi River Basin Commission to study and make recommendations on further navigation capacity expansion and its ecological impacts.

The Commission completed the study and recommendations in 1982 and presented its findings in the *Comprehensive Master Plan for the Management of the Upper Mississippi River System*. Some of the Master Plan recommendations included a second lock (600 feet) at Lock and Dam 26, a habitat rehabilitation and enhancement program, a long-term resource monitoring program, a computerized inventory and analysis system, recreation projects, and a study of the economic impacts of recreation. Section 1103 of the 1986 Water Resources Development Act (Public Law 99-662) declared that the Upper Mississippi River System is a “nationally significant ecosystem and a nationally significant navigation system.” In addition, the act authorized the second lock at Lock and Dam 26 and several environmental initiatives on the Upper Mississippi River. The environmental initiatives became known as the Upper Mississippi River System Environmental Management Program. The

1990 Water Resources Development Act extended the original EMP authorization period for an additional 5 years, through fiscal year 2002. The 1999 Water Resources Development Act increased the annual authorization to $33 million and established two main elements as continuing authorities:

- Planning, construction, and evaluation of fish and wildlife habitat rehabilitation and enhancement projects (HREPs).
- Long term resource monitoring, computerized data inventory and analysis, and applied research (LTRMP).

The EMP is a coordinated habitat restoration program for the Upper Mississippi River system administered by the Corps of Engineers in partnership with several federal, state, and non-governmental agencies. Partners include the federal agencies of the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Geological Survey, and U.S. Environmental Protection Agency; the state natural resource agencies of Minnesota, Wisconsin, Iowa, Illinois, and Missouri; and non-governmental agencies. Through this coordinated, effective planning process based on sound science, a built-in evaluation process, and a strong partnership between the agencies, EMP has evolved into a premier river habitat restoration program.

Because the Refuge is located entirely within the Upper Mississippi River system, the Refuge is fully involved with planning, designing, constructing, evaluating, and operating and maintaining all EMP habitat rehabilitation and enhancement projects (HREPs) built on the Refuge. In addition, the Refuge is involved in the EMP Long Term Resource Monitoring Program (LTRMP).

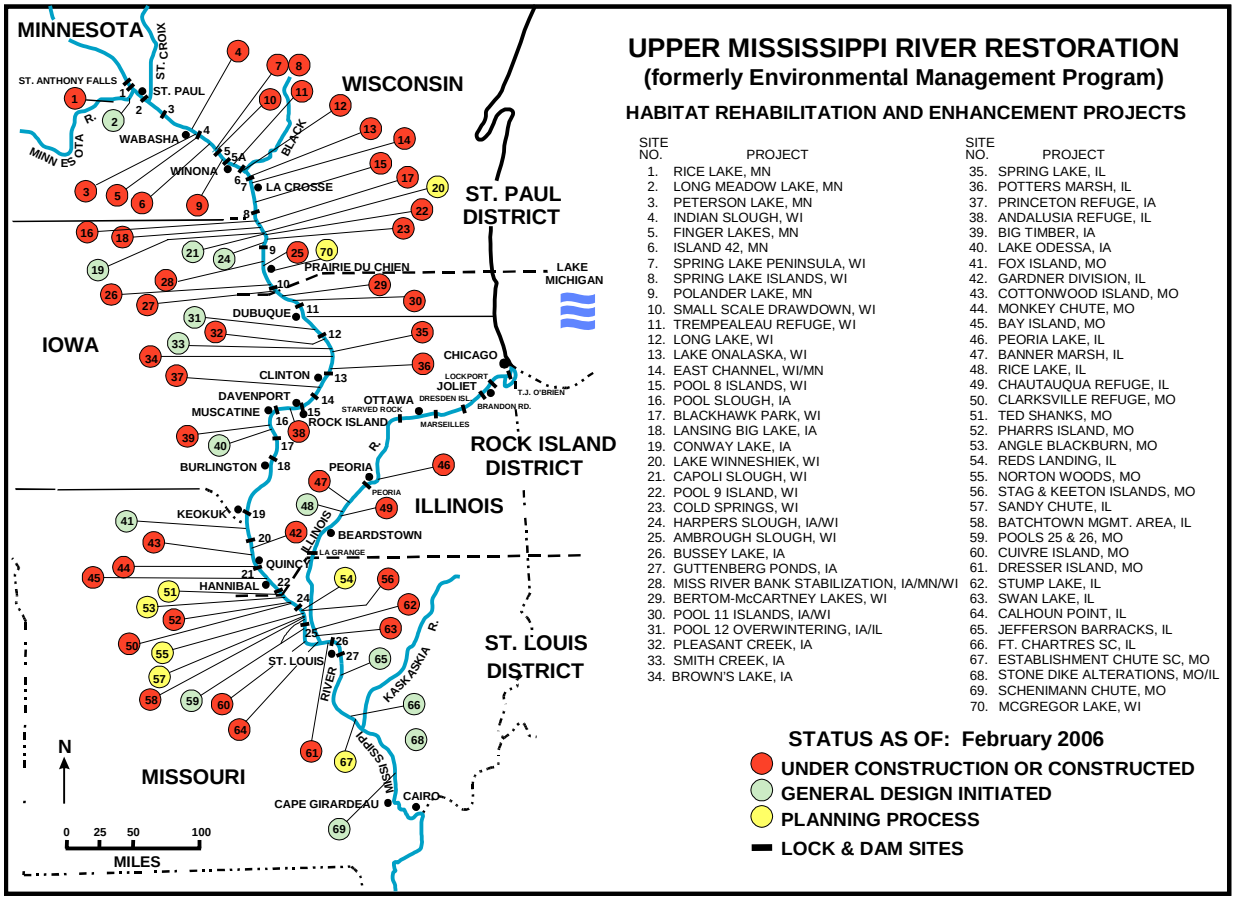
The mission of the EMP LTRMP is to provide decision makers with the information needed to maintain the Upper Mississippi River System as a viable multiple-use large river ecosystem. LTRMP works to develop a better understanding of the Upper Mississippi River ecosystem and its problems; monitor and evaluate long term resource changes and trends; develop alternatives to better manage the river system; and to manage, organize, and distribute scientific information about the river (USACE, 2004b). Three (3) pools within the Refuge are monitored closely by the LTRMP: 4, 8, and 13. The Refuge and LTRMP exchange data and the Refuge has assisted with data collection.

The purpose of building HREPs on the Upper Mississippi River is to counteract the effects of an aging impounded river system by changing the river's floodplain structure and hydrology. This can involve altering sediment transport and disposition, water levels, connectivity between the river and its floodplain, and constructing structures in the floodplain.

This program has made it possible to improve tens of thousands of acres along the Upper Mississippi River system. Since the program began in 1987, 40 completed HREPs have affected over 72,000 acres of habitat. In addition, 24 projects which could affect over 70,000 acres are in the construction, design, or planning phases (Figure 28). Directly on or adjacent to the Refuge itself, there are 27 completed HREPs affecting over 43,000 acres of habitat, and the Refuge is solely responsible for operating and maintaining 25 of those projects (Table 14). The Refuge is currently involved in the planning, design and construction of 10 HREPs which will affect an additional 30,800 acres of habitat. When these 10 projects are completed, the 37 HREPs on or next to the Refuge will improve approximately 73,800 acres of habitat. Eventually, more projects will be added to the program through the selection process.

Potential HREPs on the Refuge are identified, prioritized, and selected by a partnership which includes the Corps of Engineers, U.S. Fish and Wildlife Service, and the four states of Minnesota, Wisconsin, Iowa, and Illinois. Once the projects are identified, the partners, along with the interested public, prioritize, select and plan each project. Considerations for prioritization, selection, and planning to meet overall program and individual project goals include ecological merits,

Figure 28: Upper Mississippi River System Environmental Management Program Habitat Rehabilitation and Enhancement Projects[1]



1. Site Nos. 3 through 37 are on or adjacent to the Upper Mississippi River Refuge (USACE, 2004b).

Environmental Pool Plans, sequencing, geographic distribution, and available funds. In addition, the partners use the Habitat Needs Assessment, developed under EMP, as a tool for project identification and planning.

Refuge and other Service personnel are completely involved with the entire HREP process including identifying, prioritizing, selecting, planning, designing, constructing, and evaluating all projects on the Refuge. The Refuge is also responsible for operating and maintaining all HREPs constructed on the Refuge. The Refuge employs an EMP Coordinator to oversee Refuge involvement in HREPs, to serve as a liaison between the Refuge and the other partners, and to ensure that projects are designed and built to serve their intended function with reasonable operation and maintenance costs. In addition, Refuge and other Fish and Wildlife Service personnel are involved with other interagency planning teams where EMP projects are identified, prioritized and selected such as the Fish and Wildlife Interagency Committee, Fish and Wildlife Work Group, River Resources Forum, River Resources Coordination Team, and the EMP Coordinating Committee.

Table 14: Summary of Environmental Management Program Habitat Rehabilitation and Enhancement Projects On or Adjacent to the Upper Mississippi River Refuge (Adapted from USACE, 2004b)

Environmental Management Program												
Pool	Project Name	Cost	Project Status[1]	Year Completed	Affected Acres	Project Features/Techniques						
						Back-water Dredging	Water Level Mgmt.	Island	Bank Stabilization	Side Channel Restoration	Aeration	Other
	Bank Stabilization, Pools 6, 9 & 10	$1,697,000	F	1999	1,500				X			
4	Indian Slough	$988,000	F	1994	631	X				X		X
	Peterson Lake	$1,179,000	F	1996	500			X	X	X		
5	Island 42	$262,000	F	1987	95	X				X	X	
	Finger Lakes	$1,445,000	F	1994	113						X	X
	Spring Lake Penninsula (Pool 5)	$448,000	F	1995	300	X		X	X	X		
	Small Scale Drawdown	$97,000	F	1997	52		X					X
	Spring Lake Islands (Pool 5)	$2,930,000	C	N/A	500	X		X	X	X	X	X
5A	Polander Lake	$3,000,000	F	2002	1,000	X		X	X			
6	Trempealeau[2]	$5,723,000	F	1999	5,620		X		X			
7	Lake Onalaska	$2,064,000	F	1989	7,000	X		X	X		X	
	Long Lake	$1,037,000	F	2002	15				X		X	
8	Pool 8 Islands, Phase I	$2,314,000	F	1993	1,000	X		X	X			
	East Channel	$558,000	F	1997	19				X			
	Pool 8 Islands, Phase II	$3,482,000	F	1999	500	X		X	X			X
	Pool 8 Islands, Phase III	$15,120,000	D	N/A	3,000	X		X	X	X		X

Table 14: Summary of Environmental Management Program Habitat Rehabilitation and Enhancement Projects On or Adjacent to the Upper Mississippi River Refuge (Adapted from USACE, 2004b) (Continued)

Environmental Management Program												
Pool	Project Name	Cost	Project Status[1]	Year Completed	Affected Acres	Project Features/Techniques						
						Back-water Dredging	Water Level Mgmt.	Island	Bank Stabilization	Side Channel Restoration	Aeration	Other
9	Pool Slough[3]	$715,000	C	N/A	52		X					
	Blackhawk Park[4]	$309,000	F	1990	282		X			X	X	
	Lansing Big Lake	$2,089,000	F	1994	9,755				X	X		X
	Conway Lake	$2,460,000	P	N/A	560	X	X	X	X	X	X	X
	Lake Winneshiek	$4,560,000	P	N/A	6,000	X		X	X	X		X
	Capoli Slough	$1,995,000	P	N/A	600	X		X	X	X		X
	Pool 9 Islands	$1,266,000	F	1995	320			X				
	Cold Springs	$463,000	F	1994	35	X					X	
	Harpers Slough	$9,000,000	P	N/A	2,200	X		X	X	X		
10	Ambrough Slough[4]	$2,142,000	F	2004	2,500	X		X		X	X	X
	Bussey Lake	$3,594,000	F	1995	213	X	X	X			X	
11	Guttenberg Ponds	$327,000	F	1989	35	X	X					
	Bertom McCartney Lakes	$2,244,000	F	1992	2,000	X		X	X	X		X
	Pool 11 Islands	$8,559,000	C	N/A	10,342	X		X	X	X	X	X
12	Pool 12 Overwintering	$2,500,000	P	N/A	6,900	X						X
13	Pleasant Creek	$1,404,000	F	2003	2,350	X						
	Brown's Lake	$1,993,000	F	1990	453	X					X	X
	Smith Creek	$850,000	P	N/A	650							X
	Spring Lake (Pool 13)	$6,646,000	F	2002	3,300		X					
	Potters Marsh	$2,975,000	F	1995	2,305	X	X					X

Table 14: Summary of Environmental Management Program Habitat Rehabilitation and Enhancement Projects On or Adjacent to the Upper Mississippi River Refuge (Adapted from USACE, 2004b) (Continued)

Environmental Management Program												
Pool	**Project Name**	**Cost**	**Project Status[1]**	**Year Completed**	**Affected Acres**	**Project Features/Techniques**						
						Back-water Dredging	Water Level Mgmt.	Island	Bank Stabilization	Side Channel Restoration	Aeration	Other
14	Princeton Refuge[3]	$3,983,000	F	1999	1,129		X					X
	Completed (27 projects)	$53,729,000			43,022							
	Under Construction (3 projects)	$12,204,000			10,894							
	Design (2 projects)	$15,120,000			3,000							
	Planning (6 projects)	$21,365,000			16,910							
	Totals (37 Projects)	$102,418,000			73,826							

1. *Project status as of January 2004. F = Finished; C = Under Construction; D = Design; P = Planning and preliminary design.*
2. *Project located on Trempealeau NWR adjacent to the Upper Mississippi River Refuge. Trempealeau NWR is responsible for operation and maintenance.*
3. *Project located adjacent to the Refuge. Iowa Department of Natural Resources is responsible for all or a portion of the operation and maintenance.*
4. *Project located adjacent to the Refuge. Wisconsin Department of Natural Resources is responsible for all or a portion of the operation and maintenance.*

To meet the habitat objectives of each project, several techniques are used, usually in combination: backwater dredging, water level management, island creation, shoreline stabilization, secondary channel modification, and aeration (USACE, 2004b). Table 15 describes the purposes of these techniques.

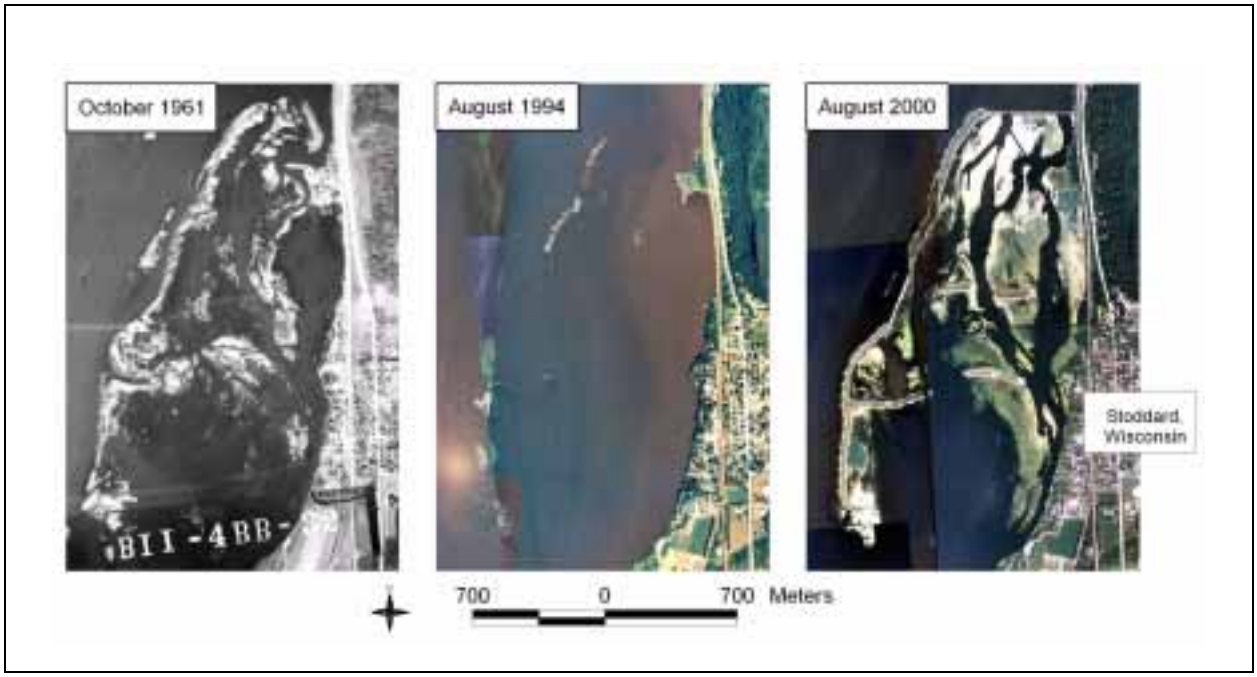
Table 15: Upper Mississippi River System Environmental Management Program Habitat Rehabilitation and Enhancement Project Techniques. (USACE, 2004b)

Technique	Objectives
Dredge backwaters	Alter flow patterns and velocity Improve floodplain structural diversity Increase deep water fish habitat Provide access for fish movement Provide dredged material to support revegetation
Manage water levels using dikes and water control systems	Restore natural hydrologic cycles Promote growth of aquatic plants as food for waterfowl Reduce backwater sediment loads Consolidate bottom sediments Control rough fish
Build islands	Decrease wind and wave action Alter flow patterns and sediment transport Improve aquatic plant growth Improve floodplain structural diversity Provide nesting and loafing habitat for waterfowl and turtles
Stabilize shorelines	Prevent shoreline erosion Maintain floodplain structural diversity Create fish habitat Reduce sediment loads to backwaters
Modify secondary channels	Improve fish habitat and water quality by altering inflows Stabilize eroding channel Reduce sediment load to backwaters by reducing flow velocities Maintain water temperature and provide rock substrate
Aerate	Improve fish habitat and water quality by introducing water
Miscellaneous Experimental and Complementary Techniques: Large scale water level management Upland sediment control Land acquisition Riffle pools Potholes Notched wing dams Anchor tree clumps Vegetative plantings Seed islands Isolated wetlands Weirs Rock sills Sediment traps Mussel substrates Bottomland Forest Restoration	

The Pool 8 Phase II HREP is an example of a project which combined several techniques to dramatically improve the habitat in Stoddard Bay, near Stoddard, Wisconsin. This project incorporated backwater dredging, island construction, and bank stabilization techniques to improve 500 acres of habitat (Figure 29). Wisconsin Department of Natural Resources monitoring of the area documented immediate vegetative response and among the highest abundance of bluegills in Pool 8 after the project was completed (USACE, 2004b). Duck and swan use in the area also increased significantly from the early 1990s pre-project conditions.

HREP design has evolved appreciably since the program began in 1986. As projects are completed and evaluated, design has improved and innovative new techniques have developed. Some examples:

Figure 29: Phase II Habitat Rehabilitation and Enhancement Project, Stoddard Islands, Upper Mississippi River Refuge, Aerial Photo Sequence (Wisconsin Department of Natural Resources)



- Island design has evolved from just being a wind and wave barrier to incorporating areas for specific habitat such as humps for turtles, mudflats for waterbirds, and dynamic shorelines for shorebirds. Islands are also designed with varied elevations above the average water level to provide additional vegetation habitat diversity.
- Island design has also evolved into providing more natural-looking layouts and features. Islands are now designed to replicate historical islands that have eroded away since the river was impounded. Use of rock for shoreline stability has decreased with the use of native vegetation such as willow plantings. Sacrificial berms with rock groins allow the river to shape and stabilize the islands which provides for a dynamic, more natural-looking shoreline (Figure 31).
- Seed islands are a new concept that developed as a direct result of the HREP program. Seed islands are designed for areas of flowing water where sediment transport is occurring. With the river's natural process, the sediment will deposit on these obstructions and form low islands which will protect areas from wave action and provide additional habitat diversity within the floodplain (Figure 30).
- HREPs now include designs for experimental features such as rock/log structures for offshore island protection which provide more diverse habitat than using only rock. Another experimental feature, wildlife loafing structures, consists of tree clumps extended into the river and anchored into island shorelines to provide loafing habitat for turtles and birds and to provide fish habitat (Figure 32) .

3.2.18 Water Level Management

The purpose of water level management is to partially re-create the natural river hydrology that occurred before the locks and dams were constructed (refer to Section 3.2.1 on page 224). The entire 261-mile length of the Refuge is impounded by the locks and dams, from Pool 4 through Pool 14. Temporarily lowering water levels behind dams during the summer months can stimulate the growth of aquatic plant beds in the lower portion of the pools. This process is called a drawdown.

Figure 30: Seed Islands Constructed and "Growing" on Upper Mississippi River Refuge

Since the early 1990s the Service, Corps of Engineers, U.S. Geological Survey, state natural resource agencies, navigation industry, and the public have been working together to perform drawdowns at various pools throughout the Upper Mississippi River. Refuge and other U.S. Fish and Wildlife Service personnel are completely involved with water level management and belong to two field-level multi-agency committees which work to recommend water level management practices in their respective navigation pools:

- Pools 1-10: Water Level Management Task Force, subcommittee of the River Resources Forum.
- Pools 11-22: Water Level Management Subcommittee, subcommittee of the Fish and Wildlife Interagency Committee of the River Resources Coordinating Team.

The Corps of Engineers operates the dams to provide a 9-foot channel for commercial navigation. (The dams do not provide flood control as many people believe.) Each dam has a specific operating plan and is regulated on the basis of discharge (i.e. flow) and maintaining certain water levels at its control point. During times of low flow, gates are lowered into the water backing up the river to maintain the 9-foot channel. As the flow increases, gates are raised allowing more water to pass through the dam while minimizing flooding on adjacent property. When the flow is great enough to provide a 9-foot channel without dams, gates are raised completely out of the water, resulting in the "open river" condition.

Figure 31: Constructed Islands with Sacrificial Berms, Rock Groins, and Native Vegetation, Upper Mississippi River Refuge

To perform a drawdown, water levels are temporarily reduced by half a foot to several feet behind specific dams during the summer months, mimicking natural water level fluctuations. The drawdown to the lower water level is performed gradually, usually over a two week period, in order to allow fish, mussels, and other wildlife to move and adjust to the water level rather than become stranded in an isolated area. The water level is held at the lowered level until the desired performance period is complete or discharges through the dam become too high or low to maintain the lowered level. Once the drawdown period is complete, the water level is gradually brought up to its normal level.

There are many factors that limit the use of drawdowns in specific river stretches. These include the amount of acres which can be economically exposed, how much dredging is required to maintain commercial navigation and recreational access to the river, affects to industry barge staging areas, locations of water intake pipes for industry or municipalities, and exposure of archeological sites. Drawdowns can only be performed under specific discharge ranges developed for each dam. Some dams have very narrow drawdown discharge ranges which makes them poor candidates for drawdowns. Within the Refuge, the Corps of Engineers has determined that pools 5, 7, 8, 9, 11, and 13 are best suited for drawdowns based on discharge conditions (USACE, 2004c) (Table 16).

Timing of the drawdown period is also important. The main purpose of a drawdown is to stimulate aquatic vegetation growth; therefore most drawdowns begin in mid-June and end in August or September. However other concerns are considered in the timing such as disturbance to nesting birds, disruption of fish spawning, exposure of mussel populations, and stranding of fish. Many of these concerns are mitigated by the gradual lowering and raising of the water levels.

To determine how successful a drawdown is, data such as land cover, vegetation surveys, and bathymetry is gathered prior to the drawdown. During a drawdown, the effects are carefully monitored; aerial photos are taken and vegetation surveys conducted to determine how much

Figure 32: Wildlife Loafing Structures Placed on Constructed Islands Upper Mississippi River Refuge

influence the drawdown had. In addition, the effects are monitored for several years after selected drawdowns to see how long the effects last. This information will help river managers determine when the next drawdown of that pool should occur to maximize the effects for that river reach.

Drawdowns have been successfully performed in several areas of the Upper Mississippi River. The U.S. Army Corps of Engineers, St. Louis District has been performing annual drawdowns of Pools 24, 25 and 26 (Melvin Price) since 1995 creating thousands of acres of critical vegetation in those pools. In the late 1990s, small, isolated drawdowns were performed successfully on the Refuge in Pools 5 and 9, demonstrating improved vegetation growth through a drawdown.

In Pool 8, large-scale drawdowns, 18-inches at the dam, were successfully performed in 2001 and 2002. More than 1,950 acres of river bottom were exposed, growth of perennial emergent vegetation was robust (Figure 33), and arrowhead tuber production increased 16-fold in selected areas (RRF, 2004a).

In 2005, a 1.5-foot drawdown of Pool 5 was performed that exposed over 1,000 acres of mudflats and sand bars. Initial results indicate that 72 species of plants were detected in the drawdown area. The resource agencies are evaluating monitoring results for drawdown effects to plant response,

Table 16: Upper Mississippi River Pools on Refuge Most Suited for a Drawdown (Adapted from USACE, 2004c), Upper Mississippi River Refuge

Pool	Drawdown[1] Magnitude (ft)	Drawdown Success Rate	Acres Exposed	Dredging Required (yd^3)	Dredging Cost	Cost per Acre
5	1	95%	1,100	135,811	$643,175	$585
	2	81%	2,200	287,236	$1,365,093	$620
	3	55%	4,000	448,088	$2,137,217	$534
	4	38%	5,500	610,333	$2,935,132	$534
7	1	98%	1,206	0	$0	$0
	2	74%	2,331	215,000	$1,280,000	$549
	3	40%	3,385	475,000	$2,800,000	$827
8	1	74%	1,300	2,000	$88,000	$68
	2	50%	3,090	120,253	$475,000	$154
	3	33%	5,215	300,000	$1,185,000	$227
9	1	71%	4,751	0	$0	$0
	2	57%	6,932	75,000	$375,000	$54
	3	40%	9,497	165,000	$825,000	$87
11	1	91%	399	0	$0	$0
	2	86%	883	49,368	$399,400	$452
	3	86%	1,606	109,076	$762,441	$475
	4	64%	2,744	162,800	$976,800	$356
13	1	86%	1,560	35,200	$316,800	$203
	2	86%	2,822	131,032	$1,021,093	$362
	3	68%	4,519	229,768	$1,581,487	$350
	4	55%	6,821	325,600	$1,953,600	$286

[1] "Drawdown" refers to a reduction in the target operating level for the navigation pool, as measured at the dam.

waterbirds, mussels, recreation, transit time for commercial navigation, water quality, sediment movement and budget, and sediment nitrogen cycling (RRF, 2005). A second year Pool 5 drawdown, maximum of 1.5 feet, is planned for the summer of 2006.

Drawdowns of Pool 13 have been attempted three times but were discontinued due to low flows. Planning for Pool 13 continues and planning for drawdowns of Pools 6, 8, and 9 is under way.

Drawdowns have proven to be a cost effective way to restore habitat in large reaches of the river. The resulting increased vegetation provides valuable food and cover for fish, migrating waterfowl,

Figure 33: Pool 8 Drawdown Sequence (Upper Mississippi River Refuge, La Crosse District)

and other species along the river. In addition, the vegetation can absorb nutrients from upland run-off, helping reduce excess nitrogen and phosphorus input into the Mississippi River system. This could in turn contribute to the reduction of Gulf hypoxia.

3.3 General Public Use

3.3.1 Hunting

Hunting, one of the priority public uses of the Refuge System, has a deep history and tradition on the Refuge where several species of upland game, big game, and migratory waterfowl and birds are hunted. In fiscal year 2003, over 284,000 hunter visits were made to the Refuge, and approximately 87 percent of those visits were for waterfowl hunting (Table 17). Between 1999 and 2003, waterfowl hunting accounted for 74 to 90 percent of the estimated hunter visits. Portions of the Refuge are open to hunting in accordance with federal, state, and local regulations. Four states overlap with the Refuge, each with their own hunting regulations and seasons (Table 18), requiring hunters to be aware of which state they are hunting in on the Refuge. .

Two managed hunts, Potter's Marsh and Blanding Landing, are conducted on the Refuge (Appendix H). Since 1980, the Savanna District has conducted a lottery drawing for waterfowl hunting blind

Table 17: Estimated Annual Hunting Visits to the Upper Mississippi River Refuge (Fiscal Years 1999-2003 Refuge Management Information System Reports)

Hunting	Estimated Total Number of Hunter Visits per Fiscal Year				
	1999	2000	2001	2002	2003
Waterfowl	160,936	176,313	189,453	339,430[1]	248,640
Other Migratory Birds	1,645	3,386	4,000	4,591	4,899
Upland Game	19,414	11,872	10,542	10,046	10,084
Big Game	35,921	23,470	23,812	22,371	21,080
Total	217,916	215,041	227,807	376,438	284,703

1. This number is probably too high and reflects a reporting anomaly.

sites on 1,923 acres of Potter's Marsh in Pool 13. Applicants pay a $10 non-refundable application fee, and successful applicants pay an additional $100 fee for the 49 blind sites. Successful applicants construct blinds for the season according to guidelines provided. Over 500 persons apply for a blind permit annually. In 2002, hunter bag checks showed that hunters using Potter's Marsh blinds averaged 3.8 birds/day compared to 2.9 birds/day on other areas in Pool 13.

The other managed hunt for waterfowl hunting, Blanding Landing, is a 412-acre area within the former Savanna Army Depot that is now part of the Lost Mound Unit of the Refuge. The Illinois Department of Natural Resources conducts a managed hunt on the area.

3.3.2 Closed Areas

The Refuge currently includes 14 closed areas and one sanctuary encompassing 44,544 acres. The closed areas do not prohibit entry, but are closed to hunting and furbearer trapping during the duck hunting season and to migratory bird hunting at all times. The sanctuary, the Spring Lake Closed Area (Pool 13), is closed to all public entry from October 1 to the end of the duck hunting season. (See maps, Appendix P, and Table 6 in Appendix H.) For background information on the closed areas, refer to Chapter 1, Section 1.4.5.4 on page 23, Wildlife-Dependent Public Use Issues, Waterfowl Hunting Closed Areas and Section 3.2.7.1 on page 235 in Chapter 3.

In recent years, eight administrative "No Hunting Zones" totaling nearly 3,555 acres were established (6 on Pool 13 and 1 on Pool 7) for public safety, to reduce potential user group conflicts, and provide opportunities for wildlife observation. This includes part of the former Savanna Army Depot that is now part of the Lost Mound Unit. Due to contamination, 2,467 acres of the Lost Mound Unit Crooked Slough Backwater are closed to entry. These "No Hunting Zones" are not intended to augment the Refuge's waterfowl closed area system. (see maps, Appendix P, and Table 2 in Appendix H.)

3.3.3 Fishing

Fishing, another priority public use of the Refuge System, remains an important, traditional use of the Refuge. In fiscal year 2004, over 1 million visitors fished either from boat, shore or on the ice (Table 19). Fishing occurs year-round, with the possible exception of spring ice break-up. The most popular fishing spots are below the dams, near wing dams and spillway notches, and in backwaters. The Refuge provides many facilities to promote fishing including 26 boat ramps and 15 fishing piers and platforms (maps, Appendix P, and Tables 1 and 14 in Appendix H).

Table 18: Comparison of Hunting Seasons 2003 - 2004 on Upper Mississippi River Refuge For Minnesota, Wisconsin, Iowa, Illinois

Event	Dates	Minnesota		Wisconsin		Iowa		Illinois	
Deer Hunting									
Gun Season	Start	22-Nov-03		22-Nov-03		6-Dec-03	13-Dec-03	21-Nov-03	4-Dec-03
	End	30-Nov-03		30-Nov-03		10-Dec-03	21-Dec-03	23-Nov-03	7-Dec-03
	# of Days	9		9		5	9	3	4
Special Manage-ment Zones	Start			30-Oct-03	11-Dec-03				
	End			2-Nov-03	14-Dec-03				
	# of Days			4	4				
Wild Turkey Hunting									
Fall Season	Start	15-Oct-03	22-Oct-03	11-Oct-03		13-Oct-03		25-Oct-03	
	End	19-Oct-03	26-Oct-03	9-Nov-03		5-Dec-03		2-Nov-03	
	# of Days	5	5	30		54		9	
Spring Season	Start	14-Apr-04	(Separated into 8 5-day seasons)	14-Apr-04	(Separated into 6 5-day seasons)	12-Apr-04	(Separated into 4 various length seasons)	12-Apr-04	(Separated into 5 various length seasons)
	End	27-May-04		23-May-04		16-May-04		13-May-04	
	# of Days	44		40		35		32	
Migratory Game Bird Hunting									
Dove	Start	1-Sep		1-Sep-03		N/A		1-Sep-03	1-Nov-03
	End	30-Oct		30-Oct-03				14-Oct-03	16-Nov-03
	# of Days	60		60				44	16
Sora and Virginia Rails	Start	1-Sep-03		4-Oct-03	18-Oct-03	6-Sep-03		6-Sep-03	
	End	4-Nov-03		12-Oct-03	7-Dec-03	14-Nov-03		14-Nov-03	
	# of Days	65		9	51	70		70	
Common Snipe	Start	1-Sep-03		4-Oct-03	18-Oct-03	6-Sep-03		6-Sep-03	
	End	4-Nov-03		12-Oct-03	7-Dec-03	30-Nov-03		21-Dec-03	
	# of Days	65		9	51	86		107	
Woodcock	Start	20-Sep-03		20-Sep-03		4-Oct-03		18-Oct-03	
	End	3-Nov-03		3-Nov-03		17-Nov-03		1-Dec-03	
	# of Days	45		45		45		45	
Waterfowl Hunting									
Ducks	Start	27-Sep-03		4-Oct-03	18-Oct-03	20-Sep-03	11-Oct-03	16-Oct-03	
	End	25-Nov-03		12-Oct-03	7-Dec-03	24-Sep-03	4-Dec-03	14-Dec-03	
	# of Days	60		9	51	5	55	60	

Table 18: Comparison of Hunting Seasons 2003 - 2004 on Upper Mississippi River Refuge For Minnesota, Wisconsin, Iowa, Illinois (Continued)

Event	Dates	Minnesota		Wisconsin		Iowa		Illinois	
Canvas-backs	Start	11-Oct-03		18-Oct-03		18-Oct-03		16-Oct-03	
	End	9-Nov-03		16-Nov-03		16-Nov-03		14-Nov-03	
	# of Days	30		30		30		30	
Pintails	Start	27-Sep-03		4-Oct-03	18-Oct-03	20-Sep-03	11-Oct-03	16-Oct-03	
	End	26-Oct-03		12-Oct-03	7-Nov-03	24-Sep-03	4-Nov-03	14-Nov-03	
	# of Days	30		9	21	5	25	30	
Canada Geese	Start	27-Sep-03	12-Dec-03	4-Oct-03	18-Oct-03	27-Sep-03		1-Sep-03	16-Oct-03
	End	5-Dec-03	21-Dec-03	12-Oct-03	17-Dec-03	5-Dec-03		15-Sep-03	13-Jan-04
	# of Days	70	10	9	61	70		15	90
Furbearer Hunting									
Raccoon	Start	Continuous		18-Oct-03		1-Nov-03		5-Nov-03	
	End			31-Jan-04		31-Jan-04		10-Feb-04	
	# of Days	365		106		92		98	

Table 19: Estimated Annual Fishing Visits to the Upper Mississippi River National Wildlife and Fish Refuge (Fiscal year 1999-2004 Refuge Management Information System reports.)

	Estimated Total Number of Fishing Visits per Fiscal Year					
	1999	2000	2001	2002	2003	2004
Total	824,983	1,150,477	1,057,978	1,141,173	943,916	1,303,130

According to a 2003 Minnesota Department of Natural Resources Mississippi River boating survey, half of all boaters indicated that their primary activity on the Mississippi River was fishing. In addition, 70 percent of boaters using public accesses indicated that fishing was their primary activity. This survey also concluded that the most common boat type on the Mississippi River in Pools 4-9 during the summer season is a fishing boat, followed by runabouts. A bass boat falls into the classification of a runabout because it has a windshield (MnDNR, 2004).

Fishing tournaments, particularly for bass and walleye, occur on the Refuge and are permitted by the states. Exact numbers of fishing tournaments are unknown since each state or other authority often has different permit and reporting requirements, or may not issue permits at all. In Illinois, only fishing tournaments initiating from an Illinois Department of Natural Resources launch site are required to have a permit. In Minnesota, permits are issued for tournaments with 30 participants or more. Permitted tournaments are limited to two weekends each month per pool. In Iowa, permits are issued to tournaments with 20 or more boats or 50 or more people. In addition, Iowa requires Illinois tournaments to have an Iowa permit if anglers are fishing in Iowa waters. Wisconsin issues permits for tournaments meeting a minimum participation threshold. Tournaments initiating from boat landings operated by the U.S. Army Corps of Engineers, Rock Island District are required to have permits if they meet the minimum threshold of 15 boats. Table 20 summarizes fishing tournaments held on the Refuge.

Table 20: Summary of Upper Mississippi River Fishing Tournaments by State

Year	Tournament Fish Species					No. of Tourn-aments	No. of Boats	No. of Anglers (Estimated)
	All	Walleye	Bass	Panfish	Catfish			
Minnesota (Pools 4-7)								
1996	4	9	2	0	0	15	1,072	21,44
1997	2	13	4	0	0	19	1,125	2,250
1998	4	13	4	0	0	21	981	1,962
1999	4	12	6	0	0	22	1,116	2,232
2000	5	12	3	0	0	20	1,430	2,860
2001	4	12	6	1	0	23	1,366	2,732
2002	2	13	4	0	0	19	1,363	2,726
2003	5	15	6	0	0	26	1,992	3,984
Totals for Minnesota						165	10,445	20,890
Iowa (Pools 9-14)								
1996	6	14	38	6	3	67	1,573	3,146
1997	10	19	37		4	70	2,583	5,167
1998	11	16	32	1	5	65	1,401	2,803
1999	8	10	44		3	65	1,433	2,867
2000	13	16	72	1	2	104	2,666	5,333
2001	15	22	104		2	143	2,682	5,364
2002	3	17	102	1	2	125	4,997	9,994
Totals for Iowa						639	17,335	34,674
Wisconsin (Pools 4-11)								
2002		20	77	2		99	922	1,620
2003		12	24			36	686	810
Totals for Wisconsin						135	1,608	2,430
Illinois (Pool 13)								
2003			14			14	155	330
Totals for Illinois						14	155	330

There are few restrictions to lessen the biological impacts from tournaments. Some of the states are requiring catch and release in the same pool that the fish were caught, and in Iowa, during June, July and August immediate release of walleyes is required.

3.3.4 Wildlife Observation and Photography

Two of the six priority public uses for the Refuge System are wildlife observation and photography. The Refuge provides outstanding wildlife viewing opportunities due to the abundance of eagles, swans, ducks, warblers, pelicans, herons and other birds. The National Scenic Byways that border the Refuge for hundreds of miles and the relatively open access to lands and waters of the Refuge,

Table 21: Estimated Annual Wildlife Observation and Photography Visits to the Upper Mississippi River Refuge (Fiscal year 2002-2004 Refuge Management Information System reports)

Estimated Total Number of Wildlife Observation and Photography Visits per Fiscal Year		
2002	2003	2004
240,088	220,000	389,080

make the Refuge one of the premier wildlife viewing and photography areas in the nation. The Refuge provides many facilities to support wildlife observation and photography including 15 observation decks, six hiking trails, three biking trails, four canoe trails, and one auto tour route (maps, Appendix P, and Table 3, Table 4, Table 5, Table 15 and Table 19 in Appendix H). In fiscal year 2003, the Refuge recorded 220,000 wildlife observation and photography visits, and in fiscal year 2004, the visits increased to over 389,000 visits (Table 21)

3.3.5 Interpretation and Environmental Education

For the Refuge System, interpretation and environmental education are two of the six priority public uses. Interpretive signs are the primary method of interpretation used by the Refuge. They are relatively inexpensive and convey messages at the visitor's convenience since they are available any time of the day or season. A total of 66 interpretive signs are used along the National Scenic Byways, bike trails, walking trails, overlooks and off-refuge sites overlooking the Refuge. In addition, 66 kiosks, 25 entrance signs and 30 official notice boards provide information about the Refuge (see maps, Appendix P, and Table 16 in Appendix H).

The Refuge has three full-time visitor services specialists, along with staff, volunteers and interns who conduct on- and off-site educational programs. The La Crosse and Savanna Districts have meeting rooms where educational activities are conducted. Lacking any classroom facilities, the McGregor and Winona Districts conduct all environmental education activities out on the Refuge or at off-site facilities.

Educational materials including books, posters, videos, equipment, and learning trunks are available for loan to area educators. In addition, Refuge staff, working with other agencies and organizations, coordinates special events including the Upper Mississippi River Festival, River Education Day, Birding Festivals, Eagle Days, and Refuge Week.

A yearly average of 6,000 students and teachers participate in on- and off-site environmental education activities. The number of students participating in on-site environmental education decreased 39 percent from 2000 to 2003 while off-site instruction increased 45 percent over the same period. This trend toward off-site instruction can be attributed to the lack of indoor and outdoor Refuge classroom facilities that accommodate students during inclement weather, as well as the lack of funding for school field trips. The Refuge has requested funding from the Friends Group to help defray bus transportation to Refuge sponsored activities such as the Upper Mississippi River Fest.

3.3.6 Recreational Boating, Camping, and Other Beach-Related Uses

Fishing on the Upper Mississippi River Refuge. Cindy Samples, USFWS

Although they are not wildlife-dependent priority uses of the Refuge System, an estimated 1.8 million visitors use the Refuge annually for recreational boating, camping, picnicking, swimming, social gatherings, and other beach-related uses. There is a long history of beach use on the Upper Mississippi River as the public took advantage of beach areas created by placement of dredged sand during navigation channel maintenance operations. The public also takes advantage of natural sand shorelines and sand placement sites often called "bathtubs". For additional discussion of beach use refer to Chapter 1, section 1.4.5.5, Other Recreational Use Issues.

For 10 years, extensive data from aerial photo surveys has been collected to evaluate the extent of watercraft use along a 150-mile section of the main navigational channel during the Memorial Day to Labor Day summer season (Resource Studies Center, St. Mary's University of Minnesota, 2001). This study section starts at the lower end of Lake Pepin (Pool 4, River Mile 764.5) and ends at Guttenberg, Iowa (Pool 10, River Mile 614.2). Study data indicate that the highest percent of boating use occurs on Pools 10, 4 and 8. The areas that have the highest percentage of beached boats in the study area include:

- Pool 4: Wabasha Bridge to Teepeeota Point
- Pool 5: West Newton to Minneiska
- Pool 5A: Bass Camp to Fountain City boat yard
- Pool 8: Mouth of Root River to Deadman Slough Daymark
- Pool 10: Wisconsin River confluence to Lock and Dam 10

Boating activity decreases where there are fewer beaches. In 2003, the Minnesota Department of Natural Resources conducted a recreational boating study on the Mississippi River, Pools 4-9, from Memorial Day through Labor Day (MN DNR, 2004). This study involved direct interviews and the use of questionnaires. It revealed that there were 670,345 boater-occasions (number of people in a boat using the river). While previous aerial photo surveys were limited to the main navigation channel, the Minnesota study attempted to locate all boats, regardless of their location on the river. A comparison of the 2003 Minnesota study to previous aerial photo counts shows the photos measure approximately 60 percent of all boating use. Therefore, it was estimated that 60 percent of recreational boating takes place in the main navigation channel, and 40 percent takes place in side channels and backwater areas. The 2003 Minnesota study also noted several boating trip characteristics:

- The average boating party size is 2.9 people, most of whom are adults.
- Overnight boating trips account for 12 percent of all trips.
- Most boaters (87 percent) do not leave (lock out) the pool into which they launch.
- One-third of all trips (32 percent) involve beaching.
- Anglers spend most of their time in side channels and backwaters.
- Fishing is the primary activity for half of all boaters.

The Refuge has designated four canoe trails and one electric motor area for recreational boaters engaged in "silent sport" activities such as kayaking and canoeing. In these areas, the public can at

Table 22: Upper Mississippi River Refuge Visitor Contact Stations

District	Exhibits	Classroom	Book Store	Year Opened
La Crosse	Yes	Yes	Yes	1995
McGregor	Yes	No	No	1986
Savanna	Yes	Yes	Yes	2000
Savanna, Lost Mound Unit	Yes	No	No	1999

times experience the quiet and solitude of the Refuge backwaters (maps, Appendix P, and Table 5 and Table 13 in Appendix H). Boats with motors are allowed in the canoe trail areas.

On several areas of the Refuge, boat traffic levels and size of boat wakes is leading to erosion of island and shoreline habitat. Some areas also present a safety hazard for boaters due to level of use and blind spots in the channel. To address these issues, there are 46 no-wake zones on the Refuge.

While not a wildlife-dependent use, camping is allowed on the Refuge. However, camping at any one site on the Refuge is restricted to no longer than 14 days during any 30-consecutive day period. In addition, tents, camping equipment, boats or other property cannot be left unattended at any site for over 24 hours. During waterfowl hunting seasons, camping is prohibited within Closed Areas, no hunting zones, or on any sites not clearly visible from the main navigation channel.

3.3.7 Public Use Facilities

The Refuge has four visitor contact stations, one each located at the La Crosse, McGregor and Savanna District Offices and one located at the Lost Mound Unit (Table 22). These contact stations feature small displays areas adjacent to the office area. The La Crosse and Savanna visitor contact stations also feature a sales area with natural history books and other products.

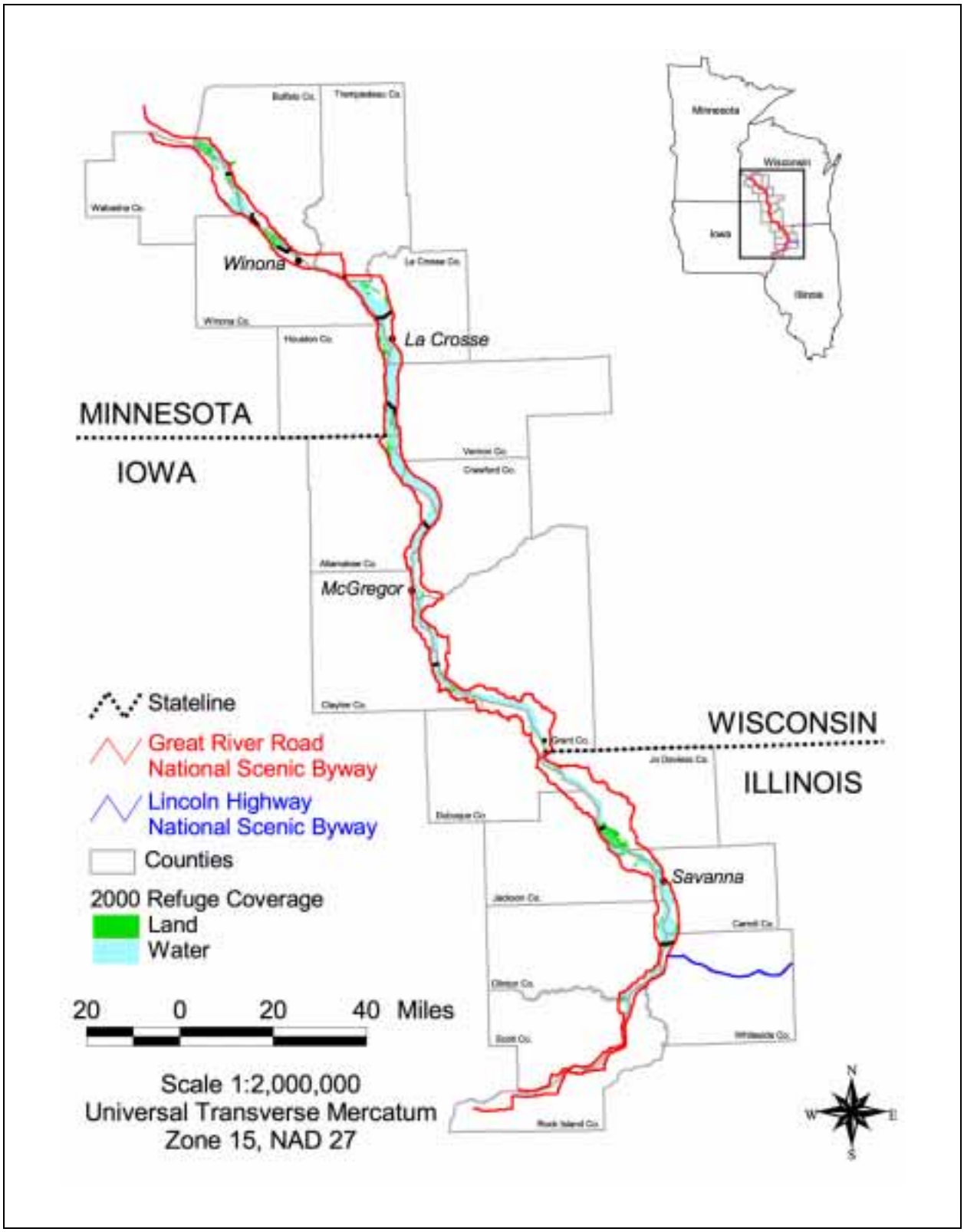
The Refuge maintains 26 boat landings with 700 parking spaces (maps Appendix P, Table 1 in Appendix H). The landings can accommodate flat bottom boats, v-bottom fishing boats, runabouts, powerboats, pontoon boats, canoes, and kayaks. An additional 221 non-U.S. Fish and Wildlife Service landings also provide access to the Refuge. There are numerous walk-in sites and roadside pull-off areas where access management and control is varied and inconsistent. Providing access to the Refuge is challenging given the rail and highway systems in place, and the physical restrictions of floodplain and terrain.

3.3.8 Scenic Byways

The Refuge winds through beautiful bluff country in Minnesota, Wisconsin, Iowa and Illinois. The Great River Road National Scenic Byways border the Refuge on both sides (Figure 34), providing access to many of the Refuge's visitor contact stations, boat ramps, trails, observation decks, kiosks, and interpretive signs. The Great River Road includes the following highways near the Refuge:

- Minnesota: U.S. Highway 61
- Wisconsin: State Routes 35 and 133, County Road C, and U.S. Highway 61
- Iowa: State Route 26, Iowa 340, U.S. Highway 52
- Illinois: U.S. Highway 20, State Route 84

Figure 34: National Scenic Byways Bordering the Upper Mississippi River Refuge



In addition to the Great River Road, the Lincoln Highway National Scenic Byway, US 30, intersects the Refuge at Fulton, Illinois. Refuge personnel work with state representatives of the scenic byways on projects that are beneficial to both the Refuge and the scenic byways.

3.4 Socioeconomic

The Upper Mississippi River Refuge comprises over 240,000 acres along the Mississippi River in the Upper Midwest. The Refuge covers 261 river miles beginning north of Wabasha, Minnesota, where the Chippewa River flows into the Mississippi River and ending just above Rock Island, Illinois. The Refuge has four management districts that encompass four states and 19 counties.

This section summarizes Dr. James Caudill's socio-economic information about the Refuge. For further documentation refer to his two reports, "Affected Environment: Socio-Economics" and "The Economic Effects of the Upper Mississippi River National Wildlife and Fish Refuge Baseline and Effects of Alternatives." Both documents can be found on the Refuge planning web site http://midwest.fws.gov/planning/uppermiss/index.html .

3.4.1 Population, Income, Employment and Demographics

For the Refuge area (19 counties) as a whole, the 2001 census population was over 933,000 which represented a 2.8 percent increase from 1991. This increase lagged behind population increases for the four states and for the U.S. Total employment in 2001 was over 589,000 for the Refuge area, representing a 12.7 increase from 1991. This increase, as with population, lagged behind state and U.S. employment increases. Per capita income (total area income [county, state or U.S.] divided by area population, and adjusted for inflation to 2003 dollars) was $25,514 for the Refuge area counties, increasing by 16.9 percent from 1991. While greater than the U.S. per capita increase, state increases in per capita income were greater than the Refuge area counties, ranging from a 24.4 percent increase for Minnesota to a 17.5 percent increase for Iowa.

While most of the counties are rural in nature, two of the districts have a fairly low level of farm-related employment. The Savanna District has only 4.2 percent of total employment in farming and the La Crosse District has only 6.0 percent of total employment in farming (Table 23). The other two districts, Winona and McGregor, show farm employment comprising 9.8 and 10.3 percent of total employment respectively. All four districts show a 10-year decline in farm-related employment, ranging from a 9.5 percent decline in the Savanna District to a 7.1 percent decline for both the Winona and McGregor Districts.

Manufacturing, retail trade and services comprise the major employment sectors for all four districts. These three sectors comprise 59 percent of total employment for the Winona District, 61.5 percent for the La Crosse District, 59.3 percent for the McGregor District and 62.9 percent for the Savanna District. The fastest growing sectors for the Winona District are manufacturing (23.2 percent), services (21.4 percent) and retail trade (14.4 percent). In the La Crosse District, the fastest growing sectors include finance, insurance, and real estate (FIRE) (39.0 percent), services (34.0 percent) and wholesale trade (28.4 percent). For McGregor District, services was the fastest growing sector (32.5 percent), with retail trade sector (16.9 percent) and manufacturing (15.1 percent) following. In the Savanna District, the service sector had the highest increase, 33.5 percent, followed by FIRE (11.1 percent) and the retail trade sector (6.9 percent).

Caudill's "Affected Environment: Socio-Economics" (Caudill, 2004) report also details the demographics of the 19 counties in the Refuge area. The populations are more than 95 percent white. When compared to their respective states and the U.S. as a whole, the counties within the Refuge area have a:

Table 23: Employment Characteristics by Major Economic Sectors and Refuge District[1]

Sector	Winona District		La Crosse District		McGregor District		Savanna District	
	Percent change 1990-2000	Sector as percent of total employment 2000	Percent change 1990-2000	Sector as percent of total employment 2000	Percent change 1990-2000	Sector as percent of total employment 2000	Percent change 19902000	Sector as percent of total employment 2000
Farm	- 7.1	9.8	- 9.0	6.0	- 7.1	10.3	- 9.5	4.2
Nonfarm	24.4	90.2	22.6	94.0	20.0	89.7	14.8	95.8
Manufacturing	23.2	23.2	8.3	16.9	1.5	15.1	2.0	15.8
Wholesale	4.5	4.5	28.4	5.4	31.0	4.4	6.9	4.9
Retail	14.4	14.4	17.6	16.9	21.1	16.9	9.8	17.6
FIRE	3.5	3.5	39.0	5.1	26.7	5.0	11.1	5.7
Services	21.4	21.4	34.0	27.7	32.5	27.3	33.5	29.5
Government	11.8	11.8	14.3	12.4	- 2.3	10.1	- 4.2	11.3
Other	NA	21.3	NA	15.8	NA	21.4	NA	15.2

1.Source: Caudill, 2004

- lower proportion of children under 5.
- higher proportion of people over 65.
- varying proportion of high school graduates from slightly lower to slightly higher.
- lower rate of college graduates.
- higher rate of home ownership.
- about the same rate of population below the poverty line.

3.4.2 Refuge Economics

Recreation visits to the Refuge and Refuge budget expenditures generate significant local and regional economic effects (Caudill, 2004a). In 2003, the Refuge accounted for over 3 million visitor days; boating, camping, and other beach-related uses accounted for 43 percent of total visitor days; fishing accounted for 38.3 percent; wildlife observation for 9.7 percent; migratory waterfowl hunting for 8 percent; big game hunting for 0.7 percent and small game hunting for 0.3 percent. These visits resulted in $73.5 million in retail expenditures in the nineteen-county area surrounding the Refuge. Total economic output associated with these expenditures amounted to $89.9 million (Table 24, Caudill, 2004a).

Recreational use of the Refuge generated 1,173 jobs in the 19-county area with job income of $19.7 million. Non-residents (living outside the 19-county area) spent $27.8 million in the local area resulting in $33.9 million in economic output and 431 jobs with labor income of $7.4 million. Recreational use of the Refuge generated over $9.6 million in federal, state and local taxes. The economic value of the recreational use of the Refuge is estimated to be between $46 million and $60 million annually.

Table 24: Total Economic Impacts of Recreational Use: Upper Mississippi River Refuge, 2003[1]

Activity	Expenditures	Output	Jobs	Job Income
Wildlife Observation	$4,063,292	$4,968,614	68	$1,071,484
Small game hunting	$160,431	$196,291	3	$42,497
Big game hunting	$501,106	$619,673	8	$142,627
Migratory bird hunting	$4,542,451	$5,609,297	76	$1,268,309
Fishing	$29,576,333	$36,223,053	483	$8,119,297
Boating	$34,673,216	$42,266,199	535	$9,044,582
Refuge Totals	$73,516,829	$89,883,127	1,173	$19,688,796

1.Source: Caudill, 2004a)

Refuge budget expenditures average over $5 million annually. These expenditures generate $8.3 million in economic output, 93 jobs and over $1.7 million in job income. Over $731,000 in federal, state and local taxes are generated by Refuge budget expenditures.

Considering both Refuge visitor and budget expenditures, the Refuge generates over $19 million annually in expenditures and economic value, $98 million in economic output, 1,266 jobs with an income of $21.4 million and federal, state and local taxes of $10.4 million. Each dollar of Refuge budget expenditures generates $23.90 of economic effects and $2.08 of federal, state and local tax revenue.

It is important to note that previous reports on the economic impacts of recreational use on the Upper Mississippi River System show a much higher impact than presented here. For example, the Corps of Engineers' 1993 report on economic impacts of recreation on the Upper Mississippi River System (USACE, 1993a) estimated recreational expenditures at $387 million, and economic output and jobs supported in adjacent counties of $200 million and 3,000, respectively. The report concluded that overall U.S. economic output resulting from recreation on the system at $1.1 billion per year and supporting 12,600 jobs.

The State of Wisconsin, using previous economic reports, estimated that the 19 counties adjacent to the Refuge accounted for 7.6 million visits, $255 million in economic output, and support for 4,580 jobs.

These differences compared to Refuge figures reflected above and in Table 24 can be attributed to a number of factors. Earlier reports were not Refuge-specific and covered areas beyond the Refuge. Refuge visitation figures only reflect people actually within the Refuge doing recreation and do not account for visits to private marinas; state, county, and Corps of Engineers recreation areas; persons traveling along the scenic byways adjacent to the Refuge; or general "tourism" visits to the host of communities adjacent to the Refuge. Thus, how one defines a visitor to the Refuge has a huge impact on the actual number of visits used in economic models, and visits drive the models. Refuge information in this section was also only for travel-related expenditures, and only for in-state impacts. Regardless of the estimates, the economic impact from recreation on the Refuge, and the Upper Mississippi River as a whole, is critical to the socioeconomic fabric of the area.

3.4.3 Commercial Use of Refuge

Commercial use of the Refuge consists of hunting, wildlife observation and fishing guides, commercial trappers, recreational fish float operators and commercial fishing. Farming, grazing and timber harvesting have a minimal impact on the Refuge. Commercial navigation passes through the Refuge.

3.4.3.1 Hunting, Fishing and Other Guide Services

A number of guides operate on the Refuge, providing services for anglers, hunters and wildlife observers. In recent years, the Refuge has averaged about 15 guides operating on the Refuge per year. Specific information on the number of clients, party size and client expenditures for guide services is not available, but it is estimated that each guide is engaged for about 30 – 40 trips per year. Guides who obtain permits from the Refuge pay $100 annually.

3.4.3.2 Commercial Trapping

Muskrat, beaver, raccoon, and mink are the primary furbearing species harvested on the Refuge. A relatively few number of red fox and otter are also trapped. Over 75 percent of the animals trapped are muskrats. The average age of trappers continues to increase as fewer young trappers replace the older trappers who either quit or pass away. Four states overlap the Refuge, each with their own trapping regulations and seasons (Table 25). This is a source of confusion for some trappers, who must be well aware of what state they are in when trapping on the Refuge.

Trappers must have a Special Use Permit and pay an annual fee of $20.00 (since 2000) to trap on the Refuge. Annual revenue from trapping fees has averaged $4,740 since 2000. In the 2003-04 season , 245 active trappers spent an average of 24.1 days each trapping on the Refuge; they harvested 36,108 muskrats (Table 26). Based on an average price of $2.72 per pelt (based on a Wisconsin Department of Natural Resources survey, one local buyer, and two national auctions), gross revenue for the muskrat harvest by these trappers amounted to $98,214 (Table 26). Gross revenue for beaver was $29,835, for otter it was $4,117. Pelt prices vary considerably between years, for example, muskrat prices have ranged from $6.50 per pelt in 1979, to $4.00 in 1987, $1.00 in 1990, and $2-2.50 in 2004. Beaver sales at the North American Fur Auctions varied between $16 and $21 from 2000 to 2004. For further details on the Refuge's trapping program refer to section 3.2.1.4: Mammals.

3.4.3.3 Fish Float Operators

Fish floats are private businesses which provide fishing opportunities to the public for a fee. Operators pick up customers via boat and transport them to the fishing facility (float) below a lock and dam. There are currently four fish float operators within Refuge boundaries. About 15,000 anglers per year use the floats with the largest operator servicing about 6,000 anglers per year while the remaining operators average about 3,000 anglers each per year. For calendar year 2003 gross receipts ranged from $10,000 to $44,000 per float. Float operators are required to obtain an annual special use permit from the Refuge for a fee of $100.

3.4.3.4 Commercial Fishing

Commercial fishermen usually harvest 17 species of fish, plus turtles, within the Refuge (Pools 4-14). During the period 1998 to 2001, annual commercial catch within Refuge pools (Table 27) averaged 6.6 million pounds, with a gross value of $1.7 million (2003 dollars), based on ex vessel price per pound (the price paid to the commercial fisher dockside: i.e., before any processing or distribution). Commercial catch of turtles averaged 8,475 pound annually.

People who fish commercially must obtain annual commercial fishing licenses issued by the four States. An individual commercial fisherman may require one or more licenses to cover the harvest of various fish species and/or utilize different types of nets and lines. Therefore, annual data described herein (except Spring Lake, see below) are attributed to the number of licenses, not the number of

Table 25: Comparison of Trapping Seasons, Upper Mississippi River Refuge

Furbearer Trapping	Dates	Minnesota	Wisconsin	Iowa	Illinois
Muskrat	Start	1-Nov-03	10-Nov-03	1-Nov-03	5-Nov-03
	End	29-Feb-04	29-Feb-04	31-Jan-04	15-Jan-04
	# of Days	121	112	92	72
Otter	Start	Not Allowed	6-Dec-03	Continuously Closed	N/A
	End	N/A	7-Mar-04	N/A	N/A
	# of Days	0	93	0	0
Beaver	Start	1-Nov-03	8-Dec-03	1-Nov-03	5-Nov-03
	End	15-May-04[1]	15-Mar-04	15-Apr-04[1]	31-Mar-04[1]
	# of Days	197	99	167	148

1. Refuge season closes March 16.

Table 26: Estimated Gross Revenue from Furbearers Harvested by 245 Trappers During the 2003-2004 Trapping Season, Upper Mississippi River Refuge

Species	Fur Prices from Various Sources[1]				Average Price (Dollars)	Trapper-reported Harvest on Refuge	Gross Revenue (Dollars)
	Wisconsin Fur Prices	Fur Harvesters Auction, June 2004 (Dollars)	North American Fur Auctions, 2004 (Dollars	Wiebke Fur Company, LaCross Wis., November 2004 (Dollars)			
Beaver	15	17	21	15	17	1,755	29,835
Raccoon	12	14	n/a	11	12	1,533	18,907
Otter	89	84	105	80	90	46	4,117
Muskrat	2.65	3	n/a	2.50	2.72	36,108	98,093
Red Fox	21	n/a	20	15	19	4	75
Mink	19	13	n/a	11	14	380	5,447

1.Fur prices rounded to the nearest dollar, except muskrat.

commercial fishermen (Table 27). Between 1998 and 2001, an average of 527 commercial fishing licenses were issued to people who operate within Refuge pools. The annual gross revenue per commercial fishing license was $2,963.

The only location on the Refuge where commercial fishermen must have Refuge permits is on Spring Lake in Pool 13. During 1998-2003, an average of 13 fishermen were issued permits through the Savanna District office (Table 27). Total average annual harvest at Spring Lake was 55,335 pounds of fish, yielding an average gross income of $642 per fisherman. This low dollar value is based on the lowest values fishermen are paid, based on whether fish are bought live, whole or processed.

Table 27: Summary of Commercial Fishing, Upper Mississippi River Refuge

Year	Species	Pounds of Fish	Value ($)[1]	Pounds of Turtles	Value ($)[1]	No. of Fishermen
Pools 4-14						
1998	17	6.25 million	1.50 million	8,900	4,100	599
1999	17	5.98 million	1.53 million	8,000	3,600	397
2000	17	5.61 million	1.49 million	9,000	4,700	537
2001	17	8.46 million	1.81 million	8,000	4,400	576
Spring Lake Pool 13						
1998	3	35,595	5,339	N/A	N/A	14
1999	3	63,557	10,169	N/A	N/A	13
2000	3	73,544	11,031	N/A	N/A	12
2001	3	38,322	5,365	N/A	N/A	8
2002	3	63,463	9,519	N/A	N/A	14
2003	3	57,532	8,629	N/A	N/A	14

1. Minimum value ($) based on dead weight.

3.4.3.5 Clamming

There is virtually no clamming industry on the Mississippi River at the present time. In the early 1990s clamming was a million dollar industry. The market for clams was primarily in Japan where the shell "seeds" were used to implant oysters for pearl production. However, in the late 1990s the combination of large stockpiles of shells and a disastrous red tide in Japan that destroyed oyster beds depressed the market for clamming. Today the price is what drives this industry and with the introduction of a synthetic bead into pearl production, it is not likely the local commercial clamming industry will be revived. In addition, some States are restricting commercial clamming activities because of population declines due to competition of invasive species, habitat changes, and changes in host fish populations (refer to Section 3.2.10 on page 253).

As of the 2006-2007 season, all Wisconsin waters, including the Mississippi River, have been closed to commercial clamming. Wisconsin allows pearl hunting and personal clamming (up to 50 pounds per day) but it is illegal for anyone to sell or barter clams. Minnesota has also closed the clamming season on waters infested with zebra mussels to include the Mississippi River south of St. Anthony Falls (St. Paul, Minnesota). Iowa has closed the commercial clamming season in the Mississippi River along the Wisconsin/Iowa border, but not as yet on the Illinois border waters. Illinois allows commercial clamming on the Mississippi River but has one sanctuary in the Blanding Landing area of Pool 12.

3.4.4 Administration and Facilities

The Refuge is divided into four districts to optimize management, administrative, and public service effectiveness and efficiency. District offices are located in Winona, Minnesota (Pools 4-6), La Crosse, Wisconsin (Pools 7-8), McGregor, Iowa (Pools 9-11), and Savanna, Illinois (Pools 12-14). The Refuge currently has 37 permanent employees and an annual base operations and maintenance budget of $3.1 million.

The Refuge has its overall Headquarters in Winona, Minnesota, that provides administrative, biological, engineering, private lands, mapping, visitor services, planning, and policy support to the districts. District managers are supervised by the refuge manager located in Winona. Two other national wildlife refuges, Trempealeau NWR and Driftless Area NWR, are also part of the Refuge complex. Driftless Area NWR is under the supervision of the McGregor district manager.

The Headquarters office is currently in the old historic Exchange Building in downtown Winona, a building shared with private enterprise. Customers to these businesses provide a considerable distraction in terms of traffic and non-refuge-related inquiries. The building has no physical connection to the Refuge. The building offers little to no Refuge or Fish and Wildlife Service identity and very limited visitor parking. There are inadequacies in the heating and cooling system, disabled access, and staff parking. The building space is currently rented for $70,000 per year. The current lease expires in 2006. Boats and other vehicles and equipment are stored in a garage a few blocks away.

The Winona District is currently located on the second floor of the Exchange Building in downtown Winona, Minnesota as noted above for Headquarters. The same inadequacies affect the operation of Winona District. The District shop is one stall of an old garage attached to the Sign Shop several blocks away. Other storage includes an open pole barn built about 10 years ago. Both of these facilities are Fish and Wildlife Service-owned. With the pending replacement of the Sign Shop, Winona will lose their current shop and storage facilities.

La Crosse District currently has a modern office and limited garage space that is rented through General Services Administration. The building is shared by Fisheries, Law Enforcement, and National Wetland Inventory staff. The building has a shared visitor contact component with exhibits, meeting rooms, and a cooperative sales area. The La Crosse District accounts for approximately $100,000 of the annual rental cost paid by the Service, and soon, the Region. The lease expired in December 2004 and was extended for 5 years, with an option to vacate in 3 years, or the end of 2007. The District also has a modest maintenance and storage facility built in the 1960s near La Crescent, Minnesota. This building is owned by the Fish and Wildlife Service, and needs to be replaced in a different location since it is in the floodplain. The current office, although modern and adequate, presents a high, re-occurring annual rental cost, is several miles from the Refuge, and is located in a highly developed retail business area of Onalaska. The office is difficult to find and not frequented by most people who use the Refuge.

The McGregor District office is currently Service-owned but on a small site with severe physical limitations due to tract size and a sheer bluff in the back and a major highway and rail line in front. Staff is crammed into tiny offices or divided areas/hallways, and an excess Federal Emergency Management Agency trailer is wedged between the office and the cliff. The office and trailer were cited in 2004 for several structural/location-related safety violations which are beyond the staff's control. The office turn from the highway is unsafe, and there is not enough space for parking. Staff park across the highway on private land, although this arrangement is dependent on the continued good will of the owner. Staged trains sometimes block access to personal vehicles. A small maintenance building is also on the site. Roof problems were repaired and the storage area expanded upward during a 2004 renovation, but the building is still judged inadequate from both a size and location standpoint. Three equipment storage buildings are located in Cassville, Lansing, and Genoa for logistical reasons given the size and length of the District. The Cassville and Genoa buildings were built in the 1960s and are reaching the end of their useful life. The Lansing building is newer and deemed adequate.

The Savanna District has an office and visitor contact station (Ingersoll Learning Center) on the Refuge adjacent to wildlife viewing areas and hiking/biking trails. However, the environmental education and interpretation program is limited by inadequate facility size. An equipment storage building was recently constructed, but the District has a tiny, outdated maintenance building.

Ingersoll Learning Center, Savanna District. USFWS

The existing Lost Mound Unit office is an old Savanna Army Depot administrative building shared with the Illinois Department of Natural Resources. There is an area dedicated to locally prepared displays. Although part of the Savanna District, the Lost Mound Unit has its own identity and visitor-base from the Savanna Depot era, and promises to be a major attraction for visitors given its large size, location, unique wildlife and prairie, and history in the greater community. A new office and maintenance facility would enhance the Service's image and the quality of service and programs to the public.

3.5 Cultural Resources and Historic Preservation

Archeological records show evidence of human use along the Mississippi River from the earliest generally accepted cultural period, the Paleo-Indian tradition that commenced about 12,000 years before present. Archeologists hypothesize that small family-groups of hunters-gatherers roamed widely in search of mega-fauna and other resources. The presence of these people is usually recognized through surface finds of their fluted spear points. Such Paleo age materials (e.g., Quad/ Chesrow points) are present within Pool 10 of the Refuge (Kolb and and Boszhardt, 2004).

Numerous sites from the following Archaic tradition have been found on the Refuge. People of this 6,000-year long tradition adapted their subsistence practices to changing environmental, habitat, and resources based changes including the 2,000-year very warm and dry altithermal that ended about 5,000 years ago. Extensive trade routes brought in exotic materials. People buried their dead in natural knolls. Archaic tradition cultural practices gradually evolved into the subsequent Woodland tradition.

Commencing around 3,000 years ago was the Woodland tradition. Archeological sites are widespread in the Refuge and usually include pottery, arrowheads, and artificial mounds used for human burials and for other purposes. People exploited a wide range of habitats in an environment similar to that found in the early historic period. The people lived in larger, semi-permanent villages, practiced horticulture, and at some period participated in long distance trade. In some respects, Europeans coming into the Upper Mississippi River valley encountered people of the Woodland culture, some of whom may have been the ancestors of the Eastern Dakota Indians.

The Mississippian period started in the Saint Louis area about 1,000 years ago and moved up the Mississippi River. But few archeological sites of that period have been found in the Refuge area. A related cultural group known as the Oneota, which may have developed from the Late Woodland culture, is more evident in the archeological record. Late Oneota people probably were the ancestors of the Ioway, Oto, Missouria, and Winnebago Indian tribes.

The Upper Mississippi River was, of course, the major route of European-based exploration and subsequent Western culture population growth and development. Archeological sites associated with

exploration, military activities, the fur trade, lead and zinc mining, lumbering, steamboats, bridges, railroads, and conservation are known or expected along most of the river.

The following listed Indian tribes have been recognized by the federal government or self-identified by the tribe as having a potential concern for traditional cultural resources, sacred sites, and cultural hunting and gathering areas in the counties in which the Refuge is located.

- Bad River Band, Chippewa
- Boise Forte Band, Chippewa
- Fond du Lac Band, Chippewa
- Grand Portage Band, Chippewa
- Lac Courte Oreilles Band, Chippewa
- Lac du Flambeau, Chippewa
- Leech Lake Band, Chippewa
- Mille Lacs Band, Chippewa
- Red Cliff Band, Chippewa
- Red Lake Band, Chippewa
- Sandy Lake Band, Chippewa
- Sokaogon Chippewa
- Devils Lake (Spirit Lake) Sioux
- Flandreau Santee Sioux
- Lower Brule Sioux
- Lower Sioux Mdewakanton
- Prairie Island Sioux
- Santee Sioux
- Shakopee Mdewakanton Sioux
- Sisseton-Whapeton Sioux
- Upper Sioux Community
- Iowa Tribe of Kansas
- Iowa tribe of Oklahoma
- Menominee Indian Tribe
- Miami Tribe
- Stockbridge-Munsee
- Peoria Indian Tribe
- Citizen Potawatomi
- Forest County Potawatomi
- Hannahville Indian Community, Potawatomi
- Prairie Band of Potawatomi
- Sac & Fox Nation of Missouri
- Sac & Fox Tribe of the Mississippi
- Ho-Chunk Nation
- Winnebago Tribe of Nebraska

Although Indian tribes are generally understood to have concerns about traditional cultural properties, other organizations such as church congregations, civic groups, and county historical societies could have similar concerns.

The Refuge archeological collections contain prehistoric artifacts currently not associated with any modern tribe. Furthermore, the collections contain human remains but no funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act. Although not all sites of historic period Indian occupation have been identified on the Refuge, they could be located and could contain cultural items.

The Refuge has museum collections that are managed under a Refuge Scope of Collection Statement dated October 31, 1994. To date, 108 archeological and geomorphological and history and research investigations have produced a calculated 129,339 artifacts from Refuge lands; artifacts are or will be stored at several repositories under terms of cooperative agreements. Artifacts are owned by the federal government and can be recalled by the Service at any time. Some historic items and historic documents are housed at the Refuge headquarters. From 1999 through 2001 the Refuge contracted to have the documents and photographs scanned into a data base.

A cultural resources overview and management study was prepared in 2003 as part of the Comprehensive Conservation Plans for the Refuge and Trempealeau National Wildlife Refuge (Gregory, et al., 2003). The document is available at Refuge Headquarters, Winona, Minnesota. The report presents a cultural history beginning 12,000 years ago through prehistoric and historic periods, ending in the 20th century. An inventory of cultural sites is not included in that document. However, a list is available upon request. Sites are recorded by fee-title and by cooperative agreement (with the U.S. Army Corps of Engineers, Appendix F) lands. The list is too long to include in this document. The document has a chapter about consultation processes identified in the National Historic Preservation Act of 1966 as amended, and a chapter that summarizes the methodology of, and responses to, a questionnaire sent to over 200 tribal communities, historical societies, and research groups who have potential interest in resources on the Refuge. The report concludes that a variety of cultural resources must be considered during any field project associated with the Refuge. A comprehensive bibliography of cultural resources reports produced for Refuge studies is also included. Finally, a supplement to the report contains a manual for Native American Consultation documents that may be used or modified for Service purposes.

Cultural resources are an important part of the nation's heritage. The U.S. Fish and Wildlife Service is committed to protecting valuable evidence of human interactions with each other and the landscape. Protection is accomplished in conjunction with the U.S. Fish and Wildlife Service's mandate to protect fish, wildlife, and plant resources. The Refuge is fully aware of cultural resource management challenges presented by physical changes brought on by erosion and acretion of sediments in riverine settings. Artifact looting is also a management concern.

Chapter 4: Environmental Consequences

4.1 Introduction

This chapter evaluates the five alternatives on the basis of environmental consequences (effects or impacts) to the environment described in Chapter 3. This evaluation is conducted in three parts. First, there is a discussion of the effects common to all alternatives. Second, the effects of each alternative are analyzed for each of 25 physical, biological, and socioeconomic parameters or concerns. A table at the end of the chapter (Table 33 on page 343) helps compare and contrast these effects. Lastly, the cumulative impacts, commitment of resources, short versus long-term productivity, and unavoidable adverse effects inherent in the alternatives are discussed.

Prothonatary Warbler. USFWS

As described in Chapter 2, five alternatives are being considered:

Alternative A, No Action, would maintain the current level of effort on fish and wildlife and habitat management. Public use programs and regulations would remain virtually unchanged.

Alternative B, Wildlife Focus, would increase the level of effort on fish, wildlife, and habitat management. Some public use opportunities would remain the same and others reduced in favor of wildlife and habitat protection.

Alternative C, Public Use Focus, would increase the level of effort on public use opportunities and programs. The current level of effort on many fish, wildlife, and habitat management activities would remain the same, but decrease on some activities in favor of public use.

Alternative D, Wildlife and Integrated Public Use Focus, would increase the level of effort on fish, wildlife, and habitat management. It would take a more proactive approach to public use management to ensure a diversity of opportunities for a broad spectrum of users, both for wildlife-dependent uses and traditional and appropriate non-wildlife uses.

Alternative E, Modified Wildlife and Integrated Public Use Focus, would increase the level of effort on fish, wildlife, and habitat management. It would take a proactive but balanced approach to public use management to ensure a diversity of opportunities for a broad spectrum of users, both for wildlife-dependent uses and traditional and appropriate non-wildlife-dependent uses. Alternative E is a result of substantial public and agency input on the other alternatives, and is the Service's preferred alternative.

4.2 Effects Common to All Alternatives

4.2.1 Environmental Justice

Executive Order 12898 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" was signed by President Bill Clinton on February 11, 1994, to focus federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order directed federal agencies to develop environmental justice strategies to aid in identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The Order is also intended to promote nondiscrimination in federal programs substantially affecting human health and the environment, and to provide minority and low-income communities access to public information and participation in matters relating to human health or the environment.

Some of the alternative objectives presented in the Final EIS/CCP have the potential for both positive and negative impacts on minority or low-income segments of the population. The elimination of permanent waterfowl hunting blinds in Alternatives B thru E would be a positive impact since it would open more areas to all persons interested in waterfowl hunting without regard to their means or ability to construct permanent blinds. Establishing a managed hunt with fee in the Barrel Blinds area of Lake Onalaska in Pool 7 (Alternative D) could exclude low-income waterfowl hunters. However, this alternative also includes a "free Saturdays" provision to ensure that people of all income levels would have the opportunity to participate in the drawings. The $100 fee for the existing Potter's March hunt could be limiting for low-income hunters across all Alternatives. However, the blinds or staked areas are available when not being used by the permit holder (90 percent of the hunters selected hunt less than 10 days per season), and there is ample no-fee hunting on adjacent areas of the Refuge.

The elimination of commercial fishing floats in Alternative B could have an adverse impact to low-income and minority persons who either regularly use the floats now or do not have the means for owning personal watercraft for fishing. These floats are retained under other alternatives, including the preferred alternative. Proposed boat launch fees at Service-administered boat ramps in Alternatives B thru D could create a burden for low-income users, but the fee is expected to be modest relative to the costs of boats and vehicles, and there are abundant free boat ramps provided by states and local units of government. Better oversight of fishing tournaments and commercial guiding services in Alternatives B thru E should benefit low-income anglers by keeping competition from higher-income anglers more in balance with the needs of the general public. Finally, the creation of electric motor areas in Alternatives B thru E will offer quality hunting, fishing, and wildlife observation alternatives and opportunities for those who may not have the means for motorized watercraft.

Overall, none of the alternatives are expected to disproportionately place an adverse environmental, economic, social, or health effect on minority or low income persons, and in total, will likely have a positive effect.

4.2.2 Cultural and Historical Preservation

Activities outlined in each alternative have the potential to impact cultural resources, either by direct disturbance during construction of habitat projects and facilities related to public use or administration and operations, or indirectly by exposing cultural and historic artifacts during management actions such as water level drawdowns or prescribed burning. Although the presence of cultural resources including historic properties cannot stop a federal undertaking, the undertakings are subject to Section 106 of the National Historic Preservation Act, and at times, other laws.

Thus, the Refuge will, during early planning of actions, provide the Regional Historic Preservation Officer a description and location of all projects, activities, routine maintenance and operations that affect ground and structures, details on requests for allowable uses, and the range of alternatives being considered. The regional officer will analyze these undertakings for their potential to affect historic properties and enter into consultation with the State Historic Preservation Officer and other parties as appropriate. The Refuge will notify the public and local government officials to identify concerns about impacts by the undertaking. This notification will be at least equal to, but preferably with, the public notification accomplished for NEPA compliance and compatibility determinations.

4.2.3 Climate Change

The U.S. Department of the Interior issued an order in January 2001 requiring its land management agencies to consider potential climate change impacts as part of long-range planning endeavors.

The increase of carbon within the earth's atmosphere has been linked to the gradual rise in surface temperature commonly referred to as global warming. In relation to comprehensive conservation planning for national wildlife refuges, carbon sequestration constitutes the primary climate-related impact to be considered in planning. The U.S. Department of Energy's report "Carbon Sequestration Research and Development" (U.S. DOE, 1999) defines carbon sequestration as "...the capture and secure storage of carbon that would otherwise be emitted to or remain in the atmosphere."

Terrestrial biomes of all sorts – grasslands, forests, wetlands, tundra, perpetual ice and desert – are effective both in preventing carbon emission and acting as a biological "scrubber" of atmospheric carbon monoxide. The Department of Energy's report conclusions note that ecosystem protection is important to carbon sequestration and may reduce or prevent loss of carbon currently stored in the terrestrial biosphere.

The actions proposed in all alternatives would preserve or restore land and water, and thus would help mitigate human-induced global climate change through increased vegetation coverage which in turn enhances the removal and storage of carbon.

4.2.4 Prescribed Fire

Prescribed burn on Upper Mississippi River Refuge. Mary Stefanski

As noted in Chapter 2, a comprehensive Fire Management Plan was approved for the Refuge in 2002 and provides detailed guidance for the suppression or use of fire. The plan outlines wildfire response and prescribed fire objectives, strategies, responsibilities, equipment and staffing, burn units, implementation, monitoring, and evaluation. The complete Fire Management Plan and Burn Unit Maps (USFWS, 2002c) are available at the Winona Headquarters Office, or on-line at http://midwest.fws.gov/planning/uppermiss/index.html.

4.2.4.1 Physical Fire Effects

Due to the relatively small size of the burn units on the Refuge and anticipated intensity and frequency of the prescribed fires, the effects on soil should be beneficial by hastening the recycling of nutrients and increasing soil fertility. There should also be no impacts to water quality due to location and slope of the burn units. Air quality should only be affected negatively in the immediate vicinity of the prescribed burn, and only for a limited time during the burn. This temporary impact to air quality will be mitigated by small burn unit size, direction of winds, and distance of units from population centers. It is expected that all burns will thus be well within air quality parameters. In

the event of special air quality alerts by state or local agencies during a planned burn, burning will be deferred until conditions improve. No known archaeological sites are located on any of the burn units, and thus no impacts are anticipated. There is potential for archaeological artifacts to be present, but these are generally below the surface and would not be impacted since fire will move relatively quickly through the area and not generate high soil temperatures. Some artifacts could be exposed temporarily by the removal of vegetation, and detection and removal by the public could increase. However, all artifacts on the Refuge are protected by laws and regulations which should minimize such disturbance. The maintenance of firebreaks around certain burn units will create visual impacts for an indefinite period of time, and a local reduction of optimum habitat. However, the firebreaks are minor in terms of area compared to habitat in the burn unit, and a necessary trade-off to provide overall habitat and wildlife benefits and to minimize fire escape.

4.2.4.2 Biological Fire Effects

None of the federally listed threatened or endangered species found on the Refuge are known to inhabit or frequent the burn units that would be treated with fire, so there would be no effect. Burn units are also not in the vicinity of active Bald Eagle nests, so prescribed burns would pose no disturbance. Burning removes plant cover for 1-2 weeks and this would decrease the amount of habitat available for food and cover for a variety of grassland wildlife species. However, seasonal and long-term plant vigor and health would be enhanced by prescribed burns, which in turn will make the areas more productive for wildlife. In addition, since many of the burn units contain native tallgrass prairie, a fire-dependent plant community, it is expected that periodic burning will help ensure the continued existence of this rare ecosystem.

4.2.4.3 Socioeconomic Fire Effects

The use of fire often evokes an emotional response in local residents who have different experiences, fears, and values concerning wildland burning. This social impact can be mitigated to some degree by proactive information, education, and advance notification of a planned burn through media contacts and one-on-one visits with burn unit neighbors. Smoke from prescribed fires is also a concern since it can create a visibility hazard on nearby roads. In addition, smoke can enter private dwellings and businesses depending on wind direction. The fire management plan outlines precautions and specific actions to take to avoid and reduce any impacts from smoke, and contingency plans to be implemented should wind conditions change during a burn. Prescribed burning can have a benefit to the public by creating enhanced wildlife observation, photography, and hunting opportunities through the resulting increase in wildlife populations. Fire breaks put in place for prescribed burning can also help stop an unplanned wildfire and thus provide a measure of protection to any adjacent private habitat or dwellings. In the event that a prescribed fire does jump a firebreak and burn into unplanned areas, there is a high probability of rapid control by staff on-the-ground and thus minimal adverse impact. In addition, prescribed burn units on the Refuge average less than 125 acres, have light fuel loads (.025 to 3 tons per acre), and will be burned under low fuel moisture conditions and specific wind and weather conditions. These factors will help avoid and minimize fire escape.

4.2.5 Adjacent Land Owners

Land owners adjacent to the Refuge may benefit economically from owning property next to the Refuge. A recent report (Boyle et al. 2002) shows that land and property values are typically higher for properties next to a national wildlife refuge, when holding other factors constant. For example, a four-bedroom, two bath house on a one-quarter-acre lot increases in value as the distance from the Refuge decreases. For the four refuges included in the report, property values increased from $351 to $7,469 per mile as the distance of each property to the Refuge decreased. The report states on page 19:

> "The significant premium people pay to purchase properties near refuges clearly indicates that [refuges] provide desirable environmental amenities and permanent open space to local residents."

As property value increases, taxes would also be expected to increase. While this may result in increased revenue for the county, it also increases the tax burden for adjacent land owners. However, based on several townships included in the report, the annual tax increase of properties adjacent to refuges is fairly small, with annual tax increases averaging between $88 and $112 per home.

Since the alternatives would not radically change current land and water management direction or preclude any existing public use, it is anticipated that none of the alternatives would have a significant effect on property values in general or on the desirability of owning or buying property adjacent to the Refuge.

4.2.6 Marinas and Other Water Related Business

Under all alternatives there are minimal economic effects to marinas and other water-related businesses since opportunities for water-related recreation are common to all alternatives. In addition, any pool drawdowns described in the alternatives would be designed, or offset by access dredging, to avoid or minimize impacts to private marinas and other businesses. Lower water levels may cause some inconvenience or require extra caution by boat operators, but they would not measurably disrupt marina use. Some alternatives would restrict means of access to some areas of the Refuge by large boats most frequently associated with marinas, but none of these proposed actions restrict access or use of the main river channel or associated deep channels or sloughs where most boating occurs. Habitat improvements and care of the scenic qualities of the Refuge will continue to make the Refuge a destination-of-choice for many boaters and provide a long-term benefit to marinas and other water-related recreation businesses adjacent to the Refuge.

4.2.7 Commercial Navigation

Under all alternatives there is no impact to commercial navigation. All proposed actions have been tempered by the requirement in establishment legislation that Refuge management not interfere with the navigation operations carried out by the Corps of Engineers.

4.2.8 Commercial Forest Harvest

There is currently little commercial tree harvesting done on the Refuge. Under all action alternatives, a Forest Management Plan would be completed subsequent to the completion of a Forest Inventory. Although some increase in commercial harvest may occur, it is unknown what the level of harvest will be. However, given the floodplain nature of the Refuge and current forest species composition, harvest will likely be modest, selective, and restrictive in nature. It is anticipated that resulting economic impact would be minimal. The Forest Management Plan will outline methods and means of harvest to avoid, minimize, or mitigate any short- or long-term impacts from tree harvest operations.

4.2.9 Threatened and Endangered Species

All alternatives in the Final EIS/CCP have objectives to improve habitat conditions for native fish and wildlife including species listed as threatened or endangered under the Endangered Species Act. It is anticipated that nearly all habitat projects constructed on the Refuge during the next 15 years will be funded by other federal programs like the Environmental Management Program, operation and maintenance of the federal 9-Foot Channel Project, and potentially the Navigation And Environmental Sustainability Program. For activities implemented under these programs, the U.S. Army Corps of Engineers is responsible for compliance with the Endangered Species Act. In 2004, the U.S. Army Corps of Engineers evaluated potential impacts to the federally endangered Higgins

eye pearlymussel (*Lampsilis higginsii*) and threatened Bald Eagle (*Haliaeetus leucocephalus*) from a variety of habitat activities in their Biological Assessment for the Illinois Waterway System Navigation Feasibility Study (USACE, 2004a). The Service concurred with the Corps' biological assessment findings that these habitat activities are not likely to adversely affect Bald Eagles (USFWS, 2004b). However, some habitat activities are likely to adversely affect Higgins eye pearlymussels (i.e. pool drawdowns, dredging, island restorations, etc.). Conservation measures and other mandatory conditions were provided to the Corps of Engineers to minimize take of Higgins eye from these activities.

Consequently, the required Endangered Species Act consultation has been completed for nearly all habitat activities proposed on the Refuge during the next 15 years. Other projects or activities in the alternatives of the Final EIS/CCP during the next 15 years (new boat ramps, parking facilities, buildings or other structures), are not likely to adversely affect Bald Eagles or Higgins eye pearlymussels. This opinion is based on construction of similar projects in the past; to date, none of these activities have adversely affected federally listed species.

There are currently three candidate species that occur on the Refuge or in the vicinity of the Refuge. The Eastern massasauga rattlesnake (*Sistrurus catenatus catenatus*) is known to occur at only two sites within the Refuge, although potential habitat exists elsewhere on the Refuge. All alternatives include objectives with both targeted and non-targeted benefits for eastern massasauga. First, the objectives include restoring sedge meadow, bottomland forest, and reducing the pervasiveness of exotic species throughout the Refuge. All of these actions could have long-term benefits for eastern massasauga by providing or enhancing potential habitat. Second, the Refuge is in the process of developing Candidate Conservation Agreements for eastern massasauga at the two known localities. Although both agreements are still in the development phase, the commitment is to:

1. implement massasauga-compatible management,
2. restore or enhance habitat to support a viable population, and
3. provide long-term protection for such habitat.

Although massasauga-compatible management will be conducted, unavoidable impacts may occur. These impacts should be rare and minimal in extent, however, as the Refuge is committed to using the best management practices developed specifically for eastern massasauga.

The spectaclecase (*Cumberlandia monodonta*) and sheepnose (*Plethobasus cyphyus*) are also candidate species of freshwater mussels that historically occurred on the Upper Mississippi River within the states of Iowa, Minnesota and Wisconsin. The Service and other federal and state partners are actively involved in native mussel conservation programs on the Upper Mississippi River through the interagency Mussel Coordination Team (MCT). Since 2000, activities of the MCT include propagation and reintroduction of federally endangered Higgins eye pearlymussels (MCT, 2003). The team is now implementing conservation activities for the federally endangered winged mapleleaf. We anticipate that future activities will include the spectaclecase and sheepnose. For these reasons and given that the goals and objectives in applicable portions of the Final EIS/CCP directly and indirectly benefit the continued survival of eastern massasauga, spectaclecase and sheepnose, the implementation of the CCP which emerges is not likely to appreciably reduce the survival and recovery of these species. On the contrary, the expectation is for implementation of a Final CCP to perpetuate viability of these species within the Refuge.

Section 4.4.1 of this chapter contains additional information, by alternative, on the potential impacts to currently listed species, namely the Bald Eagle and Higgins eye pearlymussel.

4.2.10 Furbearer Trapping

Under all alternatives, the currently approved furbearer trapping program would continue unchanged until a new furbearer trapping plan is completed by June 2007. A description of the current program can be found in Chapter 3, Section 3.2.14 and Section 3.4.3. Impacts from the

current trapping program are summarized in the current compatibility determination available on the Refuge's planning website or at Refuge offices. Until the new furbearer trapping plan is completed, future biological and economic impacts are unknown. A separate environmental assessment will be done in conjunction with preparation of the new plan and all impacts explored. Public involvement will be part of new plan preparation.

4.3 Effects of Alternatives on Physical Parameters/ Concerns

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4.3.1 Water Quality

Alternative A – No Action

This alternative is expected to have little positive or negative impact to overall water quality on the Refuge. Although Refuge staff efforts in tributary watersheds will be minimal, a continued improvement in nutrient loads is expected from actions taken in watersheds as a whole pursuant to various state and federal water quality regulations and agricultural conservation practices. Some habitat projects will increase water turbidity during construction, but this effect will be of relatively short duration and off set by long-term gains in local water quality associated with the project. Sediment sampling is undertaken prior to construction of habitat projects involving sediment disturbance to assess threats from contaminant release and appropriate measures are taken to avoid or minimize such release. Improvements in aquatic vegetation by ongoing habitat efforts such as pool drawdowns could help reduce nutrient loads and improve water quality downstream.

Alternative B – Wildlife Focus

Same as A, except that water quality should be more positively affected by an increase emphasis in watershed conservation and restoration work. This would include private lands staffing to accelerate technical assistance to landowners and partners for watershed scale habitat assessment, mapping, modeling, and protection; and restoration through cooperative conservation partnerships. Support of the Upper Mississippi River Basin Association's efforts to develop more consistent standards for monitoring water quality will lead to better evaluation and improved project design and implementation in line with adaptive management practices. Improvements in water quality will positively effect plants and animals and improve a variety of public use opportunities related to these resources.

Alternative C – Public Use Focus

Same as Alternative B.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative B.

4.3.2 Sedimentation

Alternative A – No Action

Under this alternative, sediment deposits in certain backwaters would be reduced through ongoing habitat projects like those done under the Environmental Management Program. The rate of sediment deposition would also be positively affected by some of these same projects where closing or deflection structures are used. On a larger scale, this alternative would not lead to any marked changes in watershed conditions and the amount of sediment entering the Refuge would remain the same.

Alternative B – Wildlife Focus

Same as A, except that sedimentation on a broader scale should be reduced over time by an increase emphasis in watershed conservation and restoration work. This would include private lands staffing to accelerate technical assistance to landowners and partners for watershed scale habitat assessment, mapping, modeling, protection, and restoration through cooperative conservation partnerships.

Alternative C – Public Use Focus

Same as Alternative B.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative B.

4.3.3 Geomorphology

Alternative A – No Action

Under this alternative, there will be moderate, local changes in floodplain geomorphology as projects involving island construction, dredging for fishery habitat, and flow diversion are completed. However, overall geomorphology will continue to be driven by flood events, off-Refuge land use practices, and maintaining navigation capability through channel dredging and river impoundment.

Alternative B – Wildlife Focus

Same as alternative A, except that geomorphology on a broader scale could be influenced by an increased emphasis in watershed conservation and restoration work which could affect peak flow levels and amount of sediment deposition.

Alternative C – Public Use Focus

Same as Alternative B.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative B.

4.3.4 Hydrology and Water Level Management

Alternative A – No Action

Under this alternative, there would be no overall change in the hydrology of the river through the Refuge. Water level management, or pool drawdowns, would continue at the current rate and eventually be accomplished on several pools.

Alternative B – Wildlife Focus

The additional staffing and funding for watershed-scale technical assistance in this alternative could lead to a gradual moderation in peak tributary flows during spring runoff and storm events. Pool drawdowns could increase, especially if an Access Trust Fund is established to address supplemental dredging needs, and/or if drawdowns become part of the Corps of Engineers' Operating Plans for pools and move from experimental to operational.

Alternative C – Public Use Focus

Same as Alternative B, except that in regard to drawdowns, impacts would be the same as Alternative A.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Similar to Alternative B, although the number of pool-wide drawdowns compared to other alternatives could be less given that Alternative E states that drawdowns would be based on ecological need and engineering feasibility. Thus, the impacts could be moderated compared to Alternative B.

4.3.5 Landscape Considerations

Alternative A – No Action

The scenic and wild qualities of the Refuge would remain virtually unchanged, although long-term, a decline is likely due to an inadequately surveyed and posted boundary, modest acquisition of floodplains and bluffland areas, decline in forest condition, and continued unregulated growth in public uses which can directly impact habitat. Some of this decline would be mitigated by ongoing habitat management. For example, prescribed fire enhances the diversity and structure of native prairie which also improves its scenic qualities.

Alternative B – Wildlife Focus

An increased rate of land acquisition of both floodplain habitats and identified bluffland areas would help protect the scenic and wild qualities of the Refuge. More proactive forest management would help ensure the long-term health of the floodplain forest which directly influences the landscape of the Refuge. Prescribed fire would enhance the diversity and structure of native prairie and improve its scenic qualities. A restriction on locations of certain public uses would help safeguard habitat and protect the wild nature of the Refuge backwaters. Management planning for Research Natural Areas would take into consideration landscape values.

Alternative C – Public Use Focus

Same as Alternative A, except the increased rate of land acquisition would help protect the scenic and wild qualities of the Refuge. This gain could, however, be negated to some degree by increases in public use.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B, Wildlife Focus, except that guiding principles for habitat projects would include a principle on aesthetic considerations which would help protect the scenic and wild

character values of the Refuge landscape. This alternative would also help protect these values above the other alternatives if the Refuge is designated as a Wetland of International Importance (Ramsar Convention).

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative D.

4.4 Effects of Alternatives on Biological Parameters/ Concerns

4.4.1 Threatened and Endangered Species

Alternative A – No Action

Bald Eagle. USFWS

Acquisition of lands at current rates would protect additional lands and further the expansion of Bald Eagle nesting populations. Loss of mature trees and conversion of the floodplain forest to other habitat such as reed canary grass would limit nesting opportunities for Bald Eagles. Disturbance from motorboats and other recreation at Bald Eagle nesting, roosting, and fall foraging sites would continue unchecked with presently unknown consequences to overall productivity or Refuge use. Water quality concerns such as high nutrient loads may result in a poor quality fishery, limiting the food base for Bald Eagles. Conversely, limited control of invasive fish may improve foraging opportunities for eagles. Higgins eye pearlymussel would continue to be negatively impacted by the uncontrolled spread of zebra mussels, invasion of Asian carp, and continued rates of sedimentation. Drawdowns may leave Higgins eye pearlymussels stranded above the water line, and this possible impact would be mitigated by modifying the daily rate of water lowering and physically moving the mussels to deeper water. All potential impacts to threatened and endangered species from habitat projects or Environmental Pool Plan implementation will be evaluated and addressed through the section 7 consultation process.

Alternative B – Wildlife Focus

Acquisition and private land partnerships would protect additional lands and further the expansion of Bald Eagle nesting populations. The fishery prey-base for eagles would be enhanced through improved water quality, decreased sedimentation, expanded emergent and aquatic vegetation, and improved backwater spawning and rearing habitats. Improved forestry management would encourage uneven-aged stands, regeneration of hardwoods, and longevity of large, mature trees. Better management of invasive species (e.g. reed canary grass and Asian carp) would help maintain forests and native fisheries. Natural Area management plans would include special emphasis for nesting and roosting Bald Eagle habitats. Expanded habitat monitoring would improve management decisions affecting Bald Eagles and Higgins eye pearlymussels. Disturbance to nesting eagles by motorboats would decrease in new electric motor areas, in closed areas during fall foraging, and on certain islands and shorelines under new beach use guidance that limits recreational activities. Survival of Higgins eye pearlymussels may improve as more attention is given the control of invasive animals. Drawdowns may leave Higgins eye pearlymussels stranded above the water line, and this possible impact would be mitigated by modifying the daily rate of water lowering and physically

moving the mussels to deeper water. All potential impacts to threatened and endangered species from habitat projects or Environmental Pool Plan implementation will be evaluated and addressed through the section 7 consultation process.

Alternative C – Public Use Focus

Same as Alternative A, except that accelerated land acquisition would provide more potential nesting and roosting sites for Bald Eagles, and improvements to the fishery prey-base could result from better water quality and productivity through increased private lands efforts and pool drawdowns. However, increasing and unmanaged public recreation may limit the attractiveness of new and existing areas to nesting Bald Eagles depending on the type and timing of recreation. This potential negative impact could be offset by the increased public awareness of issues affecting threatened and endangered species through the additional interpretive and environmental education programs in this alternative.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B, except the additional interpretive and environmental education programs in this alternative could increase public awareness of issues affecting species and improve their overall conservation.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative D, although Alternative E includes reference to new State Comprehensive Wildlife Conservation Plans and the plans' species of greatest conservation need. Including these plans and species in Alternative E objectives and strategies could, in the long-term, help increase rare or declining populations and help preclude federal listing.

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4.4.2 Waterfowl

Alternative A –No Action

Waterfowl, especially dabbling ducks and Canada Geese, would benefit from additional wetland areas protected through a modest acquisition program. Pool drawdowns and other habitat projects would improve macroinvertebrate and aquatic plant food resources for waterfowl. Invasive plants and animals would continue to impact waterfowl habitats and food resources. Poor water quality and sedimentation would impact fingernail clams, a major food resource for Canvasback, Lesser Scaup, and other diving ducks. Closed areas would provide sub-optimum resting and feeding habitat due to lack of aquatic plants and macroinvertebrates, as well as disturbance from people in boats. Disturbance to ground nesting waterfowl would continue and perhaps affect nest success. Cavity nesting ducks, particularly Wood Ducks would find fewer nest trees as forests convert to other habitat such as reed canary dominated grasslands. Overall, waterfowl production and waterfowl numbers and use-days during migration would be expected to remain the same, or decline.

Alternative B –Wildlife Focus

Waterfowl, especially dabbling ducks and Canada Geese, would benefit from additional wetlands protected through acquisition and partnerships with private landowners. Macroinvertebrate and aquatic plant food resources would be enhanced with the increased use of drawdowns and other management actions in the Environmental Pool Plans. Aquatic habitats would be further improved with the reduction of invasive plants and animals. Migrating waterfowl would find more resting and feeding areas, including new areas with abundant food resources. Fingernail clams and other aquatic

invertebrates which provide food for waterfowl may become more abundant with improvement in water quality and reduced sedimentation. Disturbance to resting and feeding birds would be reduced by no entry areas. Disturbance to ground nesting waterfowl would decrease by more control of beach-related and other public uses. Nest sites for cavity nesting ducks would become abundant with better forest management practices. The closed area on Lake Onalaska would be enhanced and less crippling would occur with the elimination of the firing line on the north end of the lake. Expanded habitat and wildlife monitoring would improve management decisions. Overall, waterfowl production and waterfowl numbers and use-days during migration are expected to increase.

Alternative C – Public Use Focus

Same as Alternative A in terms of habitat effects on waterfowl. Additional wetlands for waterfowl would be protected through acquisition and easements. Drawdowns would improve aquatic plant and invertebrate resources. Invasive plants and animals would continue to degrade the river system impacting food and nesting resources for waterfowl. Cavity nesting ducks, particularly Wood Ducks, would find fewer nest trees as forests convert to reed canary dominated grasslands. Waterfowl would realize less benefit from habitat projects which also emphasize recreational fishing or boating access. Increased public education would help expose young people to the needs of wildlife, build a healthy outdoor ethic, and improve the overall attitude of the public towards wildlife conservation. However, waterfowl would suffer as funding would be diverted for recreation, interpretation, and environmental education rather than habitat management and monitoring. Food resources in many closed areas would continue to be limited and waterfowl would experience the same level of disturbance from boats. Additional disturbance to dabbling ducks would occur on Lake Onalaska by opening the north end of the closed area to hunting. Overall, waterfowl production and waterfowl numbers and use-days during migration are expected to decline.

Alternative D – Wildlife and Integrated Public Use Focus

Waterfowl, especially dabbling ducks and Canada Geese, would benefit from additional wetlands protected through acquisition and partnerships with private landowners. Macroinvertebrate and aquatic plant food resources would be enhanced with the increased use of drawdowns, and improvements in water quality and sedimentation. Aquatic habitats would be further improved with the reduction of invasive plants and animals. Migrating waterfowl would find more closed areas in areas of abundant food resources. Disturbance to resting and feeding birds during migration would be reduced by no fishing or motorized travel in no entry areas. Nesting waterfowl would be more productive by limiting disturbance from dogs and people. Nest sites for cavity nesting ducks would become abundant with better forest management practices. Expanded habitat and wildlife monitoring would improve management decisions. Use of funds to encourage environmental education and interpretation would be balanced with the needs for habitat management and monitoring. Some habitat projects would be designed specifically to enhance waterfowl habitat, while most would include waterfowl benefits. Overall, waterfowl production and waterfowl numbers and use-days during migration are expected to increase.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Similar to Alternative D, although disturbance to resting and feeding waterfowl in closed areas is expected to be higher in Alternative E due to a voluntary avoidance approach versus a regulation prohibiting fishing or motors in all areas. The size, configuration. and timing of closed areas are less restrictive under Alternative E, although areas with best food resources remain comparable to Alternative D. Despite these changes, overall waterfowl production and waterfowl numbers and use-days during migration are expected to increase in Alternative E compared to current conditions.

4.4.3 Other Migratory Birds

Alternative A – No Action

Migratory birds would benefit from additional floodplain forest, wetland, and grassland areas protected through a modest acquisition program. Current trends in hydrology, plant succession, and invasive plants on the Refuge will result in significant changes in tree species composition, forest fragmentation, and the conversion of forests to grasslands over the next 50 to 75 years. Species like Great Blue Herons, Great Egrets and Cerulean Warblers that favor tall trees for roosting and nesting will decline. Both resident and long-distance migratory songbirds utilize closed canopy silver maple forest for nesting and migration. Silver maple will likely decline in coverage and vigor over time without management action, negatively impacting forest-dependent, large tract species such as Red-shouldered Hawk and Prothonotary Warbler. Fewer blufflands would be conserved for migrating songbirds and raptors. Improvement of emergent marsh habitat through habitat projects such as island construction and pool drawdowns would positively impact a variety of birds such as bitterns, rails, Black Terns and Pied-billed Grebes. Shorebird habitat would improve through similar habitat projects, creating increased shallow water and exposed mud areas used for foraging during migration. Overall, migratory bird production and use would stay the same or improve for some species, and gradually decline for others under this alternative.

Alternative B – Wildlife Focus

Migratory birds would benefit from additional floodplain forest, wetland, and grassland areas protected through an accelerated land acquisition program. Some bluffland and lower tributary tracts, important for songbird and raptor migration and nesting, would be protected by fee-title or easement acquisition. Buffer land between development and key Refuge habitats would be acquired and reduce fragmentation. Habitat would be supplemented and connected through private landowner agreements, using Department of Agriculture program incentives. Better forestry practices would promote regeneration of hardwoods, mast producing trees, closed-canopy silver maple, and uneven age stands, resulting in more use by birds. Reduction of forest fragmentation and control of invasive plants would benefit forest interior bird species. More frequent use of drawdowns would improve emergent marshes for bitterns, rails, and other over-water nesting marsh birds. Shorebirds would benefit from shallow water and exposed mud flats during drawdowns. Electric motor areas would reduce disturbance to birds and likely increase productivity of marshbirds such as bitterns and rails, and colonial nesting birds such as herons and egrets. Better monitoring of habitat and birds would help mangers make more timely and effective habitat and public use management decisions. Overall, migratory bird production and use would stay the same or improve for a host of migratory bird species under this alternative.

Alternative C – Public Use Focus

Same as Alternative A, except increases in interpretive and environmental educational programs would increase public awareness of migratory birds and result in more support for their conservation.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B, except increases in interpretive and educational programs would increase public awareness of migratory birds and result in more support for their conservation.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative D.

4.4.4 Sport Fish

Alternative A – No Action

Refuge involvement in fishery management would remain limited under this alternative and have indirect sport fish impacts. Since there would be little fishery planning, no clear Refuge-specific

fishery objectives, and no increase in monitoring, opportunities for integrating fishery management with Refuge management would remain limited and opportunities lost for improving sport fish habitat. Any negative impacts from fishing tournaments or commercial fishing could continue without Refuge involvement and oversight. Coordination and sharing of expertise with the Service's fisheries resource office and the states would also be limited and the impacts to sport fish unknown. Without private land and watershed work in the tributaries, silt, nitrates and other contaminants would continue to enter the river system at current rates and impact sport fish. Some habitat projects would be designed to help over-wintering habitat for centrarchid fish such as crappies, sunfish, and large-mouthed bass, and increase populations. In general, implementation of Environmental Pool Plans and habitat projects would improve water quality and habitat for most fish. However, future increases in exotic fish and plants may prove detrimental to some native sport fish. Overall, this alternative, on balance, would likely have a positive influence on sport fish on the Refuge due to continued habitat improvements through specific projects and pool drawdowns.

Alternative B – Wildlife Focus

Ice fishing program, Upper Mississippi River Refuge. USFWS

Refuge involvement in fishery management would increase substantially under this alternative and have direct and indirect sport fish impacts. With a new fishery biologist, a fishery management plan, Refuge-specific fishery objectives, and an increase in monitoring, opportunities for integrating fishery and wildlife management with Refuge administration and operations would help increase sport fish populations. Any negative impacts from fishing tournaments or commercial fishing would be lessened by Refuge involvement and oversight. Coordination and sharing of expertise with the Service's fisheries resource office and the states would increase substantially to the benefit of sport fish initiatives and management. Private lands work in the tributaries would help reduce silt, nitrates, and other contaminants and help sport fish health and productivity. Some habitat projects would be designed to help over-wintering habitat for centrarchid fish such as crappies, sunfish, and large-mouthed bass, and could be done in all areas of the Refuge, including Waterfowl Hunting Closed Areas. In general, implementation of Environmental Pool Plans and habitat projects would improve water quality and habitat for most fish. Increased attention to invasive aquatic plants and animals could lead to improved sport fish carrying capacity on the Refuge. Overall, this alternative would have a positive influence on sport fish populations on the Refuge.

Alternative C – Public Use Focus

Same as Alternative A, except that private lands work in the watersheds could improve sport fish health and productivity by reducing the amount of sediment, nutrients, and contaminants entering the Refuge.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative B.

4.4.5 Other Fish

Alternative A – No Action

This alternative is unlikely to improve water quality or restore historic flows, and productivity of paddlefish and sturgeon will continue to be negatively impacted. Without private land and watershed work in the tributaries, silt, nitrates and other contaminants would continue to enter the river system to the detriment of fish. Limited coordination with the states and the Service's fisheries resource office, little oversight of potentially damaging commercial and recreational fishing, and lack of a fishery management plan will limit attention on priority fish species which could negatively impact their long-term health and productivity. Environmental Pool Plan projects include concepts to improve fish passage through the locks and dams. Likewise, habitat projects could include provisions for deep water holes and travel lanes for paddlefish and sturgeon, features that would benefit all fish species. However, continued spread of invasive aquatic plants and animals could negate habitat gains, or as is the case with fish passage, limit the use of certain management tools. Overall, this alternative, on balance, would likely have a positive influence on some species of fish due to continued habitat improvements through specific fishery projects, and be neutral for other species. However, the populations of some species, such as paddlefish and sturgeon, would likely continue to decline.

Alternative B – Wildlife Focus

Work on private lands in tributary watersheds may improve water quality and reduce siltation, enhancing spawning areas for paddlefish, sturgeon, and other fish. With a new fishery biologist, a fishery management plan, Refuge-specific fishery objectives, and an increase in monitoring, opportunities for integrating fishery management with Refuge administration and operations would increase and help improve fish populations. Coordination with the states and Service's fisheries resource office would increase, leading to additional habitat projects which should benefit all fish species. Increased oversight of commercial fishing could help limit negative impacts to fish species of concern, and provide positive benefits by increased harvest of invasive fish species. Environmental Pool Plan projects include improved fish passage through the locks and dams which would benefit several species. Likewise, habitat projects could include provisions for deep water holes and travel lanes for paddlefish and sturgeon. Invasive plants and animals would continue to increase, but better monitoring and interagency cooperation may lead to more successful control efforts and reduced impacts to fish. Overall, this alternative would increase fish productivity, distribution, and health.

Alternative C – Public Use Focus

Same as Alternative A, except that private lands work in the watersheds could improve overall fish health and productivity by reducing the amount of sediment, nutrients, and contaminants entering the Refuge.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative B.

4.4.6 Freshwater Mussels

Alternative A – No Action

Poor water quality and continued rates of sedimentation would continue to diminish reproduction and growth rates of most mussels. Survival of juvenile mussels would continue to be compromised because of lack of oxygen and silt accumulation in the substrate. In general, the diversity of mussel species would decline and soft substrate adapted mussel species such as floaters, papershells, and heelsplitters would dominate. Invasive zebra mussels would continue to spread and cause mortality to native mussels. Impacts related to impoundment of the river and subsequent loss of habitat

heterogeneity could be improved by implementation of habitat projects and Environmental Pool Plans. Impacts of specific habitat projects to mussel beds would need to be evaluated on a case-by-case basis. Distribution and survival of juvenile mussels would be enhanced by improved fish passage through the locks and dams as proposed in the Environmental Pool Plans. However, the lack of a fishery and mussel management plan, and oversight of recreational and commercial fishing and clamming, would hamper efforts to improve mussel populations and their host fish species. Future increases in invasive black carp that forage on mussels, could have severe impacts. Sporadic drawdowns could be damaging to mussel beds if the water is lowered too quickly or too far. Overall, mussel populations and productivity are expected to stay the same or decline under this alternative.

Alternative B – Wildlife Focus

Work on private land in the tributaries would benefit mussels by improving water quality and decreasing sediment entering the river. Less sediment in the river would provide a better diversity of bottom substrates to accommodate a more historic assemblage of species. A fishery management plan and oversight of commercial fishing and clamming would improve conditions for host fish and decrease mortality of mussels. Better monitoring and control of invasive plants and animals, especially zebra mussels, would improve survival of native mussels. Impacts related to impoundment of the river and subsequent loss of habitat heterogeneity could be improved by implementation of habitat projects and Environmental Pool Plans. Specific impacts of projects to individual mussel beds would need to be evaluated on a case-by-case basis. Distribution and survival of juvenile mussels would be enhanced by improved fish passage through the locks and dams as proposed in the Environmental Pool Plans. Increased use of drawdowns would in general improve river vigor and health, habitats, and food resources for mussels. However, drawdowns could negatively impact mussels if the water is lowered too quickly or too far. Public education about relatively unknown species like mussels would not be emphasized and support for conservation efforts may suffer. Overall, this alternative would have a positive effect on mussel productivity and health on the Refuge through the combination of improved water quality, specific habitat projects benefiting mussels, public use oversight, and increased attention on invasive aquatic species.

Alternative C – Public Use Focus

Same as Alternative A, except that private lands work in the watersheds could improve overall mussel health and productivity by reducing the amount of sediment, nutrients, and contaminants entering the Refuge. Also, the emphasis on interpretation and environmental education would increase public awareness and support for mussel conservation.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B except that an increased emphasis on interpretation and environmental education would increase public awareness and support for mussel conservation.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative D.

4.4.7 Reptiles and Amphibians

Alternative A – No Action

A modest land acquisition program under this alternative would provide additional habitat safeguards for most reptiles and amphibians. Contaminants, high nutrient loads, and siltation would continue to stress aquatic reptiles and amphibians. A lack of knowledge about the distribution and life history of turtles, frogs, and snakes on the Refuge would continue to hamper sound decisions regarding impacts of human activities. Limited drawdowns may improve emergent and submergent habitats important for amphibians and turtles. However, improvements would likely be short-lived without increased attention to invasive aquatic plants, particularly Eurasion milfoil, which can choke important foraging and travel areas for turtles and frogs. Reed canary grass would continue to invade bottom land forests, creating a more open forest canopy. Massasauga rattlesnakes would

benefit from more openings, but only if openings have a strong sedge meadow component and nearby forests remain intact for over-wintering. Without intervention, bottom land forests would convert to reed canary grass openings and even age monocultures of silver maple negatively impacting reptile and amphibian breeding and over-wintering. Human disturbance could continue to impact turtle nesting on sandy islands and shorelines. Projects implemented through habitat projects and Environmental Pool Plans could be designed to provide nesting beaches, loafing sites, and calm backwaters for amphibians and turtles. Environmental Pool Plans also include concepts to improve connectivity between the main river channel and backwaters. Reptiles and amphibians would benefit from improvements in backwater habitats and ease of travel between them. Overall, this alternative, on balance, would likely have a positive influence on many species of reptiles and amphibians on the Refuge due to continued habitat improvements. However, some species' populations would likely continue to decline due to lack of attention on forest habitat, invasives, and human-caused impacts.

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Alternative B – Wildlife Focus

Land acquisition could provide better buffers between development and key habitats for reptiles and amphibians, especially turtles that need to travel from wet to dry land to nest. Water quality would improve as more work is done with private landowners along the tributaries to curb contaminants, nutrients, and sediment entering the river. Increased use of drawdowns would improve the health and vigor of emergent and submergent habitats to the benefit of loafing and foraging turtles and frogs. Invasive plants would be monitored and controlled, improving both aquatic and terrestrial habitats that reptiles and amphibians use for foraging and reproducing. Forest resources would be monitored and actively managed to the benefit of frogs, toads and turtles. Forest practices could include efforts to improve sedge meadow openings for massasauga rattlesnake habitat. Improved monitoring and research would facilitate more informed decisions regarding land use and impacts to turtles and frogs. The distribution and life history of turtles along the river would be investigated so that better decisions could be made with respect to dredging and other channel maintenance activities. Projects implemented through habitat projects and Environmental Pool Plans could be designed to provide nesting beaches, loafing sites, and calm backwaters for amphibians and turtles. Environmental Pool Plans also include concepts to improve connectivity between the main river channel and backwaters. Reptiles and amphibians would benefit from improvements in backwater habitats and ease of travel between them. Conflicts with human uses would be addressed. Some beaches could be closed to human use during key turtle nesting periods. Some backwaters would become electric motor areas, limiting disturbance to snakes, frogs, and turtles. Public education programs would be limited and support for conservation of more obscure species like frogs and turtles may suffer. Overall, reptile and amphibian populations and productivity would likely increase under this alternative.

Alternative C – Public Use Focus

Same as Alternative A, except that private lands work in the watersheds could improve overall reptile and amphibian health and productivity by reducing the amount of sediment, nutrients, and contaminants entering the Refuge. In addition, an increased rate of land acquisition would safeguard important habitat, and a focus on public education would increase awareness of the conservation needs of reptiles and amphibians.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B, except that a focus on public education would increase awareness of the conservation needs of reptiles and amphibians.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative D.

4.4.8 Invasive Species

Alternative A – No Action

Invasive plants and animals would continue to spread on the Refuge and have the negative effects described in previous sections.

Alternative B – Wildlife Focus

Under this alternative, managers would gain a better understanding of the location and extent of invasive plants and seek a 10 percent reduction in acreage infected. Cooperation with other agencies may begin to provide solutions for managing invasive animals such as Asian carp and zebra mussels. Public awareness of the impacts of invasive species and the public's role in their spread may reduce new invasions and promote support and funding for control efforts.

Alternative C – Public Use Focus

Same as Alternative A, except public awareness of the impacts of invasive species and the public's role in their spread may reduce new invasions and promote support and funding for control efforts.

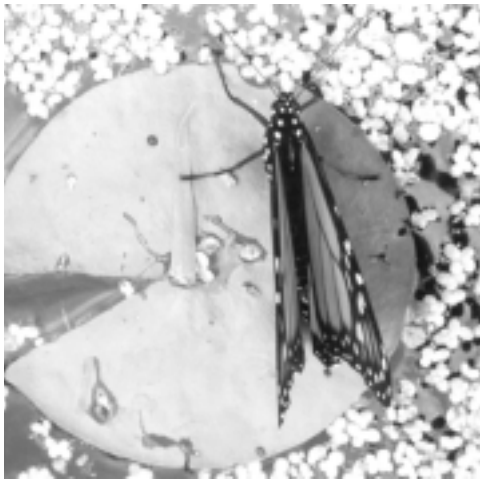
Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative B.

4.4.9 Invertebrates



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Alternative A – No Action

Water quality is a critical component of maintaining healthy aquatic invertebrate populations. Little work would occur on private land in the tributaries, and contaminants, nutrients, and sediment would continue to enter the river to the detriment of aquatic insects. Aquatic insects would see some short-term benefits from drawdowns. Large hatches of invertebrates would occur as the soils warm and plant growth is stimulated. Long-term benefits would be limited unless drawdowns occurred on a more frequent rotation. Fingernail clams would not see much change in population size, due to poor water quality and clarity. Crayfish are important for many other species. The health of crayfish populations may decline without improvement in water quality and better management of bottomland forests. Diversity and abundance of terrestrial invertebrates would not change. Little monitoring of invertebrates would occur and managers would miss an important opportunity to gauge water quality and river health.

Alternative B – Wildlife Focus

Work on private land within tributary watersheds would improve water quality and benefit aquatic insects. Drawdowns would promote plant growth and warm the surface of the mud stimulating hatching of aquatic insects, and this positive effect would likely continue for several reproductive cycles after a drawdown. Availability of detritus and decaying plants would provide abundant food and substrate resources for aquatic invertebrates. Fingernail clams would benefit from improved

water quality and clarity. On the other hand, although the relationship is unclear, increased growth of submergent plants through drawdowns or other actions may suppress production of fingernail clams. Terrestrial insects would benefit from active grassland management, particularly burning which promotes reproduction by warming the soil and providing abundant plant growth. Crayfish provide resources for many other species in the system and they would benefit from better management of bottomland forests. Improved water quality and better connectivity of the main channel with backwaters would benefit all invertebrate species. Monitoring of invertebrates would provide an important indicator of water quality and river health.

Alternative C – Public Use Focus

Same as Alternative A.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative B.

4.4.10 Mammals

Note: The impacts of the current trapping program on furbearers is discussed in the compatibility determination for trapping, found in Appendix E (website). See also Section 4.2.10 in this chapter.

Alternative A – No Action

All mammal species on the Refuge would benefit from the modest acquisition program in this alternative. Muskrats, beaver, mink, raccoon, and otter populations would likely increase due to improved beds of emergent vegetation from drawdowns and habitat projects in Environmental Pool Plans. Habitat projects would also increase resting, foraging, and denning areas for these and other mammals. Invasion of bottomland forests by reed canary grass, conversion of forests to monocultures of even-age silver maple, and loss of hardwoods would contribute to declining beaver populations, while mast-seeking species such as squirrels and deer would likely decline on the Refuge.

Alternative B – Wildlife Focus

All mammal species on the Refuge would benefit from the accelerated acquisition program in this alternative. In general, improved water quality, frequent drawdowns, and Environmental Pool Plan projects would improve habitats for most mammals, and especially furbearers. Increased monitoring would improve habitat project planning and management decisions on public uses involving mammals. Active management of grasslands and forests, including the control of invasive plants, would benefit all mammal populations. Overall, the increased attention to improving wetland, grassland, and forest habitat in this alternative would increase the productivity and health of most mammals.

Alternative C – Public Use Focus

Same as Alternative A.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative B.

4.4.11 Aquatic Vegetation/Wetlands

Alternative A – No Action

A modest acquisition program would protect additional wetland acres which would in turn provide for their long-term protection while safeguarding aquatic plants. Little work would occur on private land in the tributary watersheds and limit improvements to water clarity which has a marked effect on aquatic plant germination, growth, and sustainability. Pool drawdowns would occur periodically with dramatic but localized improvement in aquatic vegetation. Drawdown frequency, however, would continue to be limited by funding. Habitat projects through the Environmental Management Program and other programs will continue to improve aquatic vegetation composition, density, and reproduction by altering currents and providing areas sheltered from wind and wave action. Invasive aquatic plants would continue to increase and displace and exclude native plants. Asian carp such as grass carp will likely invade new areas and may negatively impact aquatic vegetation and wetland quality through direct feeding on plants and rooting of plant beds and lowering of water clarity. Overall, this alternative is likely to result in localized improvement to aquatic vegetation and a modest increase in wetland habitat afforded permanent protection.

Alternative B – Wildlife Focus

Work on private land within tributary watersheds would reduce the amount of sediment and nutrients entering the Refuge and improve aquatic plant germination, growth, and sustainability. Wetland acres permanently protected would increase markedly under a more aggressive acquisition program. Pool drawdowns would occur periodically with dramatic but localized improvement in aquatic vegetation. Drawdown frequency could increase under this alternative and improve and sustain more acres of aquatic vegetation. Habitat projects through the Environmental Management Program and other programs will continue to improve aquatic vegetation composition, density, and reproduction by altering currents and providing areas sheltered from wind and wave action. Invasive plants would be monitored and control efforts increased. Invasive fish have a profound impact on aquatic plants because they pull up plants while foraging and cause excessive turbidity. Better fisheries planning and interagency coordination may help check the spread of invasive fish. However, these gains would be off set to some degree since little effort would be made to increase public information and education regarding the impacts and control of invasives. Aquatic vegetation could improve in existing backwaters with a decrease in motorized traffic due to electric motor only areas and better oversight of fishing tournaments. Additional and more effective waterfowl hunting closed areas would likely lead to better distributed waterfowl which could affect the amount of aquatic vegetation they consume in any one area. Overall, this alternative is likely to result in more widespread improvement to aquatic vegetation and a substantial increase in wetland habitat afforded permanent protection.

Alternative C – Public Use Focus

Same as Alternative A, except that an increase in public information and awareness could lead to changes in land use practices in tributary watersheds and reduced spread of invasive species, both of which could increase the positive effects to aquatic vegetation and wetland quality.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B, except that an increase in public information and awareness could lead to changes in land use practices in tributary watersheds and reduce the spread of invasive species, both of which could increase the positive effects to aquatic vegetation and wetland quality.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative D.

4.4.12 Floodplain Forest

Alternative A – No Action

Silver maple and ash will continue to dominate the floodplain forest because of poor regeneration of mast producing trees that are less tolerant of saturated soils, and the shading of pioneer species like cottonwood and willow. However, since even silver maple is not regenerating at self-sustaining rates, it is expected that openings in the forest cover will be invaded by herbaceous plants such as reed canary grass. The flood plain forest role as a contributor to carbon storage would be diminished as canopy densities decrease and conversions in vegetation type take place (UMRCC, 2002). Some increase in forest diversity and cover is expected from ongoing plantings on existing lands and on new habitat projects such as islands, as well as from the acquisition and forest management on acquired lands. In general, however, forest coverage, density, diversity, and structure are expected to continue to gradually decline under this alternative.

Alternative B – Wildlife Focus

Forest resources would be actively managed with the goal of maintaining a healthy, contiguous forest that spreads across wide stretches of the floodplain and contains sufficient diversity of tree species, sizes, and ages to provide a wide array of habitat structure and food (mast) resources. Completion of a forest inventory will enhance management planning and decisions. A Forest Management Plan will present goals and objectives for a proactive forest management program and lead to enhanced forest resources. Habitat projects and Environmental Pool Plan projects would restore and create islands that could eventually convert to mature forests. Invasive plant species would be monitored and actions would be taken to control the spread into forest openings. Overall, this alternative should result in a gradual increase in forest coverage, density, diversity, and structure.

Alternative C – Public Use Focus

Same as Alternative A, although an increase in public awareness of forest-related issues could lead to improved support and funding for forest management.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B, except like C, an increase in public awareness of forest-related issues could lead to improved support and funding for forest management.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternatives B and D, although benefits could be accelerated if strategy to find funding for forestry technicians in this alternative is successful.

4.4.13 Terrestrial Habitat/Grasslands

Alternative A – No Action

Under this alternative, there would be a modest increase in upland habitat permanently protected through land acquisition. Existing grassland habitat would be maintained through fire management, haying, and other tools, although species diversity may decline without integrated habitat management planning.

Alternative B – Wildlife Focus

There would be a substantial increase in upland habitat permanently protected through land acquisition. Grassland and other upland habitats could increase off-Refuge through more emphasis on private landowner assistance in tributary watersheds. Active management of grasslands and forests would occur through the preparation and implementation of a habitat management step-down plan. Oak-savanna and prairie habitats would likely increase due to more active management. Invasive plants would be monitored and reduced, with positive impacts to the diversity, density, and reproduction of native plants.

Alternative C – Public Use Focus

Same as Alternative A.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative B.

4.5 Effects of Alternatives on Socioeconomic Parameters/ Concerns

For complete economic data excerpted in this section, refer to Senior Economist James Caudill's November 2004 report entitled "The Economic Effects of the Upper Mississippi River National Wildlife and Fish Refuge: Baseline and Effects of Alternatives." The report is available at Refuge headquarters in Winona, or, is available on-line at http://midwest.fws.gov/planning/uppermiss/index.html. Since the Final EIS/CCP contains a new alternative (E), Dr. Caudill was asked to review his findings in the 2004 report. He concluded that "…Alternative E results in insignificant changes to the economic impacts estimated for the previous preferred alternative, D." This conclusion tempers the analysis done for this section.

4.5.1 Hunting

Alternative A – No Action

This alternative would have little effect on current hunting opportunities on the Refuge. A minimum of 192,219 acres (80 percent) of land and water would remain available to all hunting. This acreage will increase as new lands are acquired as part of the existing modest land acquisition program. These new lands, and the improvement of habitat quality from ongoing habitat projects, will likely result in an increase in some game populations and positively affect the hunting experience for many. Since this alternative involves little to no change in regulations and hunting methods and practices, hunters would find little disruption to their expectations and routines. For some waterfowl hunters, however, this alternative will not alleviate their concerns such as lack of a more equitable distribution of waterfowl, the feeling of exclusion in managed hunts and in areas where permanent blinds are allowed, and intense competition with other hunters in some areas. This alternative would continue to have a substantial positive economic impact as reflected in Table 28.

Alternative B – Wildlife Focus

This alternative would have several effects on current hunting opportunities on the Refuge. A minimum of 165,524 acres (69 percent) of land and water would remain available to all hunting, a decrease of 26,646 acres from existing conditions. This decrease would result from new no hunting zones, retention of existing waterfowl hunting closed areas, new waterfowl hunting closed areas, and prohibition of open water waterfowl hunting on Pools 9 and 11. Although the areas open to hunting would decrease, the quality of hunting could increase, especially for waterfowl, since the Refuge would likely hold more birds in more areas for longer periods of time in the fall. The rate of land acquisition would increase under this alternative. Although some of this acquisition will occur in closed areas, it should still result in several thousand additional acres open to all forms of public hunting. In addition, improvement of habitat quality from ongoing habitat projects will likely result in an increase in some game populations and positively affect the hunting experience for many.

This alternative also involves several regulatory changes including the elimination of the use of permanent blinds, no entry into waterfowl hunting closed areas, electric motor only areas, shotshell

Table 28: Annual Economic Effects of CCP Alternatives: Hunting

		Change from Alternative A			
Impacts	**Alternative A:No Action**	**Alternative B:Wildlife Focus**	**Alternative C:Public Use Focus**	**Alternative D:Wildlife and Integrated Public Use Focus**	**Alternative E:Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)**
Visitors	263,623	+26,362	+39,544	+26,362	+26,362
Expenditures	$5,203,988	+$520,399	+$780,598	+$520,399	+$520,399
Economic Output	$6,425,261	+$642,526	+$963,789	+$642,526	+$642,526
Jobs	87	+9	+13	+9	+9
Job Income	$1,453,433	+$145,343	+$218,015	+$145,343	+$145,343
Federal and State Taxes	$689,090	+ $68,909	+$103,364	+$68,909	+$68,909

limits during the waterfowl season, and elimination of managed hunts at Potter's Marsh and Blanding Landing in the Savanna District. These changes are likely to disrupt long-standing hunter expectations and hunting methods and practices and cause short-term confusion and frustration as hunters adjust to new closed areas and regulations. On some pools and pool locations, this could lead to less opportunity for some and reduced hunter visits. These impacts will be mitigated to some degree by information and education and lead time for implementation.

New regulations to prohibit open water hunting in portions of Pools 9 and 11 will have little impact to hunters since it is either prohibited by state regulation or not common practice. Some waterfowl hunters will view this alternative as helpful in alleviating their concerns about lack of a more equitable distribution of waterfowl, the feeling of exclusion in managed hunts and in areas where permanent blinds are allowed, and intense competition with other hunters in some areas. Electric motor only areas will allow a more primitive and less crowded hunting opportunity favored by some hunters.

The changes in the Lake Onalaska closed area boundary and the shotshell limit should have a positive impact for waterfowl by reducing crippling losses caused by firing line behavior that induces hunters to shoot at birds out of range. Some of this crippling loss reduction is negated by birds which land in closed areas and thus cannot be retrieved. The shotshell limit should also improve the hunting experience for many since it serves as an incentive to allow birds to work decoy sets.

Despite a reduction of area open to hunting, it is estimated that hunting visits overall will increase 10 percent under this alternative due to long-term trends in hunter visits, expected improvements to the hunting experience, and a better distribution of waterfowl and thus hunting opportunity. This alternative is predicted to have a corresponding increase in positive economic impact as reflected in Table 28.

Alternative C – Public Use Focus

This alternative would have several effects on current hunting opportunities on the Refuge. A minimum of 189,647 acres (79 percent) of land and water would remain available to all hunting, a decrease of 2,523 acres from existing conditions. This decrease would result from new no hunting

zones around new trails and other facilities for wildlife observation and other non-consumptive recreation. Since waterfowl hunting closed areas would not change substantially and entry still permitted, there would likely be little to no change in current waterfowl numbers and distribution. This status quo in closed areas will be favored by some waterfowl hunters, but will not alleviate the concerns of others over the unequal distribution of waterfowl on the Refuge. Like Alternative B, the rate of land acquisition would increase under this alternative, opening several thousand acres to all forms of public hunting. In addition, improvement of habitat quality from ongoing habitat projects will likely result in an increase in some game populations and positively affect the hunting experience for many.

This alternative also involves several regulatory changes including the elimination of the use of permanent blinds, establishment of electric motor only areas, implementing party spacing limits for waterfowl hunting, and eliminating managed hunts at Potter's Marsh and Blanding Landing in the Savanna District. These changes are likely to disrupt long-standing hunter expectations and hunting methods and practices and cause short-term confusion and frustration as hunters adjust to new regulations. This disruption will be mitigated to some degree by information and education and lead time for implementation. Some waterfowl hunters will view this alternative as helpful in alleviating their concerns such as the feeling of exclusion in managed hunts and in areas where permanent blinds are allowed, and intense competition with other hunters in some areas. Electric motor only areas will allow a more primitive and less crowded hunting opportunity favored by some hunters.

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The changes in the Lake Onalaska closed area boundary and party spacing limit should have a positive impact for waterfowl by reducing crippling losses caused by firing line behavior which induces hunters to shoot at birds out of range. However, reducing the size of this closed area could also increase the number of hunters and negate some crippling loss reductions. The spacing limit should also improve the hunting experience for many by reducing crowding.

Despite a minor reduction of area open to hunting, it is estimated that hunting visits will increase 15 percent under this alternative due to overall long-term trends in hunter visits, no changes in waterfowl hunting closed areas, expected improvements to the hunting experience, and a better distribution of waterfowl and thus hunting opportunity. This alternative is predicted to have a corresponding increase in positive economic impact as reflected in Table 28.

Alternative D – Wildlife and Integrated Public Use Focus

This alternative would have several effects on current hunting opportunities on the Refuge. A minimum of 180,626 acres (75 percent) of land and water would remain available to all hunting, a decrease of 12,951 acres from existing conditions. This decrease would result from changes in waterfowl hunting closed areas (modification, elimination, and new), new no hunting zones, and in particular, restrictions to open water waterfowl hunting in Pools 9 and 11. Although the areas open to hunting would decrease slightly, the quality of hunting could increase, especially for waterfowl, since the Refuge would likely hold more birds in more areas for longer periods of time in the fall. As with alternatives B and C, the rate of land acquisition would increase under this alternative, opening

several thousand acres to all forms of public hunting. In addition, improvement of habitat quality from ongoing habitat projects will likely result in an increase in some game populations and positively affect the hunting experience for many.

This alternative also involves several regulatory changes including the elimination of the use of permanent blinds, no fishing or motorized watercraft in waterfowl hunting closed areas, electric motor only areas, shotshell and hunting party spacing limits for waterfowl hunting, and changing procedures for managed hunts at Potter's Marsh and Blanding Landing in the Savanna District. These changes are likely to disrupt long-standing hunter expectations and hunting methods and practices and cause short-term confusion and frustration as hunters adjust to new closed areas and regulations. As in other alternatives, these changes could lead to less opportunity and fewer hunter visits on some areas of some pools. These impacts will be mitigated to some degree by information and education and lead time for implementation, or, as the case with permanent blinds, a phase out over time. New regulations to prohibit open water hunting in portions of Pools 9 and 11 will have little impact to hunters since it is either prohibited by state regulation or not common practice.

Some waterfowl hunters will view this alternative as helpful in alleviating their concerns such as lack of a more equitable distribution of waterfowl, the feeling of exclusion in managed hunts and in areas where permanent blinds are allowed, and intense competition with other hunters in some areas. Electric motor only areas will allow a more primitive and less crowded hunting opportunity favored by some hunters.

The establishment of a managed hunt area (Gibb's Lake) on the north end of the Lake Onalaska closed area (Barrel Blinds area) will cause a localized disruption to long-standing hunting practices and use in this area. Many hunters who routinely hunt this area will be displaced, although they will still have equal opportunity to hunt the area through the drawing process. On the other hand, the managed hunt will attract hunters who have avoided the area due to competition and unsportsmanlike behavior. Overall, the number of hunters using the Barrel Blinds area will likely decrease, while the quality of the hunting experience for participants will increase. The fee for the hunt will discourage some hunters from participating, either due to cost or principle, although this will be mitigated to some degree by offering free, family-day Saturdays, and opening the area on a first-come, first-secured basis after the first 45 days of the season.

Throughout the Refuge, the shotshell limit should have a positive impact for waterfowl by reducing crippling losses caused by firing line behavior which induces hunters to shoot at birds out of range. Like all other alternatives, some of this crippling loss reduction is negated by birds which land in closed areas and thus cannot be retrieved. The shotshell and hunting party spacing limits should also improve the hunting experience for many since it serves as an incentive to allow birds to work decoy sets and reduces confrontations between hunters. It is estimated that hunting visits will increase 10 percent under this alternative due to overall long-term trends in hunter visits, expected improvements to the hunting experience, and a better distribution of waterfowl and thus hunting opportunity. This alternative is predicted to have a corresponding increase in positive economic impact as reflected in Table 28 on page 320.

Alternative E – Modified Wildlife and Integrated Public Use Focus

This alternative would have several effects on current hunting opportunities on the Refuge. A minimum of 187,205 acres (78 percent) of land and water would remain available to all hunting, a decrease of 4,965 acres (2 percent) from existing conditions. This decrease would result from changes in waterfowl hunting closed areas and sanctuaries (modification, elimination, and new), new administrative no hunting zones, and most significantly, the elimination of open water waterfowl hunting on approximately 4,000 acres of Pool 11, Grant County, Wisconsin. However, part of the decrease is only seasonal, since the Wisconsin River Delta Special Hunt Area (1,406 acres) is open for approximately 30 days of the waterfowl season.

As with alternatives B through D, the rate of land acquisition would increase under this alternative, opening several thousand acres to all forms of public hunting. For example, in 2005 an additional

2,000 acres was open to public hunting at the Lost Mound Unit, Savanna District, due to acquisition of the former Savanna Army Depot.

Although under Alternative E the areas open to hunting would decrease slightly, the quality of hunting could increase, especially for waterfowl, since the Refuge would likely hold more birds in more areas for longer periods of time in the fall. In addition, improvement of habitat quality from ongoing habitat projects will likely result in an increase in some game populations and positively affect the hunting experience for many.

This alternative also involves several regulatory changes including the elimination of the use of permanent blinds and the leaving of decoys in place overnight, voluntary avoidance in waterfowl hunting closed areas, no motors in closed areas under 1,000 acres in size, electric motor and slow, no wake areas, and changing procedures for managed hunts at Potter's Marsh and Blanding Landing in the Savanna District. These changes are likely to disrupt long-standing hunter expectations and hunting methods and practices and cause short-term confusion and frustration as hunters adjust to new closed areas and regulations. As in other alternatives, these changes could lead to less opportunity and fewer hunter visits on some areas of some pools. These impacts will be mitigated to some degree by information and education and lead time for implementation, or, as is the case with permanent blinds, a phase out over time. Closed area changes in Pool 4 will not be implemented until the 2009 waterfowl hunting season, thus hunters will have ample time to adjust in this area. New regulations to prohibit open water hunting in a portion of Pools 11 will have little impact to hunters due to the relatively few who practice this method of hunting and since adjacent areas will remain open.

Some waterfowl hunters will view this alternative as helpful in alleviating their concerns such as lack of a more equitable distribution of waterfowl, the feeling of exclusion in managed hunts and in areas where permanent blinds are allowed, and intense competition with other hunters in some areas. Electric motor areas will allow a more primitive and less crowded hunting opportunity favored by some hunters. Slow, no wake areas will limit speed and restrict airboats/hovercraft for a portion of the hunting season and improve the hunting experience for some, while others will find the restrictions limit opportunities enjoyed in the past. Since this alternative does not specify any plan for the Gibbs Lake Area of Pool 7 (Objective 4.4, Firing Line), impacts to hunter numbers and experience in that particular area is yet unknown. The area will, however, remain open to hunting.

Like Alternative D, it is estimated that hunting visits will increase 10 percent overall under this alternative due to overall long-term trends in hunter visits, expected improvements to the hunting experience, and a better distribution of waterfowl and thus hunting opportunity. This alternative is predicted to have a corresponding increase in positive economic impact as reflected in Table 28 on page 320.

4.5.2 Fishing

Alternative A – No Action

This alternative would have little effect on current fishing opportunities on the Refuge. A minimum of 140,545 acres of water would remain available to year-round fishing and facilities and operations which support fishing (docks and piers, commercial fish floats, accesses) would remain the same. The improvement of habitat quality from ongoing habitat projects will likely result in an increase in some sport fish populations and positively affect the fishing experience for many. These gains could, however, be negated to some degree by continued sport fish stresses such as sedimentation and the effects of invasive species. Since this alternative involves little to no change in regulations that affect fishing, anglers would find little to no disruption to their expectations and routines. For some anglers, however, this alternative will not alleviate their concerns such as conflicts with recreational watercraft while fishing, and disruption from fishing tournament participants. This alternative would continue to have a substantial positive economic impact as reflected in Table 29.

Table 29: Annual Economic Effects of CCP Alternatives: Fishing

		Change from Alternative A			
Impacts	**Alternative A:No Action**	**Alternative B: Wildlife Focus**	**Alternative C: Public Use Focus**	**Alternative D Wildlife and Integrated Public Use Focus**	**Alternative E Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)**
Visitors	1,213,916	- 60,696	+ 121,392	+ 60,696	+ 60,696
Expenditures	$29,576,333	- $1,478,817	+ $2,957,633	+ $1,478,817	+ $1,478,817
Economic Output	$36,223,053	- $1,811,153	+ $3,622,305	+ $1,811,153	+ $1,811,153
Jobs	483	- 24	+ 48	+ 24	+ 24
Job Income	$8,119,297	- $405,965	+ $811,930	+ $405,965	+ $405,965
Federal and State Taxes	$3,884,811	- $194,241	+ $388,481	+ $194,241	+ $194,241

Alternative B – Wildlife Focus

This alternative would have several effects on current fishing opportunities on the Refuge. A minimum of 104,716 acres of water would remain open to year-round fishing, a decrease of over 35,000 acres from existing conditions. This decrease would be due to the fall no-entry regulation for waterfowl hunting closed areas in this alternative. However, overall fishing opportunities would remain abundant and fishing would be permitted in closed areas during the peak spring, summer, and winter period. In addition to this seasonal closure, the type of fishing experience for some anglers would be affected by the elimination of commercial fish floats and by establishing electric motor only areas. Electric motor areas would remain open to fishing and change the use patterns and densities in these areas. Some anglers would find this welcome, both from a noise and disturbance standpoint, while others may resent the change from long-standing modes of use. The possible implementation of a boat ramp fee on Refuge-operated landings would be an added cost to many boat anglers. The fee would be minor in terms of fishing expenses and would not likely discourage angling, especially given the number of non-Refuge boat ramps serving the river. However, some anglers could resent the added requirement and cost.

The improvement of habitat quality from ongoing habitat projects will likely result in an increase in some sport fish populations and positively affect the fishing experience for many. Increased efforts to improve water quality through work with private landowners in tributary watersheds, and more emphasis on control of aquatic invasive species, could also result in increases in sport fish populations and thus fishing success.

With restrictions to fishing in waterfowl closed areas, electric motor areas, and the elimination of commercial fish floats, combined with no increase in fishing-related facilities, fishing visits are predicted to decrease 5 percent under this alternative. This alternative is predicted to have a corresponding negative economic impact as reflected in Table 29.

Alternative C – Public Use Focus

This alternative would have several effects on current fishing opportunities on the Refuge. Like alternative A, a minimum of 140,545 acres of water would remain open to year-round fishing. The

type of fishing experience for some anglers would be affected by establishing electric motor only areas. Electric motor areas would remain open to fishing and change the use patterns and densities in these areas. Some anglers would find this welcome, both from a noise and disturbance standpoint, while others may resent the change from long-standing modes of use. Existing commercial floats would remain and proposals for a new float solicited, creating additional fishing opportunity for persons without boats or who prefer this type of fishing. A new fish float would have a positive, but local, economic effect. Five additional fishing docks or piers, an additional boat ramp, and other access points would provide or facilitate fishing opportunities. The implementation of a seasonal Refuge Recreation Use Permit system with fee and a boat launch fee at Refuge ramps would be an added cost to many boat anglers. The fee for the permit would be minor in terms of fishing expenses and would not likely discourage angling, especially given the number of non-Refuge boat ramps serving the river, or the number of anglers who would not need a Recreation Use Permit since they do not camp or otherwise use Refuge lands when fishing. However, some anglers could resent the added requirement and cost.

The improvement of habitat quality from ongoing habitat projects will likely result in an increase in some sport fish populations and positively affect the fishing experience for many. Increased efforts to improve water quality through work with private landowners in tributary watersheds, and more emphasis on control of aquatic invasive species, could also result in increases in sport fish populations and thus fishing success.

Fishing visits are expected to increase 10 percent under this alternative based on long-term trends of angling visits, improvements in habitat and sport fish populations, and additional fishing-related facilities. This alternative is predicted to have a corresponding increase in positive economic impact as reflected in Table 29.

Alternative D – Wildlife and Integrated Public Use Focus

This alternative would have several effects on current fishing opportunities on the Refuge. A minimum of 110,611 acres of water would remain open to year-round fishing, a decrease of about 30,000 acres. This decrease would be due to the fall no-fishing regulation for waterfowl hunting closed areas in this alternative. However, overall fishing opportunities would remain abundant and fishing would be permitted in closed areas during the peak spring, summer, and winter period. In addition to this seasonal closure, the type of fishing experience for some anglers would be affected by establishing electric motor only areas. Electric motor areas would remain open to fishing and change the use patterns and densities in these areas. Some anglers would find this welcome, both from a noise and disturbance standpoint, while others may resent the change from long-standing modes of use. Three additional fishing docks or piers, an additional boat ramp, and other access points would provide or facilitate fishing opportunities. The possible implementation of a boat ramp fee on Refuge-operated landings would be an added cost to many boat anglers. The fee would be minor in terms of fishing expenses and would not likely discourage angling, especially given the number of non-Refuge boat ramps serving the river. However, some anglers could resent the added requirement and cost.

The improvement of habitat quality from ongoing habitat projects will likely result in an increase in some sport fish populations and positively affect the fishing experience for many. Increased efforts to improve water quality through work with private landowners in tributary watersheds, and more emphasis on control of aquatic invasive species, could also result in increases in sport fish populations and thus fishing success.

Despite restrictions to fishing in waterfowl closed areas and motor limits in electric motor areas, fishing visits are expected to increase 5 percent under this alternative based on long-term trends in angling visits, improvements in fish habitat, and additional fishing-related facilities. This alternative is predicted to have a corresponding increase in positive economic impact as reflected in Table 29.

Alternative E – Modified Wildlife and Integrated Public Use Focus

This alternative would have several effects on current fishing opportunities on the Refuge. A minimum of approximately 140,000 acres of water would remain open to year-round fishing, a decrease of about 500 acres from existing conditions. This decrease would be due to changes in waterfowl sanctuaries where no entry is allowed during the respective state waterfowl hunting season. However, fall fishing in approximately 31,000 acres of waterfowl hunting closed area included in voluntary avoidance guidelines would be affected to varying degrees since this alternative calls for the public to voluntarily avoid these areas from October 15 to the end of the respective state waterfowl hunting season.

Largemouth Bass. USFWS

Overall fishing opportunities would remain abundant and fishing would be welcome in closed areas during the peak spring, summer, early fall, and winter period. In addition to any seasonal restriction, the type of fishing experience for some anglers would be affected by establishing electric motor and slow, no wake areas. Electric motor areas and slow, no wake areas would remain open to fishing but likely change the use patterns and densities in these areas. Some anglers would find this welcome, both from a noise and disturbance standpoint, while others may resent the change from long-standing modes of use. Five additional fishing docks or piers, an additional boat ramp, and other access points would provide or facilitate fishing opportunities. Improvements to commercial fish float operations should improve the quality of the experience for fish float anglers.

The improvement of habitat quality from ongoing habitat projects will likely result in an increase in some sport fish populations and positively affect the fishing experience for many. Increased efforts to improve water quality through work with private landowners in tributary watersheds, and more emphasis on control of aquatic invasive species, could also result in increases in sport fish populations and thus fishing success.

Despite restrictions to fishing in waterfowl closed areas and motor limits in electric motor areas, fishing visits are expected to increase 5 percent under this alternative based on long-term trends in angling visits, improvements in fish habitat, and additional fishing-related facilities. This alternative is predicted to have a corresponding increase in positive economic impact as reflected in Table 29.

4.5.3 Fishing Tournaments

Alternative A – No Action

This alternative would have little direct effect on fishing tournaments since the Refuge would continue to defer to the states for all permitting. Some increase in tournaments would be expected from improvement to fish habitat through ongoing habitat projects.

Alternative B – Wildlife Focus

The size, number, and location of fishing tournaments would likely change under this alternative since the Refuge would issue special use permits in addition to the state-required permits. Impacts to sensitive habitat and fish and wildlife areas would be lessened, and conflicts between fishing tournaments and between general anglers could be reduced by time and space management of tournaments. Tournament sponsors and organizers would face another regulatory requirement, but the effects of this would be mitigated by a process that meshes the state and Refuge permit process and stipulations.

No specific economic analysis was done for fishing tournaments since the parameters for management have yet to be determined. However, tournaments were accounted for in the economic analysis of fishing as a whole and a modest decline in economic activity attributed to fishing tournaments is predicted since fewer tournaments are likely to occur.

Alternative C – Public Use Focus

The impacts of this alternative are predicted to be similar to Alternative A. Although under this alternative the Refuge would review state-issued permits for tournaments on the Refuge, this review would likely modify only the timing and spacing of tournaments. The implementation of a Refuge Recreation Use Permit could affect some tournament anglers who also camp or otherwise use Refuge lands, but the added cost would be minor compared to expenditures for tournament fishing.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B.

Alternative E – Modified Wildlife and Integrated Public Use Focus

The size, number, and location of fishing tournaments could change under this alternative since the Refuge would work in collaboration with the states and Corps of Engineers in determining time, space, and capacity parameters for each pool on the Refuge. Establishing parameters could lessen negative impacts to sensitive habitat and fish and wildlife areas, and conflicts between fishing tournaments and between general anglers. Tournament sponsors and organizers would not face another regulatory requirement since any Refuge permit requirements would be dove-tailed with a respective state's permit process.

No specific economic analysis was done for fishing tournaments since the parameters for management have yet to be determined. However, tournaments were accounted for in the economic analysis of fishing as a whole and since tournaments will continue, it is predicted that any time and space stipulations would have a negligible impact on current economic activity attributed to fishing tournaments.

4.5.4 Commercial Fishing

Alternative A – No Action

This alternative would have little effect on current commercial fishing operations on the Refuge since management and oversight would continue to be done by the states. The improvement of habitat quality from ongoing habitat projects will likely result in an increase in some fish populations and positively affect the commercial fishing harvest. Since this alternative involves no change in regulations that affect commercial fishing, operators would find little to no disruption to their expectations and routines. The current number of commercial fishermen (527 based on 4-year average) and gross value of catch ($1.7 million) would remain the same, subject to the variability of fish populations and market.

Alternative B – Wildlife Focus

Under this alternative, an increase in fish habitat quality through increased habitat projects, and emphasis on invasive fish harvest could account for a 10 percent increase in catch. This would result in an estimated annual increase of $170,000 in total ex vessel value (the price paid to the commercial angler dockside) for commercial fishing in pools 4-14. This assumes no change in ex vessel prices and catch success rate. Commercial fishermen would find additional restrictions to where and when they could fish due to the no-entry in waterfowl hunting closed areas under this alternative. This could disrupt some operations and displace commercial fishing operators to other areas of the Refuge from October 1 to the end of the respective state regular duck season.

Alternative C – Public Use Focus

Same as Alternative A.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B since the no ishing restriction for waterfowl hunting closed areas would affect commercial fishing.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Under this alternative, like Alternatives B and D, an increase in fish habitat quality through increased habitat projects, and emphasis on invasive fish harvest could account for a 10 percent increase in catch. This would result in an estimated annual increase of $170,000 in total ex vessel value (the price paid to the commercial angler dockside) for commercial fishing in pools 4-14. This assumes no change in ex vessel prices and catch success rate. Unlike Alternatives B and D, commercial fishermen would find few additional restrictions to where and when they could fish since the no-entry and no fishing regulations in waterfowl hunting closed areas are not part of Alternative E. However, since voluntary avoidance guidelines will be in effect from October 15 to the end of the respective state waterfowl season, some commercial anglers could choose to avoid closed areas during this time which could have some effect on catch and thus revenue. The current number of commercial fishing licenses issued (527 based on 4-year average) would likely remain the same or gradually decline due to current commercial fishing trends that are not dependent on Refuge management actions. However, the current gross value of catch ($1.7 million) could possibly increase due to a Refuge emphasis on invasive fish harvest and emerging markets for these species. Also, since Alternative E calls for a dove-tailing of existing state licensing requirements with future Refuge permit requirements, commercial anglers should see little difference in time or money inherent in licensing or permitting.

4.5.5 Fishing Floats

Alternative A – No Action

This alternative would have no impact to commercial fish float operations since the current program would continue. Collective gross revenue from the existing four fish floats is estimated at $125,000 per year. Since some fish float operations have experienced difficulty meeting current permit requirements, such as Coast Guard licensing for transporting the public, their period of operation has fluctuated and gross revenues can change from year to year.

Alternative B – Wildlife Focus

This alternative would eliminate all four floats currently operating on the Refuge. Eliminating the floats would create a direct economic hardship on existing owners/operators by the loss of approximately $125,000 in gross revenues, and have a negative local economic effect to food service, lodging, and fishing-related businesses near the floats. There could also be an emotional impact to owners and families from the closing of the floats, some of which have been family-operated businesses for decades. The effect of the economic losses would be minor compared to the overall positive economic impacts of fishing on the Refuge. Closing the fish floats could also reduce overall fishing visits to the Refuge, tempered somewhat by alternative fishing opportunities such as guide services, boat rental, dock, and shore fishing. Clients who have become accustomed to the fish float service would likely find this alternative disruptive and frustrating in the short-term as they adjusted to alternative fishing methods or areas. Boat anglers who fish in the vicinity of the floats may find their removal advantageous due to reduced competition for space and fish.

Alternative C – Public Use Focus

Same as Alternative A, except that a new fish float in the Savanna District would provide a proportionate increase in this type of angling visit and positive economic impact. New standards and permits would have a modest economic impact to current operations due to required infrastructure improvements and a higher annual fee to help offset Refuge administrative costs.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative A, although a portion of the impacts of Alternative B could be realized if current fish floats failed to meet new standards and were phased out. Also, as in Alternative C, new standards and permits would have a modest economic impact to current operations due to required infrastructure improvements and a higher annual fee to help offset Refuge administrative costs.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Like Alternative A, this alternative would have little impact to commercial fish float operations since they would continue. Collective gross revenue from the existing four fish floats is estimated at $125,000 per year. Since some fish float operations have experienced difficulty meeting current permit requirements, such as Coast Guard licensing for transporting the public, their period of operation has fluctuated and gross revenues can change from year to year.

Also, as in Alternative C, new standards and permits would have a modest economic impact to current operations due to required infrastructure improvements and a modestly higher annual fee to help offset Refuge administrative costs. Some current float owners could decide not to invest in their structures to meet new standards and either close or be phased-out. However, since this alternative calls for soliciting new proposals for any float that closes, impacts to the public at affected floats should be short-term unless no suitable proposals are received.

4.5.6 Interpretation and Environmental Education

Alternative A – No Action Alternative

Under this alternative, the current trend of modest increases in interpretive and environmental education opportunities would likely continue. There would continue to be a disproportionate level of opportunity in those districts of the Refuge which have visitor services specialists and/or facilities, namely Savanna and La Crosse Districts. This alternative would not meet the demand for interpretation and environmental education as gauged by inquiries and growing tourism visits to the Refuge area. There is no analysis of economic impacts related to interpretation and education for this or other alternatives since these uses are not drivers for visitation and expenditures.

Alternative B – Wildlife Focus Alternative

Under this alternative, there would be a continual decline in interpretive and environmental education opportunities as the emphasis of staff and programs is shifted to more wildlife-based work. Identified staff needs for interpretation and environmental education would be a lower priority and likely not filled for many years. Facilities related to interpretation and environmental education would remain the same as current. This and staffing priorities would increase the gap between public demand and Refuge capability, and visits for interpretation and environmental education would decline an estimated 25 percent. Decreased visitation would reduce some disturbance to wildlife and habitat, although this is expected to be negligible since existing facilities are not in or near sensitive areas. On the other hand, this alternative could have long-term consequences in terms of public and political support which could negatively impact projects and funding for improving the quality of fish and wildlife habitat.

Alternative C – Public Use Focus Alternative

Interpretive and environmental education visits could increase by 65 percent with this alternative due to increases in staff assigned to interpretation and environmental education and an increase in related facilities such as signing, visitor contact areas in offices, and a major visitor center in the Winona/La Crosse area. Increased facilities and visitation would cause some displacement of habitat and increase some disturbance to wildlife, although this is expected to be minor given the size of the Refuge and by avoiding sensitive wildlife locations and habitat. This alternative could have long-term positive consequences in terms of public and political support which could positively impact projects and funding for improving the quality of fish and wildlife habitat.

Alternative D – Wildlife and Integrated Public Use Alternative

Interpretive and environmental education opportunities could increase by 50 percent with this alternative (no major visitor center), and impacts would be similar, but proportionately less than, Alternative C.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative D.

4.5.7 Wildlife Observation and Photography

Alternative A – No Action

Under this alternative, the current trend of increases in wildlife observation and photography visits would likely continue despite no change in facilities or programs. Ongoing habitat improvements and land acquisition would increase the quality of opportunities for these uses. However, this alternative would not meet the demand for facilities related to observation and photography (trails, tour routes, overlooks, blinds, etc.) as gauged by inquiries, past visitation trends, and growing tourism visits to the Refuge area. This alternative would continue to have a substantial positive economic impact as shown in Table 30.

Alternative B – Wildlife Focus

Impacts would be the same as Alternative A, although an increased emphasis on habitat improvements and land acquisition should improve the quality of wildlife observation and photography in certain areas. However, existing facilities could degrade more quickly as staff is directed to more important fish and wildlife related work. Economic impacts would likely be the same as the No Action or Current Direction Alternative.

Accessible observation deck. Cindy Samples

Alternative C – Public Use Focus

Under this alternative, wildlife observation and photography visits are estimated to increase 20 percent due to habitat improvements, accelerated land acquisition, and a marked increase in related facilities (trails, tour routes, overlooks, blinds, etc.). Additional staff would be focused on public use programs and facilities which could enhance the quality and quantity of observation and photography opportunities. Increased facilities and visitation would cause some displacement of habitat and increase some disturbance to wildlife, although this is expected to be minor given the size of the Refuge and by avoiding or minimizing intrusion into important wildlife locations and habitat. This alternative could have long-term positive consequences in terms of public and political support which could positively impact projects and funding for improving the quality of fish and wildlife habitat. This alternative is predicted to have a corresponding increase in positive economic impact as reflected in Table 30.

Alternative D – Wildlife and Integrated Public Use Focus

Under this alternative, the impacts would be similar to Alternative C due to similar habitat improvements, accelerated land acquisition, and similar additions to facilities related to observation and photography. See Table 30 showing economic impacts.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative D.

Table 30: Annual Economic Effects of CCP Alternatives: Wildlife Observation

		Change from Alternative A			
Impacts	**Alternative A: No Action**	**Alternative B: Wildlife Focus**	**Alternative C: Public Use Focus**	**Alternative D: Wildlife and Integrated Public Use Focus**	**AlternativeE: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)**
Visitors	307,013	+ 0	+ 61,403	+ 61,403	+ 61,403
Expenditures	$4,063,292	+ 0	+ $812,658	+ $812,658	+ $812,658
Economic Output	$4,968,614	+ 0	+ $993,723	+ $993,723	+ $993,723
Jobs	68	+ 0	+ 14	+ 14	+ 14
Job Income	$1,071,484	+ 0	+ $214,297	+ $214,297	+ $214,297
Federal and State Taxes	$522,657	+ 0	+ $104,531	+ $104,531	+ $104,531

Table 31: Annual Economic Effects of CCP Alternatives: Recreational Boating, Camping and other Beach-related Uses

		Change from Alternative A			
Impact	**Alternative A: No Action**	**Alternative B: Wildlife Focus**	**Alternative C: Public Use Focus**	**Alternative D: Wildlife and Integrated Public Use Focus**	**Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)**
Visitors	1,362,851	- 203,065	+ 2,044	+ 2,044	+ 2,044
Expenditures	$34,673,216	- $5,166,309	+ $52,010	+ $52,010	+ $52,010
Economic Output	$42,266,199	- $6,297,664	+ $63,400	+ $63,400	+ $63,400
Jobs	535	- 80	+ 1	+ 1	+ 1
Job Income	$9,044,582	- $1,347,643	+ $213,567	+ $213,567	+ $213,567
Federal and State Taxes	$4,558,847	- $679,268	+ $6,838	+ $6,838	+ $6,838

4.5.8 Recreational Boating, Camping and Other Beach-Related Uses

Alternative A – No Action

Under this alternative, recreational boating, camping and other beach-related recreation would continue under current regulations and visits would continue to increase based on past use data and trends. These uses would continue to provide substantial economic impacts as displayed in Table 31. Overall, this alternative would have virtually no impact on the opportunities for recreational boating, camping, picnicking, swimming, and other beach-related uses. However, as visits continue to rise, the quality of the experience is likely to diminish due to crowding, unlawful and unruly visitor behavior, and litter and human waste.

Alternative B – Wildlife Focus

Under this alternative, visits for recreational boating, camping and other beach-related uses could decline by an estimated 15 percent as managers follow a "closed-unless-open" policy on Refuge shoreline and beach areas. Visitors would find fewer areas open to camping under this alternative as managers more assertively protect wildlife and habitat values of shorelines, beaches, islands, and backwaters. Space restrictions, and to a lesser degree the lack of beach maintenance (shaping and sand replenishment) would force visitors into less area and perhaps lead to more crowding. New regulations dealing with human waste would help improve the camping and beach use experience. Also, tighter regulations on the use of alcohol would help lessen the amount of unlawful and unruly behavior and improve the recreation experience for many users.

Recreation would be prohibited in waterfowl hunting closed areas and some visitors will find this change annoying and disruptive to long-standing boating routes or general fall boating, sailing, or canoeing and kayaking. However, this restriction would be in the fall when boating and other water and beach-related recreation is low. Visits for silent watercraft recreation (canoes and kayaks) would increase an estimated 10 percent with the creation of many electric motor only areas. Some users of power watercraft, on the other hand, will find these areas a nuisance and a reduction in area open to their traditional mode of sport and transportation. However, the electric motor only areas represent less than 15 percent of the surface water area of the Refuge so ample area would remain for the use of combustion engine-powered watercraft.

More frequent pool drawdowns to improve habitat would have a periodic and seasonal (summer) impact on recreational boating access and travel corridors, although the main channel of the river would remain deep enough for unrestricted travel. Drawdowns would also expose additional sandbar and beach areas for recreational use. The addition of slow, no-wake zones would slow travel times on a few access corridors, but this should have no impact on overall recreational boating.

Changes in areas open to certain uses and new regulations are likely to disrupt long-standing visitor expectations and practices and cause short-term confusion and frustration when visitors see area restrictions and new regulations. This disruption will be mitigated to some degree by information and education and lead time for implementation. Overall, this alternative will have a negative economic impact commensurate with the expected reduction in visitors engaged in recreational boating and beach-related recreation. This impact is summarized in Table 31.

Alternative C – Public Use Focus

Under this alternative, areas currently open to recreational boating, camping and other beach-related recreation would remain unchanged and visits would continue to increase based on past use data and trends. New boat access points would facilitate visits to some areas of the Refuge. New regulations dealing with human waste would help improve the camping and beach use experience. Also, tighter regulations on the use of alcohol would help lessen the amount of unlawful and unruly behavior and improve the recreation experience for many users. The requirement of a for-fee Recreation Use Permit for visitors who camp, anchor, moor, or beach watercraft on Refuge lands would help improve maintenance of areas and public safety through increased law enforcement patrols. This would in turn improve the quality of the experience for many users. However, many visitors, accustomed to free use of the Refuge, may resent the user fee. The fee is not expected to alter recreational use or visits to an appreciable degree.

Visits for silent watercraft recreation (canoes and kayaks) would increase an estimated 15 percent with the creation of 15 electric motor only areas. These areas would also be open to primitive camping and appeal to a certain segment of the public seeking an alternative river backwater experience. Like Alternative B, some users of power watercraft, on the other hand, will find these areas a nuisance and a reduction in area open to their traditional mode of sport and transportation. However, the electric motor only areas in this alternative represent less than 10 percent of the surface water of the Refuge, so ample area would remain for the use of engine-powered watercraft. Impacts from pool drawdowns and slow, no wake zones would be similar to Alternative B.

Like Alternative B, changes in areas open to certain uses and new regulations are likely to disrupt long-standing visitor expectations and practices and cause short-term confusion and frustration when visitors see area restrictions and new regulations. This disruption will be mitigated to some degree by information and education and lead time for implementation. This alternative would result in a modest increase in economic activity and impact as reflected in Table 31 (Caudill, 2004a).

Alternative D – Wildlife and Integrated Public Use Focus

Under this alternative, visits for recreational boating, camping and other beach-related uses would remain about the same even though managers may restrict use on certain beach areas under an "open-unless-closed" policy. The number of restricted or closed shorelines or islands is expected to be small, and given the size of the Refuge, visitors should continue to have ample open areas. Visitors would find fewer areas open to camping under this alternative as backwaters, except in electric motor only areas, would be closed to camping. However, this should have little impact since a vast majority of camping occurs adjacent to the main river channel. New boat access points would facilitate visits to some areas of the Refuge. New regulations dealing with human waste and a clear beach maintenance policy would help improve the camping and beach use experience. Also, tighter regulations on the use of alcohol would help lessen the amount of unlawful and unruly behavior and improve the recreation experience for many users.

Visits for silent watercraft recreation (canoes and kayaks) would increase an estimated 15 percent with impacts similar to Alternative C. Impacts from pool drawdowns and slow, no wake zones would be similar to Alternatives C and B.

Like Alternatives C and B, changes in areas open to certain uses and new regulations are likely to disrupt long-standing visitor expectations and practices and cause short-term confusion and frustration when visitors see area restrictions and new regulations. This disruption will be mitigated to some degree by information and education and lead time for implementation. This alternative would result in a modest increase in economic activity and impact as reflected in Table 31.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Under this alternative, visits for recreational boating, camping and other beach-related uses would remain about the same even though managers may restrict use on certain beach areas should bona fide wildlife needs or public safety dictate a restriction. The number of restricted or closed shorelines or islands is expected to be small, and given the size of the Refuge, visitors should continue to have ample open areas. New boat access points would facilitate visits to some areas of the Refuge. New regulations dealing with human waste, a ban on food and beverage glass containers, and a clear beach maintenance policy would help improve the camping and beach use experience. Also, better information and education on existing alcohol regulations would help lessen the amount of unlawful and unruly behavior and improve the recreation experience for many users.

Visits for silent watercraft recreation (canoes and kayaks) would increase an estimated 15 percent with the creation of four new electric motor areas and eight slow, no wake areas. Some users of power watercraft, on the other hand, will find these areas a nuisance and a reduction in area open to their traditional mode of sport and transportation. However, the electric motor areas in this alternative represent less than 2 percent of the surface water of the Refuge, and the slow, no wake areas less than 7 percent, so ample area would remain for the unrestricted use of engine-powered watercraft. In addition, implementation of two slow, no wake areas is delayed for one to three years, which would provide additional time for the public to become accustomed to the changes. Impacts from pool drawdowns and slow, no wake zones would be similar to Alternative B.

Like Alternatives C through D, changes in areas open to certain uses and new regulations are likely to disrupt long-standing visitor expectations and practices and cause short-term confusion and frustration when visitors see area restrictions and new regulations. This disruption will be mitigated to some degree by information and education and lead time for implementation. This alternative would result in a modest increase in economic activity and impact similar to Alternatives C and D as reflected in Table 31.

4.5.9 Commercial Guiding and Tours

Alternative A – No Action

Guiding activities would continue and likely increase above the current estimated 15 guides operating on the Refuge. Since accurate information on guiding is not available due to inconsistent administration by the Refuge, the number of clients and economic impact is unknown. There would continue to be some conflict with the general public in some areas as guides and clients compete for the same space and resource.

Alternative B – Wildlife Focus

Under this alternative guiding would be eliminated on the Refuge. This would result in significant economic loss for guides and could result in a small decline in the number of visitors to the Refuge. The extent of these impacts is unknown due to incomplete data on guide activities. Any conflicts between guides, clients, and the general public would be eliminated under this alternative.

Alternative C – Public Use Focus

Same as Alternative A except that consistent Refuge policy and procedures for issuing permits, along with anticipated time and space restraints, would reduce conflicts with the general public and between guides. Some existing guides may not be able to meet permit requirements and lose the opportunity to guide on the Refuge.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative C.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative C.

4.5.10 Refuge Access

Alternative A – No Action

Under this alternative, access to the Refuge from Refuge-administered accesses would remain the same. Since there are 221 boat landings and various other canoe, walk-in, and informal accesses to the river in and around the Refuge, this alternative will have no impact on overall public access to the Refuge.

Alternative B – Wildlife Focus

Same as Alternative A except the implementation of a self-service boat launch fee at Refuge-administered boat landings would improve access maintenance. This fee could result in a modest decline in the use of Refuge boat landings.

Alternative C – Public Use Focus

Under this alternative, seven new and one improved accesses would improve access to the Refuge in certain areas and foster a variety of wildlife-dependent public uses. A boat launch fee would have the same impacts as in Alternative B.

Alternative D – Wildlife and Integrated Public Use Focus

Same as C except there would be two fewer canoe landing with a commensurate impact to access opportunity.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative C except one new walk-in access with commensurate impact to access opportunity and there would be no boat ramp fee for Refuge-administered ramps, so current and future use levels at these ramps should not change.

4.5.11 Control of Dogs and Other Domestic Animals

Alternative A – No Action

Current, restrictive dog and other domestic animal regulations (must be confined except for dogs during hunting season) would continue to cause confusion and lack of compliance. The public would continue to allow dogs to run free on islands, beaches, and at public access points and owners would be at risk of citation at a Refuge Officer's discretion. Disturbance to wildlife and other visitors would continue at levels related to the effort given to enforcement of the regulation.

Alternative B – Wildlife Focus

This alternative would clarify the domestic animal regulation. The regulation change would likely be viewed negatively by many dog owners who have become accustomed to using the Refuge for training or letting their animals run free. There will also be some short-term confusion with a new regulation, but this will be mitigated by information, education, and lead time for implementation. Disturbance to wildlife and other visitors would decline.

Alternative C – Public Use Focus

Under this alternative, public acceptance may be greater due to a more liberal regulation which does not require dogs to be constrained, only controlled. This regulation change would likely be viewed positively by many dog owners, especially those who have become accustomed to using the Refuge for training or letting their animals run free. Disturbance to wildlife and the public would stay the same on most areas of the Refuge, but decrease at public access areas and trails. However, enforcement of the regulation would pose a difficulty for Refuge Officers due to different interpretations of control, proximity, and other terms, negating some of the decrease in disturbance.

Alternative D – Wildlife and Integrated Public Use Focus

Under this alternative, public acceptance will be mixed. Some will view the new regulation as more restrictive than current practice, while others will view it as more liberal. Disturbance to wildlife and the public would decrease throughout the Refuge, but particularly at public accesses and other facilities. Seasonal restrictions on allowing dogs to be free will provide protection to wildlife during the critical nesting and/or rearing season. Enforcement of the regulation and understanding by the public would improve due to clear and specific regulation language.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative D, although changes in language of the regulation will improve public understanding and compliance.

4.5.12 Property Taxes

For complete data excerpted in this section, refer to James Caudill's report "Impact of Management Alternatives on Local Tax Revenue, Upper Mississippi River National Wildlife and Fish Refuge" dated April, 2004. The report is available at Refuge headquarters in Winona, or is available on-line at http://www.fws.gov/midwest/planning/uppermiss/index.html.

Alternative A – No Action

Under this alternative the rate of land acquisition would remain the same. The Refuge would acquire around 200 acres a year, or 3,000 acres by 2020. Total revenue sharing payments made by the Service to the counties are estimated to increase from $90,000 in 2003 to $297,000 in 2020. The estimated annual tax revenue loss from acquired acres in 2020 is $68,000. This loss in tax revenue will be mitigated to varying degrees by rate of acquisition over a number of years, acquisition over a broad landscape encompassing several states and many counties, increases in other tax revenues from Refuge operations and recreation expenditures, and predicted increase in property values, and thus assessed values, adjacent to Refuge lands (see Section 4.2.5 of this chapter).

Alternative B – Wildlife Focus

Under this alternative the rate of land acquisition would increase to 1,000 acres a year, or 15,000 acres by 2020. Total revenue sharing payments are estimated to increase from $90,000 in 2003 to $320,000 in 2020. The estimated annual tax revenue loss from acquired acres in 2020 is $340,000. Like Alternative A, this loss in tax revenue will be mitigated to varying degrees by rate of acquisition over a number of years, acquisition over a broad landscape encompassing several states and many counties, increases in other tax revenues from Refuge operations and recreation expenditures, and predicted increase in property values, and thus assessed values, adjacent to Refuge lands (see Section 4.2.5 of this chapter).

Alternative C – Public Use Focus

Same as Alternative B.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B,

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative B.

4.5.13 Refuge Administration and Operations

Alternative A – No Action

Under this alternative, the overall annual Refuge budget is expected to increase in accordance with inflation adjustments, but Refuge staffing levels would remain the same as current, or 37 full-time employees. With levels of public use and interest continuing to rise, meeting the information needs of the public will likely fall short of public expectation in terms of personal contact, programs, leaflets, and media work. Coordination with the various state and federals agencies and non-government organizations will continue at the current level, resulting in gaps in Refuge presence on such issues as forestry, fisheries, and biological monitoring.

Refuge offices and maintenance facilities would remain the same, and inadequate in terms of public accessibility, information, and programs, and in terms of employee productivity and recruitment. Some offices will continue to have unresolved structural safety issues, while inadequate maintenance and storage will continue to negatively affect efficiency of field operations and condition of heavy equipment and vehicles.

Annual salary and operations expenditures will continue to have a positive economic impact, with current economic output estimated at $8.3 million (see Caudill, 2004).

Alternative B – Wildlife Focus

Under this alternative, the overall annual Refuge budget would increase substantially, mainly due to increases in staffing to an eventual 54.5 full-time equivalents. This increase in staffing would dramatically increase biological monitoring, soundness of decisions, and direct habitat work. Personal service to the public and coordination with the various state and federals agencies and non-government organizations would increase markedly, especially in terms of habitat and biological programs which would be the priority under this alternative.

Refuge offices would remain the same, with most inadequate in terms of public accessibility, information, and programs, and in terms of employee productivity and recruitment. Maintenance and storage facilities would be replaced, improving the efficiency of field operations and maintaining heavy equipment and vehicles in better condition.

Annual salary and operations expenditures will result in an increased positive economic impact commensurate with increases. Staff salary expenditures alone could increase approximately 40 percent by the end of the planning period in 2015, resulting in a similar economic output increase.

Alternative C – Public Use Focus

Same as Alternative B, except that a priority on filling visitor services-related staff and the construction of new offices and a major new visitor center would dramatically increase public accessibility, information, and programs.

Alternative D – Wildlife and Integrated Public Use Focus

Same as Alternative B, except that construction of new offices (no major visitor center) would increase public accessibility, information, and programs, and improve employee productivity and recruitment. In addition, staffing would increase to an eventual 56.5 full-time equivalents.

Alternative E – Modified Wildlife and Integrated Public Use Focus

Same as Alternative D, although staffing would increase to an eventual 60.5 full-time equivalents (four new law enforcement officers). This increased law enforcement capability would lead to improved public safety, increased compliance with Refuge regulations which should enhance the experience for the visiting public, and increased public contact which will positively affect public knowledge and appreciation for the Refuge.

4.6 Cumulative Impacts

4.6.1 Cumulative Impacts – Physical Environment

Alternatives B, C, D, E, and to a lesser extent A, call for increased attention to habitat restoration and/or enhancement projects, floodplain and adjacent land acquisition, and improvement in water quality in terms of both chemistry and reduced sediment. Collectively and over time, these actions will improve the ability of the river environment to process nutrients and store carbon, and along with other basin-wide regulations and initiatives, contribute to the improvement of hypoxia in the Gulf of Mexico. Physical changes through projects will restore islands, deflect sediment from backwaters, and deepen sediment-filled channels, resulting in a more diverse and dynamic river geomorphology. These changes will help reverse a trend to more-or-less static geomorphology, a trend which started when the locks and dams went into operation in the 1930s. Work on the river within the Refuge also influences work on the river upstream and downstream of the Refuge, and thus can have a larger cumulative effect on the physical environment.

Although rates and amounts of sediment entering the Refuge may be reduced over time, none of the alternatives will adequately address the movement of sediments to the mouth of the Mississippi. Thus, the actions in the alternatives will not cumulatively improve the continued deficit of sediment on the Mississippi River delta.

All alternatives, to slightly varying degrees, emphasize maintaining the integrity of the Refuge boundary and conserving the scenic beauty. Given the size and length of the Refuge, actions taken in the alternatives to ensure long-term forest health, acquire floodplain and bulfflands, and reduce encroachment, will serve as a model for land use planning and zoning adjacent to the Refuge. In addition, when actions on the Refuge are combined with actions of the states, non-profit organizations, and private landowners, there can be measurable progress in stemming the rate or type of development which detracts from the scenic beauty of the Upper Mississippi River Valley.

4.6.2 Cumulative Impacts – Biological Environment

Although the degree of habitat quantity and quality improvement is different under the alternatives, all should continue to improve fish and wildlife habitat, and thus populations. For some species or species-groups which have limited habitat options elsewhere (for example mussels and paddlefish), this improvement will be important to their overall populations and genetic diversity.

For migratory birds, the Refuge may likely grow in importance due to its size and scope. Reduced habitat for migrating waterfowl in the Midwest, for example, has made the Refuge a critically important stop for large portions of the continent's Canvasback and Tundra Swans. In this regard, alternatives A and C, with virtually unchanged Waterfowl Hunting Closed Areas, may not meet the future needs of these birds should feeding habitat in existing closed areas decline. It is unknown whether these birds would find adequate mid-migration habitat elsewhere, and alternatives A and C could have very negative cumulative impacts on these continental populations. On the other hand, alternatives B, D, and E create new and more attractive closed areas which would provide insurance for these birds in the event of feeding habitat collapses in any given pool.

Habitat improvements under the alternatives should also benefit rare and declining species, and species listed as threatened or endangered. Along with conservation actions for these species on other public and private lands, the Refuge actions across all alternatives, but especially B, D, and E, will have a positive cumulative impact. For example, the Refuge has 167 nesting pair of Bald Eagles, and provides winter habitat for a peak population of 1,000 eagles, with a trend that continues upward. Thus, the Refuge can positively contribute to the case for delisting the Bald Eagle. For some species, the Refuge may provide an important reservoir for population expansion on suitable habitat off-refuge that may become available in the future. On the other hand, maintaining habitat quality and quantity could prove important in expansion or recovery of species. An example would be the endangered Whooping Crane. Although population restoration efforts were started elsewhere, some birds are now using the Refuge and may in the future breed, thus adding to wild populations and eventual recovery.

Alternatives A and C provide no increase in the control of invasive plants and animals, and infestations are expected to continue to increase. This will not only affect habitat and other species on the Refuge, but could speed the spread of invasives to previously un-infested areas off-Refuge. On the other hand, Alternative B, D, and E stress more aggressive action which could help keep invasives in check beyond the Refuge.

Alternatives B, D, and E also have a strong, biological monitoring component, with increases in species and habitats surveyed, research, and coordination with others. This increased information will not only aid decision making that benefits fish and wildlife on the Refuge, but adds to the body of knowledge collected by other agencies which can affect resource decision-making over a broader landscape.

4.6.3 Cumulative Impacts – Socioeconomic Environment

A variety of objectives in Alternatives B through E will have varying degrees of impact on recreational use of the Refuge. Earlier sections detailed specific impacts on individual uses such as hunting, fishing, wildlife observation, and general recreation. Cumulatively, each alternative has a different economic impact since it affects the level of public use. Table 32 summarizes this cumulative impact by alternative.

Each alternative takes a different approach to managing the variety of recreational uses that occur on the Refuge, ranging from status quo (Alternative A) to an integrated approach (Alternatives D and E which seeks to conserve wildlife and habitat while providing a diversity of recreational opportunities for a broad cross-section of visitors). These varying alternatives will have cumulative impacts given that demand for nearly all recreation is expected to grow while the amount of Refuge space and natural resources is relatively finite.

In Alternative A, current uses would continue without much change. Eventually, the level and means of use would change the nature of the experience for many visitors, and many would choose to either forgo certain recreation due to crowding or behavior issues, or go elsewhere. Given that the Refuge provides opportunity for 3.7 million visitors, this shift could put additional strains on other public lands and have a negative local and regional economic effect, or diminish the Refuge's contribution to the Refuge System mission of providing fish and wildlife for the benefit of the American people as a

Table 32: Summary of Annual Economic Effects of CCP Alternatives on Recreational Use

		Change from Alternative A			
Impacts	**Alternative A: No Action**	**Alternative B: Wildlife Focus**	**Alternative C: Public Use Focus**	**Alternative D: Wildlife and Integrated Public Use Focus**	**Alternative E: Modified Wildlife and Integrated Public Use Focus (Preferred Alternative)**
Visitors	3,168,483	- 237,399	+ 224,383	+ 150,505	+ 150,505
Expenditures	$73,516,829	- $6,124,727	+ $4,602,899	+ $2,863,884	+ $2,863,884
Economic Output	$89,883,127	- $7,466,291	+ $5,643,217	+ $3,510,802	+ $3,510,802
Jobs	1,173	- 95	+ 76	+ 48	+ 48
Job Income	$19,688,796	- $1,608,265	+ $1,457,809	+ $979,172	+ $979,172
Federal and State Taxes	$9,655,675	- $804,600	$603,214	$374,519	$374,519

whole. Alternative B might have the same effect by being perceived as too restrictive in terms of recreation, and Alternative C might have the same effect for reasons similar to Alternative A. Alternative D, and to an even greater extent Alternative E, attempt to strike that reasonable balance to ensure that the Refuge remains a destination of choice for both wildlife and people. If successful, this integrated approach may prove more sustainable and have positive, long-term natural resource, social, and economic impacts both on the Refuge and beyond.

Alternatives B through E also involve an approximate 50 percent increase in the Refuge's base operations and maintenance budget over the next 15 years, plus additional maintenance and construction funding for new facilities. Although budgets are impossible to predict, this increase could impact operations funding at other refuges and wetland management districts in the Region if it came from existing allocations. This would result in delaying or forgoing habitat and facility improvements and other work at these stations, although the change would be small at any particular station.

Working relationships with the states, Corps of Engineers and others should improve in terms of responsiveness to inquiries and speed of joint projects under Alternatives B, D, and E, and to a lesser extent under Alternative C. This improvement would be mainly the result of increased staffing in key areas such as biology, fisheries, forestry, and in Alternative E, law enforcement. Since the Mississippi River and the Refuge is multi-jurisdictional in many aspects, more effective coordination will have wide-ranging positive impacts on fish and wildlife and public use programs and opportunities. Many programs such as the Environmental Management Program and pool-wide drawdowns involve new approaches and techniques which have application elsewhere, and can have a positive cumulative effect on how agencies work with large river systems.

Overall coordination and communication with the general public should improve under Alternatives C, D, and E due to new staff positions dealing with public use and public information. Since some may oppose changes in one or more of the alternatives, or likewise support them, the cumulative impact on public perception of the Refuge and the Fish and Wildlife Service could be negative or positive. More emphasis on public education and information in Alternatives C, D, and E should foster more understanding and appreciation of resource issues and needs, and could lead to increased political support and funding which could positively affect fish and wildlife resources on the Refuge and the Mississippi River as a whole. Increased outreach of these alternatives could also positively impact land use decisions outside of the Refuge by local governments and private landowners, and thus lead to increased fish and wildlife populations over a broader area.

4.7 Irretrievable and Irreversible Commitment of Resources

Across all alternatives, habitat restoration and protection actions represent a sizeable investment estimated at $150 million over the 15-year life of the CCP. Since many of these actions involve the construction of features in the floodplain (islands, shoreline protection, dredging, fish passage structures, deflection of flows, etc.) it is improbable that these actions could or would be reversed once completed. Likewise, Service investment in the acquisition of land to complete the Refuge, estimated at $1.5 million per year in Alternatives B through E, is considered an irretrievable and irreversible commitment.

Alternatives B through E also call for different levels of investment in new office and maintenance shop facilities, totaling $13.5 million in Alternative E. Although not irreversible, this construction is considered a long-term investment given the 50-year life span associated with structures. This cost is off-set to some degree by current annual lease payments for offices at Winona and La Crosse, payments which would continue under the no action alternative. Similarly, the foot print of new buildings and associated parking and utilities would represent a corresponding loss of habitat during the useful life of the facilities. This loss of habitat is usually off-set by site development plans which enhance habitat on lands surrounding the buildings and facilities.

A variety of public use facilities are called for in varying numbers and locations in each alternative. These facilities include hiking trails, canoe trails, overlooks, and kiosks. Funding to construct these facilities would be irretrievable once spent. However, given the size and investment level for these facilities, the habitat displacement is not considered an irreversible or irretrievable use of resources since removal and site restoration is very feasible.

4.8 Short-term Uses and Long-term Productivity

Habitat protection and restoration actions across all alternatives often entail short-term negative impacts to ensure long-term productivity of the Refuge. Construction of islands, dredging to increase water depths for fish, construction of flow deflection structures, and construction of dikes for moist soil units all entail intense disturbance to fish, wildlife, and plants, and increased water turbidity and disruption of public uses. However, these impacts are site-specific and relatively short duration, more than offset by increasing the long-term productivity of the sites and surrounding plant and animal communities. Given the altered nature of the floodplain within the Refuge due to locks and dams and other development, it is unlikely that the long-term productivity of the Refuge can be sustained in many areas without such short-term uses and impacts.

Many of the cyclic management actions in the alternatives, namely pool drawdowns, prescribed burning, invasive plant and animal control, and forest management, can have dramatic short-term impacts. These impacts include the direct mortality of some plants and animals, displacement of species, and cessation of certain types of public use. However, these short-term impacts are generally offset by near-term and long-term benefits of these practices, practices that often mimic the natural and thus sustainable processes necessary for long-term habitat health. Many of these long-term benefits were described in more detail earlier in this chapter under the applicable parameters or concerns.

As discussed earlier in Section 4.6.3 (cumulative impacts), the short-term disruption in current means, locations, and timing of public uses inherent in Alternatives B through E, should, in the long-term, help sustain the greatest diversity of opportunity for the greatest number of people. Also, diversity of opportunity for public use should provide the best long-term positive economic impact to local communities. This mirrors the widely accepted premise that maintaining diversity in natural systems helps ensure the long-term resiliency of these systems.

4.9 Unavoidable Adverse Effects

As noted above, many of the habitat and facility construction projects in the alternatives have a certain level of unavoidable adverse effects, especially during the actual construction. These effects are mitigated to some degree by the use of practices and precautions that safeguard water quality, avoid sensitive or irreplaceable habitats, or time actions or include features to avoid or minimize impacts to fish and wildlife. Adverse effects are generally short-term and more than offset by the long-term gains in habitat quality and resulting fish, wildlife, and plant productivity. Some projects may have an adverse impact on cultural resources. The process for dealing with these impacts on a case-by-case basis is discussed in Section 4.2.2 (cultural and historical preservation).

Some existing habitat types on the Refuge will be adversely affected. For example, there will be a loss of open water habitat on portions of many of the navigation pools within the Refuge as new islands are constructed or remnant islands restored. Also, pool-wide drawdowns will increase emergent aquatic vegetation such as bulrush and cattail, converting many areas to marsh habitat versus open water. Forest habitat is also likely to undergo change in species composition and structure as the more-or-less even-aged monotypic silver maple forest is converted over time to a more diverse forest. Some forested areas may be converted to grassland, while some grassland areas may be converted to forest depending on the outcome of more site-specific planning. All of these unavoidable adverse effects will be relatively local in nature and more than offset by the long-term diversity and ecological health of the broader landscape.

Land acquisition entails an unavoidable impact to local units of government due to the loss of tax revenue as lands transition from private to public ownership. This unavoidable effect, along with mitigation measures, is discussed more fully in Section 4.5.12 (property taxes).

All alternatives, to varying degree, will have adverse impacts to a certain segment of the public that does not desire change to current public use programs and regulations, or that may have differing views on the course of action to be taken. Some visitors will see a loss of opportunity in terms of time and space restraints for certain uses such as boating, fishing, and hunting, or means of use restraints by limiting types of watercraft in certain areas. These impacts to individuals or groups are unavoidable given the diversity and number of publics, conflicts between and within user groups due to technology preferences, continued increase in use numbers, and relatively finite nature of land and waters available on the Refuge for public recreation. Alternative E, the preferred alternative, represents the most balanced alternative in terms of minimizing and mitigating these adverse impacts to citizens and reflects the substantial public involvement and input of the planning process.

Table 33: Summary of Alternative Impacts

Parameter[1]	Alternative A: No Action	Alternative B Wildlife Focus	Alternative C: Public Use Focus	Alternative D: Wildlife and Integrated Public Use	Alternative E: Modified Wildlife and Integrated Public Use (Preferred Alternative)
Physical					
Water Quality	3	4	3	4	4
Sedimentation	3	4	4	4	4
Geomorphology	3	4	3	4	4
Hydrology and Water Level Management	3	4	3	4	4
Landscape Considerations	2	4	3	5	5
Biological					
Threatened and Endangered Species	3	4	2	4	4
Waterfowl	2	4	2	4	4
Other Migratory Birds	2	4	2	4	4
Sport Fish	4	5	4	5	5
Other Fish	2	4	3	4	4
Freshwater Mussels	2	4	2	4	4
Reptiles and Amphibians	3	4	2	4	4
Control of Invasive Species	1	4	1	4	4
Invertebrates	3	4	3	4	4
Mammals	3	4	3	4	4
Aquatic Vegetation/ Wetlands	3	4	3	4	4
Floodplain Forest	2	4	2	4	4
Terrestrial Habitat/ Grasslands	3	4	3	4	4
Socioeconomic					
Hunting	3	3	4	4	4
Fishing	3	3	4	4	4
Fishing Tournaments	5	3	4	3	3
Commercial Fishing	4	2	4	2	4
Fishing Floats	3	1	4	3	4

Table 33: Summary of Alternative Impacts

Parameter[1]	Alternative A: No Action	Alternative B Wildlife Focus	Alternative C: Public Use Focus	Alternative D: Wildlife and Integrated Public Use	Alternative E: Modified Wildlife and Integrated Public Use (Preferred Alternative)
Interpretation and Environmental Education	3	2	5	4	4
Wildlife Observation and Photography	3	2	5	4	4
Recreational Boating, Camping, and Other Beach-Related Uses	5	1	4	4	4
Commercial Guiding and Tours	3	1	2	2	2
Refuge Access	3	3	4	4	4
Control of Dogs and Other Domestic Animals	3	2	5	4	4
Property Taxes	3	2	2	2	2
Refuge Administration and Operations	1	4	4	5	5
Cumulative					
Cumulative Impacts	2	4	3	4	4

1. The scale for summarizing impacts by parameters is as folows: 1 = Most Negative; 3= Neutral or No Impact; and 5 = Most Positive.

Chapter 5: List of Preparers

Name	Title/Contribution	Degrees/Other Related Experience	Years With FWS
Upper Mississippi River NW&FR Staff, Region 3			
Donald Hultman	*Complex Manager. Writer, Direct Planning Effort, Public Meetings*	M.A., Univ. of Minnesota, Mpls./ St. Paul, Env. Educ.; B.S., Univ. of Minnesota, Communications/Wildlife. Other: Wyoming Game and Fish Dept., 1 yr.	26
Eric Nelson	*Refuge Biologist. Writer; Refuge Planner, Public Meetings*	M.S. and B.S., Univ. Wisconsin, Stevens Point, Natural Resources, Wildlife. Other: Bureau of Land Management, 2 yrs.	26
Cynthia Samples	*Refuge Ranger. Writer, Visitor Services*	B.S., Western Illinois University, Macomb, Recreation and Park Administration. Other: Corps of Engineers, 20 yrs.	6
Arthur "Tex" Hawkins	*Watershed Biologist. Writer, Private Lands*	B.S., Univ. of Minnesota, Mpls./ St. Paul, Wildlife; B.A. Mass Communications. Other: MN DNR, 6 yrs.; AID/Peace Corps (Costa Rica), 5 yrs.	29
Sharonne Baylor	*Environmental Engineer. Writer, Habitat Projects*	B.S., Univ. of Wisconsin, Platteville, Civil Engineering. Other: Corps of Engineers – St. Paul District, 12 yrs.	3
Brian Stemper	*Biological Technician. GIS Cartographer*	B.S., South Dakota State Univ., Wildlife & Fisheries Mgmt. Other: Corps of Engineers, 2 yrs.	7
Victoria Hirschboeck	*Refuge Biologist. Writer, Biology*	M.S., Univ. of Montana, Missoula, Wildlife Biology; B.S., Biology and B.F.A., Univ. of Michigan, Ann Arbor.	16

Ed Britton	*Savanna District Manager.* *Develop Alternatives, Public Meetings*	B.S., Southern Illinois Univ., Carbondale, Zoology.	27
Robert Drieslein	*Winona District Manager. (Retired)* *Develop Alternatives, Public Meetings*	M.S., South Dakota State Univ., Brookings, Wildlife Mgmt. B.S., Univ. of IL, Ag. Science.	34
John Lindell	*McGregor District Manager. (Retired)* *Develop Alternatives, Public Meetings*	B.A., Zoology and M.A., Vertebrate Ecology, Univ. of South Dakota, Vermillion.	34
James Nissen	*La Crosse District Manager.* *Develop Alternatives, Public Meetings*	B.S., Univ. of Nebraska, Lincoln, Wildlife Mgmt.	28
Victoria Drieslein	*Administrative Officer.* *Budget, Coordination*	NA	19
Nan Clausen	*Clerk.* *Data Collection, Document Formatting*	B.A., Univ. of Minnesota, Minneapolis, English. Other: Corporate Technical Communications, 26 yrs.	2
Lee Donahue	*Administrative Technician* *Archives and mailing list maintenance; facilitator*	U.S. Army Public Affairs, 15 years	1
Division of Conservation Planning, Region 3			
Thomas Larson	*Chief of Conservation Planning.* *CCP Review*	M.S., University of Wisconsin, Madison Wildlife Ecology. Other: National Park Service; Peace Corps	28
John Schomaker	*Refuge Planning Specialist.* *CCP Coordination*	Ph.D., Colorado State Univ., Fort Collins. Other: USDA Forest Service, 8 yrs.	18
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Jane Lardy Nelson	*Editorial Assistant.* *Mailings*	NA	17
Gabriel DeAlessio	*GIS Specialist/Biologist.* *Cartography*	B.S., Univ. of Connecticut, Storrs, Natural Resource Engineering & Mgmt. Other: Contractor, DoD, 2.5 yrs.	6

Ecological Services, Region 3			
Jeffrey Gosse	*Regional Environmental Coordinator. NEPA Review*	Ph.D. and M.S., Utah State Univ., Logan; B.S., Univ. of Wisconsin, Madison. Other: Texas Parks and Wildlife, 8 mo.; Private Consulting, 6 yrs.	18
Thomas Magnuson	*Biologist. CCP Assistance*	M.BA., Lake Superior State Univ.; B.A., Biology, Bemidji State Univ. Other: U.S. Peace Corps (Tunisia), 2 yrs.	18
Visitor Services & Communications, Region 3			
H. John Dobrovolny	*Regional Historic Preservation Officer. Historian*	B.A., History, Sacramento State College, Sacramento. Other: National Park Svc., 14 yrs.	25
Division of Economics, Arlington, Virginia			
James Caudill	*Senior Economist. Economic Assessments*	Ph.D., Michigan State Univ., Agricultural Economics; M.A., Agricultural Economics, B.A., Geography, Dominguez Hills. Other: U.S. Forest Service, 4 yrs.	11

Chapter 6: Consultation and Coordination With the Public and Others

6.1 Scoping and Public Involvement

Scoping and public involvement are vital components of federal planning and were given considerable attention during development of this EIS/CCP. The public received our official notice of intent to prepare an EIS/CCP via the Federal Register, dated May 30, 2002 (Vol. 76, No. 104, page 37852). All public meeting dates and locations, with notes from workshops, are available at Refuge headquarters in Winona, Minnesota or on the planning website: http://www.fws.gov/midwest/planning/uppermiss

All public meetings were video recorded by Refuge staff; recordings were transferred to Digital Video Discs (DVDs) that are stored at headquarters in Winona, Minnesota. Outreach Plans were compiled prior to an interagency coordination meeting in January 2004 and before public release of the Draft EIS/CCP in May 2005. These plans identified immediate issues, facts, communication goals, key messages, interested parties, and actions to be taken by Service personnel. Updates to the second plan were made throughout the remainder of the planning process.

Draft EIS/CCP public meeting, Upper Mississippi River Refuge EIS/CCP. Cindy Samples, USFWS

Internal Scoping. Internal scoping was conducted between March and June 2002, within each of the four Refuge districts and the Regional Office, with over 350 concern statements recorded. Many of these concerns were repeated at each setting which helped focus on the most important issues. An in-house, 1-day workshop was conducted at a Refuge-wide meeting in January 2004. Refuge staff discussed issues and potential solutions for use in EIS/CCP preparation.

Public Scoping Meetings and Workshops. Ten public scoping meetings, professionally facilitated by Dr. Onnie Byers and Kathy Holzer of the Conservation Breeding Specialist Group, Apple Valley, Minnesota, were attended by 473 citizens during August and September 2002. Citizens expressed 495 comments in response to the question, “What concerns you most about the future of the Refuge?” Approximately 35 additional written comments were received as a result of those meetings.

Upon completion of these public meetings, Refuge staff compiled a series of 12 "Issue Fact Sheets" summarizing major habitat and recreational issues identified by the public. These one-page documents were used as reference materials for public workshops held in Prairie du Chien, Wisconsin; Savanna, Illinois; Winona, Minnesota; and Onalaska, Wisconsin between January and March 2003. Called "Manager for a Day" workshops, citizens were invited to offer potential solutions to the 12 issues referred to above and any other issue they wished to address. These workshops were again facilitated by Dr. Byers and yielded hundreds of ideas and potential solutions from 116 citizen participants.

In anticipation of public concerns about waterfowl hunting and areas closed to waterfowl hunting on the Refuge, we conducted two special "Closed Area Informational Meetings" with the public. The first was in Onalaska, Wisconsin in September 2003, and the second was in Savanna, Illinois in June 2003. Staff made presentations on the history of closed areas, human disturbance issues, and the bioenergetic or food needs of waterfowl. Citizens provided pros and cons of management options in and around closed areas. Total attendance at these meetings was 93.

Public Meetings and Workshops to Review Draft EIS/CCP, Alternatives A-D.
The Draft EIS/CCP was released for public review May 1, 2005, for a 120-day comment period ending August 31, 2005 (see Notice of Availability published in the Federal Register: Vol. 70, No 81, page 22058). The Refuge hosted 21 public meetings and workshops attended by 2,900 people. Due to high public interest, we announced the intent to issue a new preferred alternative following the comment period to reflect input received. The workshops resulted in 87 workgroup reports with comments or recommendations on major issues. Each report was posted on the Refuge planning web site. The Refuge also received 2,516 written comments including comments from the four states involved, the Corps of Engineers, and 40 conservation or recreation-related organizations, and 5 petitions with more than 3,000 signatures.

Public Meetings and Open Houses to Review Preferred Alternative E.
A new preferred alternative (Alternative E) was issued as a Supplement to the Draft EIS/CCP on December 5, 2005 (see Notice of Availability published in the Federal Register, Vol. 70, No. 232, page 72462). The initial comment period was for 60 days but was extended to 90 days ending on March 6, 2006. Nine open houses / public forums were held in January 2006 to discuss provisions of Alternative E with the public. A total of 888 citizens attended these meetings. The Refuge received 714 written comments on Alternative E from citizens, clubs, organizations, legislators and state and federal agencies.

State and Federal Interagency Meetings. Refuge managers and biologists have worked closely with the departments of natural resources for Illinois, Iowa, Minnesota and Wisconsin and the Corps of Engineers (St. Paul and Rock Island Districts). Throughout the planning process, Refuge personnel have met with State representatives approximately 35 times, in person or via conference calls. An official CCP Interagency Planning Team consisting of State and Corps of Engineers representatives was first convened in December 2001, followed by scoping meetings in May 2002, March 2003, and January 2004. Most representatives also participated in a Wildlife and Habitat Management Review of the refuge in August and October 2002.

Between January and April 2004, Refuge staff conducted briefings for state department of natural resource personnel from the four States and managers of the Rock Island and St. Paul Districts, Corps of Engineers. These briefings involved discussions of issues and management alternatives for the Draft EIS/CCP.

As planning progressed, the Refuge continued to meet with the Interagency Planning Team in person or via conference calls in May 2005, September 2005, February 2006, and May 2006. These meetings provided the agencies further opportunity to exchange ideas regarding proposed management alternatives.

The Refuge provided briefings to the Corps of Engineers and each state department of natural resources after releases of the Draft EIS/CCP in May 2005 and the Supplement in December 2005. Briefings were scheduled after public meetings (see above) in order to integrate public comments into the discussion. These briefings often included PowerPoint presentations of major issues, followed by questions and answers and discussion.

Congressional Briefings and Meetings. In late January 2004 the Refuge conducted three briefings for Congressional and state legislative members and staff. Meetings were held in Savanna, Illinois, Prairie du Chien, Wisconsin, and La Crosse, Wisconsin. Attendees included one state senator from Minnesota and staffers for three U.S. Representatives and three U.S. Senators. In August and November 2005, Refuge Manager Hultman provided a briefing to the Congressional River Advisory Board, sponsored by Congressman Kind (WI). Meetings were also held with Congressman Kind in March and April of 2006. Conference calls were conducted with Congressional Staff in October 2005 and May 2006. In October 2005, two of Senator Coleman's (MN-R) staff visited the Refuge to discuss the CCP. In March 2006, Refuge Manager Hultman attended a meeting convened by Congressman Kind to discuss Wisconsin navigability issues. Attendees included legal counsel for Department of the Interior, Wisconsin Department of Natural Resources, and Wisconsin Department of Justice (Attorney General).

Other Meetings: Between 2003 and 2006, briefings and presentations were given to the Upper Mississippi River Conservation Committee, Upper Mississippi River Basin Association, Mississippi River Citizens Commission, Wisconsin Parkway Commission, Minnesota Audubon Society, Mississippi River Air Boaters Association, the La Crosse County (Wisconsin) Conservation Alliance, Winona Civic Association, and several other river community organizations. Topics included the planning process and framework, issues being addressed, and avenues for public involvement and comment.

Newsletters, News Releases and Executive Summaries. Three "CCP Update" newsletters dated August 2002, December 2002, and July 2003, were sent to approximately 2,600 citizens, nongovernmental organizations, media, and legislators during the scoping process. They described who we are, the planning process, proposed completion schedules, potential issues to be addressed in the Draft EIS/CCP, draft Refuge vision and goals, and times and locations of upcoming public meetings. Four news releases were sent to approximately 52 media outlets (newspapers, radio, and TV) during this scoping process. They announced our intent to complete the CCP, meetings, workshops and invited citizen participation.

In May 2005 the Draft EIS/CCP was released for public review and comment. At the same time, an Executive Summary (27 pages) was mailed to over 3,100 individuals, organizations, elected officials, and members of the media. It provided information on the public involvement process, Refuge goals, planning issues, summaries of alternatives and environmental consequences, and tables of project features proposed in the Plan. Several news releases were issued at the same time to announce the release, comment deadlines, and upcoming pubic meetings.

In December 2005, an Executive Summary of the "Supplement to the Draft Environmental Impact Statement and Comprehensive Conservation Plan, Alternative E: Modified Wildlife and Integrated Public Use" was sent to a mailing list including 2,950 addresses. This document offered information similar to the previous summary, with the addition of foldout maps of each Refuge pool showing management direction under proposed, Alternative E. As with previous executive summaries, news releases were issued at the same time to announce the release, comment deadlines, and upcoming pubic meetings.

An update of the Final Environmental Impact Plan and Comprehensive Conservation Plan will be sent to approximately 4,900 addressees on the current EIS/CCP mailing list.

General. Details of public and agency meetings are available at Refuge headquarters in Winona, Minnesota and on our planning website. Throughout the planning period, 2002-2006, Refuge staff made numerous CCP presentations to a variety of media and audiences, including radio, television, and print media, civic organizations, conservation groups, and other organizations.

Refuge staff provided briefings to the Service's Regional Office (Region 3, Twin Cities MN) in May 2003, November 2003, February 2005, September 2005, and March 2006. Similar briefings were provided to the Service Director and staff and high-ranking officials of the Department of the Interior, in Washington, D.C. in March 2005 and April 2006.

6.2 Cultural Resources and Historic Preservation

Notification of preparation of the CCP and EIS is to be sent to the federally-recognized tribes and to the several county historical societies. In addition, the following listed organizations should be notified:

- State Historic Preservation Officer for Illinois, Iowa, Minnesota, and Wisconsin
- Office of the State Archeologist for Iowa, Minnesota, and Wisconsin
- Governor's Liaison for Indian Affairs in Iowa
- Indian Affairs Council for Minnesota
- Archaeological and historic preservation state-wide groups
- The Advisory Council on Historic Preservation
- The FWS Historic Preservation Officer

The final CCP with EIS is to be sent to each State Historic Preservation Officer and to others who request it.

6.3 List of Contacts

The Refuge has contacted the following agencies, organizations, and citizens regarding the CCP.

Elected Federal Officials

U.S. Senators & Representatives (18)

U.S. Senator Richard Durbin (Illinois)

U.S. Senator Barack Obama (Illinois)

U.S. Senator Charles Grassley (Iowa)

U.S. Senator Tom Harkin (Iowa)

U.S. Senator Norm Coleman (Minnesota)

U.S. Senator Mark Dayton (Minnesota)

U.S. Senator Russ Feingold (Wisconsin)

U.S. Senator Herb Kohl (Wisconsin)

U.S. Representative Melissa Bean (Illinois)

U.S. Representative Lane Evans (Illinois)

U.S. Representative Dennis Hastert (Illinois)

U.S. Representative Donald Manzullo (Illinois)

U.S. Representative Tom Latham (Iowa)

U.S. Representative Jim Nussle (Iowa)

U.S. Representative Gil Gutknecht (Minnesota)

U.S. Representative Mark Kennedy (Minnesota)

U.S. Representative Mark Green (Wisconsin)

U.S. Representative Ron Kind (Wisconsin)

Elected State Officials (36)

State Senator Denny Jacobs (Illinois)

State Senator Todd Sieben (Illinois)

State Senator Mike Connolly (Iowa)

State Senator E.T. Gaskill (Iowa)

State Senator Kitty Rehberg (Iowa)

State Senator Julie Hosch (Iowa)

State Senator Bryan Sievers (Iowa)

State Senator Roger Stewart (Iowa)

State Senator Mark Zieman (Iowa)

State Senator Bob Kierlin (Minnesota)

State Senator Steve Murphy (Minnesota)

State Senator Ron Brown (Wisconsin)

State Senator Dan Kapanke (Wisconsin)

State Senator Mark Meyer (Wisconsin)

State Senator Dale Schultz (Wisconsin)

State Representative Mike Boland (Illinois)

State Representative Jim Sacia (Illinois)

State Representative Patrick Verschoore (Illinois)

State Representative Polly Bukta (Iowa)

State Representative Chuck Gipp (Iowa)

State Representative Pam Jochum (Iowa)

State Representative Steven Lukan (Iowa)

State Representative Pat Murphy (Iowa)

State Representative Steven Olson (Iowa)

State Representative Bob Osterhaus (Iowa)

State Representative Roger Thomas (Iowa)

State Representative Gregory Davids (Minnesota)

State Representative Jerry Dempsey (Minnesota)

State Representative Gene Pelowski (Minnesota)

State Representative Steve Sviggum (Minnesota)

State Representative Barbara Gronemus (Wisconsin)

State Representative Mike Huebsch (Wisconsin)

State Representative DuWayne Johnsrud (Wisconsin)

State Representative Gabe Loeffelholz (Wisconsin)

State Representative Lee Nerison (Wisconsin)

State Representative Jennifer Shilling (Wisconsin)

Attorney General Peg Lautenschlager (Wisconsin)

Federal Agencies (8)

U.S. Army Corps of Engineers

U.S. Coast Guard

U.S. Department of Agriculture, Natural Resource Conservation Service

U.S. Department of Interior, U.S. Fish & Wildlife Service

U.S. Department of Interior, U.S. Geological Survey

U.S. Department of Transportation

U.S. Environmental Protection Agency

U.S. Forest Service

Native American Tribes (35)

Bad River Band, Chippewa

Boise Forte Band, Chippewa

Fond du Lac Band, Chippewa

Grand Portage Band, Chippewa

Lac Courte Oreilles Band, Chippewa

Lac du Flambeau, Chippewa

Leech Lake Band, Chippewa

Mille Lacs Band, Chippewa

Red Cliff Band, Chippewa

Red Lake Band, Chippewa

Sandy Lake Band, Chippewa

Sokaogon Chippewa

Devils Lake (Spirit Lake) Sioux

Flandreau Santee Sioux

Lower Brule Sioux

Lower Sioux Mdewakanton

Prairie Island Sioux

Santee Sioux

Shakopee Mdewakanton Sioux

Sisseton-Whapeton Sioux

Upper Sioux Community

Iowa Tribe of Kansas

Iowa tribe of Oklahoma

Menominee Indian Tribe

Miami Tribe

Stockbridge-Munsee

Peoria Indian Tribe

Citizen Potawatomi

Forest County Potawatomi

Hannahville Indian Community, Potawatomi

Prairie Band of Potawatomi

Sac & Fox Nation of Missouri

Sac & Fox Tribe of the Mississippi

Ho-Chunk Nation

Winnebago Tribe of Nebraska

State Agencies (16)

Iowa Department of Natural Resources

Iowa Historical Society

Iowa Department of Cultural Affairs

Illinois Department of Natural Resources

Illinois Historic Preservation Division

Minnesota Department of Agriculture

Minnesota Department of Natural Resources

Minnesota Department of Transportation

Minnesota Historical Society

Minnesota Pollution Control Agency

Minnesota Water & Soil Resource Board

Wisconsin Department of Natural Resources

Wisconsin Division of Tourism

Wisconsin Department of Transportation

Wisconsin Department of Agriculture, Trade

Wisconsin Historical Society

Cities (23)

Alma, Wisconsin

Brownsville, Minnesota

Cassville Village, Wisconsin

Dubuque, Iowa

Edgewood, Iowa

Elkader, Iowa

Fountain City, Wisconsin

Garnavillo, Iowa

Guttenberg, Iowa

Harper's Ferry, Iowa

Hokah, Minnesota

La Crescent, Minnesota

La Crosse, Wisconsin

Lansing, Iowa

McGregor, Iowa

Monona, Iowa

New Albin, Iowa

Onalaska, Wisconsin

Prairie du Chien, Wisconsin

Stoddard, Wisconsin

Trempealeau, Wisconsin

Waukon, Iowa

Winona, Minnesota

Counties (19)

Carroll, Illinois

Jackson, Illinois

JoDaviess, Illinois

Rock Island, Illinois

Whiteside, Illinois

Allamakee, Iowa

Clayton, Iowa

Clinton, Iowa

Dubuque, Iowa

Scott, Iowa

Houston, Minnesota

Wabasha, Minnesota

Winona County, Minnesota

Buffalo, Wisconsin

Crawford, Wisconsin

Grant, Wisconsin

La Crosse, Wisconsin

Trempealeau, Wisconsin

Vernon, Wisconsin

Organizations (262)

American Kennel Club

American Rivers

Animal Protection Institute

Audubon Society

BASSMasters Federation

Blue Goose Alliance

Boy Scouts of America

Defenders of Wildlife

Izaak Walton League of America

National Rifle Association

Sierra Club

The Nature Conservancy

The Wilderness Society

Friends of the Upper Mississippi Refuges

Conservation Organizations and Clubs (96)

Businesses (45)

Schools/Univ. (26)

Libraries (58)

Other Organizations (54)

River Associations and Committees (13)

Lower Mississippi River Conservation Committee

Midwest Area River Coalition 2000

Mississippi River Basin Alliance

Mississippi River Citizen Commission

Mississippi River Interstate Cooperative Research Association

Mississippi River Parkway Commission

Mississippi River Regional Planning Commission

Mississippi River Revival

River Resource Alliance

Upper Mississippi River Basin Association

Upper Mississippi River Congressional Task Force

Upper Mississippi River Conservation Committee

Upper Mississippi Waterway Association

Media (119)

Newspaper (75)

Radio (28)

TV (16)

Citizens (3,907)

Illinois (526)

Iowa (665)

Minnesota (945)

Wisconsin (1,715)

Citizens of Other States (56)

Chapter 7: Public Comment on Draft EIS/CCP and the Supplement (Alternative E) and Response

7.1 Introduction

The Draft EIS/CCP for the Upper Mississippi River National Wildlife and Fish Refuge (Refuge) generated tremendous public interest and input. Chapter 6 describes in detail the public meetings and workshops held during the planning process. In summary, the Refuge hosted 46 public meetings attended by approximately 4,500 people. A total of 3,230 written comments were received during the two comment periods and these comments are the focus of this chapter. Table 34 summarizes the comments received by source.

Table 34: Source of Comments

Affiliation	Number of Written Comments Draft CCP/EIS, May 1 to Aug. 31, 2005, 120-day comment period	Number of Written Comments Supplement (E), Dec. 5, 2005 to March 6, 2006, 90-day comment period
Tribal Governments	1	--
Federal Agencies	4	2
State Agencies	6	5
Local/Other Agencies	10	4
Elected Officials (state/fed)	9[1]	3[1]
Organizations	48	23
Businesses	18	11
General Public	2,420	666
Totals	2,516	714

1. Eight Wisconsin State Legislators signed one comment letter in each comment period

7.2 How Comments were Handled

Public comments received during 11 public meetings of the first comment period and 9 public meetings of the second comment period were an important part of the planning process. All public meetings were video taped and later converted to digital video disc (DVD) to become part of the official record for the planning process. The DVDs are kept at the Refuge headquarters in Winona, Minnesota. Arrangements for viewing the DVDs can be made by calling the Refuge at (507) 452-4232.

Public comments received during the 10 public workshops of the first comment period were summarized in 87 separate workgroup reports. These workgroup reports were posted a few days after each workshop on the Refuge planning website and are still available for viewing (http://www.fws.gov/midwest/planning/uppermiss).

Written comments received during the two comment periods came in a variety of forms including letters, comment forms distributed at meetings, e-mails, and faxes. Each comment received was assigned a log number, summarized and recorded on a master electronic file, and then placed in a three-ring binder. A standard acknowledgement letter or e-mail was sent to each person or group who submitted a comment.

All written comments are available for public review at the Refuge headquarters in Winona, Minnesota. Arrangements for viewing can be made by calling the Refuge at (507) 452-4232. A copy of the written comments received from tribes, states, elected officials, other agencies, local units of government, and conservation or other organizations are included on the Refuge's planning website at http://www.fws.gov/midwest/planning/uppermiss.

7.3 How Comments and Responses are Organized

Comment categories and locations:

Tribes, States, Corps of Engineers, Environmental Protection Agency	(7.4, page 360)
Elected officials (state/federal)	(7.5, page 373)
Petitions	(7.6, page 380)
Form letters/e-mails	(7.7, page 384)
Comments by topic or plan objective	(7.8, page 386)
General comments	(7.9, page 421)

Due to the volume of written comments received, most are not included in their entirety as noted below. Comments from both comment periods are combined unless otherwise noted. Simple edit suggestions were generally accepted and made in the Final EIS/CCP and are not referenced here or discussed.

Given the Refuge's close working relationship and shared responsibility for natural resource management, the comments from Tribes; Minnesota, Wisconsin, Iowa, and Illinois departments of natural resources; Corps of Engineers; and the U.S. Environmental Protection Agency are treated individually. Each of these letters is summarized by issue or concern raised, followed by a Service

response. Comments from state and federal elected officials are also treated in this way due to the general heightened public interest in elected official comments. Scanned copies of letters from tribes, agencies, and elected officials are included at the end of this chapter, and page numbers for each are included in the respective comment/response.

Since petitions and form letters represent a large number of individuals, they are also treated separately. The basic issues or concerns in each petition and form letter is quoted or summarized, followed by a response.

Comments from individuals, organizations, businesses, and local/other units of government are combined and aligned with the 41 objective topics that comprise the heart of each alternative in Chapter 2. This objective framework helps the tracking of particular areas of interest, and eases reference back to the body of the EIS/CCP. For example, comments on Waterfowl Hunting Closed Areas are found under 4.2, the same objective number for the closed area objective across all alternatives. The number in parenthesis ( ) following each comment represents the number of people and/or organizations who provided a similar comment. For certain comments, a unit of government or organization submitting the comment may be cited if it helps put the comment in context.

Finally, comments which are general in nature and do not match a particular objective, including comments for or against a particular alternative, are summarized followed by a response, as appropriate. As above, the number in parenthesis ( ) following each comment represents the number of people and/or organizations who provided a similar comment. For certain comments, a unit of government or organization submitting the comment may be cited.

7.4 Tribes, States, Corps of Engineers, and Environmental Protection Agency Comments and Response

In most cases, the states, Corps of Engineers, and Environmental Protection Agency provided written comments on the May 1, 2005 Draft EIS/CCP and on the December 5, 2005 Supplement (Alternative E). Both comment letters are included and responded to in turn. Illinois did not submit comments on the Supplement. One tribe submitted comments during the first comment period, none for the second.

Service Response to Iowa Tribe of Oklahoma, May 12, 2005 comments. (Letter Page 423)

1. The historical preservation of the Iowa Tribe of Oklahoma is very important and the Iowa people have an historic presence in counties adjacent to the Refuge. They wish to be kept informed of any artifact discoveries.

   Response: We appreciate the Iowa Tribe of Oklahoma's interest in the Refuge CCP and will keep them apprised of any cultural resource issues and discoveries. As noted in Chapters 2, 3, and 4 of the Final EIS/CCP, cultural resource management is an area of overriding importance and compliance that will be addressed on a project-by-project basis when actions outlined in the plan are implemented.

Service Response to Minnesota Department of Natural Resources, August 31, 2005 comments. (Letter Page 424)

1. Alternative D provides the diversity of uses and experiences sought by the public.

   Response: Comment is noted.

2. Consider eliminating or restricting jet skis, airboats, hovercraft, and other motorized mechanisms that negatively impact fish and wildlife in critical habitats.

   Response: The Electric Motor Areas described in the alternatives limit all watercraft to electric motor or human power propulsion only. Slow, No Wake Areas in Alternative E do limit types of watercraft seasonally (airboats and hovercraft) due to their inherent noise generation. Alternative E was developed after extensive input on this topic at public meetings and in written comments.

3. Exemptions needed in Closed Areas and Electric Motor Areas for federal and state agencies doing research, monitoring, and law enforcement.

   Response: Special area regulations are general public use regulations and were never intended to cover states or other agencies from continuing to carry out their responsibilities for fish and wildlife management and enforcement. We have added language to clarify this intent in Chapter 2, section 2.4.1 (Elements Common to All Alternatives). We continue to recognize, however, that public perceptions are important and good judgment is needed when working in areas or with equipment the general public is restricted from using.

4. Law enforcement concerns stemming from new regulations: inquiries, response, jurisdiction for enforcement, costs, etc.

   Response: We have added a strategy in Alternative E, Objective 5.5 (General Public Use Regulations) to prepare a step-down law enforcement plan in cooperation with the states and the Corps of Engineers. This plan will be started in 2006 and will address the issues and concerns raised.

5. Supports reconfiguration of Waterfowl Hunting Closed Area locations, size, etc.

   Response: We appreciate the support for this important aspect of the CCP.

6. Delay the no fishing, no motor provision until later in October to accommodate fall fishing.

   Response: In Alternative E, we have delayed the effective date for voluntary avoidance or the no motor restriction in Waterfowl Hunting Closed Areas to October 15 versus October 1 in other alternatives to address this concern.

7. Consider Voluntary Avoidance Areas versus use or entry restrictions.

   Response: In Alternative E, the preferred alternative, we have incorporated the use of voluntary avoidance guidelines in all Waterfowl Hunting Closed Areas versus more restrictive regulations of other alternatives. Alternative E also establishes a threshold of disturbance and the intent of the Refuge to move toward more restrictive regulations should the voluntary approach fail to limit disturbance to waterfowl using the areas for rest and feeding.

8. Extend period of no entry for motorized craft in closed areas to late December to benefit late migrants.

   Response: We do not concur with the need to extend guidelines or regulations for entry into Waterfowl Hunting Closed Areas later into the winter season. Most waterfowl hunting ends before or by mid-December which removes a major disturbance and in effect provides waterfowl additional areas to rest and feed outside of closed areas. Also, the number of waterfowl using the refuge is highly variable at this time of year given the timing of yearly freeze-up.

9. Support Electric Motor Areas, but disappointed that larger contiguous areas not selected.

   Response: Electric Motor Areas in Alternative D were based on trying to balance the variety of existing uses now occurring on the Refuge to avoid undue disruption to the public. Based on substantial public comment, further changes were made in Alternative E to address public concerns. We believe Alternative E provides areas to meet the needs of the greatest diversity of Refuge users throughout the length of the Refuge.

10. Concerns about the proposed boat launch fee at Refuge-administered ramps.

    Response: The fee proposal was dropped in Alternative E, the preferred alternative.

Service Response to Wisconsin Department of Natural Resources, August 29, 2005 comments. (Letter Page 429)

1. Emphasized that Wisconsin reserves the right to provide free and open navigation to residents of the state and the right to regulate fishing in all waters of the state.

   Response: We recognized and quote the state's 1925 approval language in Final EIS/CCP (Chapter 1) and concur to a point that does not interfere with federal trust responsibilities and meeting the purposes of the Refuge; however, proposals in Alternative E do not limit navigation or use, only the means of navigation and use on the connected waters (more in closed area comments). We concur with state's lead in fish management and regulation and have edited objectives, strategies, and other text in the Final EIS/CCP to stress a cooperative approach.

2. Believe the plan should be broadened to include the larger ecosystem, including fisheries and state-listed species and species of concern.

   Response: We concur and have included the strongest fishery management emphasis in any Refuge plan to date. Virtually all recent EMP projects in Wisconsin have either focused on improving fish habitat or included a fish habitat component (Long Lake, Stoddard, Lake Onalaska, Ambrough Slough, Sunfish Lake, Mud Lake, and Spring Lake). The Service believes that waterfowl management and fishery management can be complementary with careful planning. Alternative E objectives and strategies dealing with monitoring and threatened and endangered species have been changed to include state-listed species and state species of concern, along with reference to recently completed state Comprehensive Wildlife Conservation Plans.

3. Complete a Law Enforcement step-down plan to improve understanding, expectations, and cooperation of Refuge and state officers

   Response: Concur and have added in Alternative E, Objective 5.5 (General Public Use Regulations) a strategy for preparing a step-down LE plan in cooperation with the states and Corps of Engineers.

4. Support concept of Electric Motor Areas if the Refuge works with public to delineate the areas. Consider commercial fishing needs, seasons of closure, and boundary changes.

   Response: Although we do not concur with delaying decision and believe the public has had ample opportunity for input, we have made major changes in Alternative E reflecting both state and public comment. In short, we have dropped 11 of 15 proposed new Electric Motor Areas, 8 of which are proposed to become seasonal Slow, No Wake Areas (March 16-October 31).

Commercial fishing should not be measurably affected by the proposals in Alternative E since Electric Motor and Slow, No Wake Areas are in backwater versus areas not often used for commercial fishing.

5. Concern about amount of Closed Areas in Wisconsin; unfair loss of recreational opportunity, especially in Pools 4 and 10 (Big Lake and Wisconsin River Delta proposals). Need for deer management in Goose Island area a concern with Closed Area expansion/restrictions proposed.

   Response: We understand the concern with amount of closed areas in Wisconsin but try to be neutral to state lines when addressing resource issues. In truth, the best habitat on many parts of the upper Refuge is in Wisconsin. We share the concern with recreational impacts and are opening the Nelson-Trevino area in Pool 4 to balance the loss in the Big Lake area, and in Alternative E also open an additional 788 acres of existing closed area to hunting (Buffalo or Beef Slough). We have also modified the proposed Wisconsin River Delta closed area in Alternative E so that it is open to hunting and fishing through October 31, and dropped the north Goose Island special hunt area from any designation (remains open). We support and will continue to work with state and local officials to accommodate deer hunting in the existing Goose Island closed area. We share the habitat and public safety concerns from the expanded deer population in this area.

6. Closed areas must remain open to fishing during waterfowl season, and would like to help craft a phased approach using alternatives such as voluntary avoidance, slow-no-wake, electric motor with travel lanes, and no motor areas.

   Response: In Alternative E, the preferred alternative, we have made major changes to the closed area entry and use regulations proposed in Alternative D and have dropped the "no fishing, no motors" provision in favor of Voluntary Avoidance on all areas and no use of motors on small closed areas. These restrictions also have been moved forward to October 15 versus October 1 to accommodate early fall fishing.

   We are also proposing in Alternative E a disturbance threshold policy to guide future entry and use restrictions. This policy is included in Objective 4.2, Waterfowl hunting closed areas and sanctuaries.

7. Concern with lack of support for doing fish habitat improvement projects in Waterfowl Hunting Closed Areas.

   Response: Unintended conflicts often arise when trying to meet different objectives for fish and waterfowl in the same area. Fall fishing has been shown to be a major disturbance to waterfowl in some closed areas. Certain fish habitat improvements which attract and hold fish can increase angler use and waterfowl disturbance, and on small closed areas especially, have the potential to negate any waterfowl migration benefits. Careful consideration of these dynamics is needed when planning habitat projects.

   Alternative E includes this issue in the closed area objective, and also proposes a new policy for project planning to deal with Refuge and state concerns with fish habitat projects.

8. Address commercial fishing needs and research, monitoring, and law enforcement needs in Closed Areas and any Electric Motor Areas.

   Response: New regulations were always intended to be public use regulations, not regulations governing bona fide agency work. Language has been added to section 4.2.1 (Elements Common to All Alternatives) to articulate this intent. Commercial fishing in closed areas is covered under the voluntary avoidance guidelines, which does not preclude commercial

fishing. Commercial fishing intrusions into closed areas will not be counted as a disturbance under the disturbance threshold guidelines. We hope, however, that commercial anglers can adapt practices and time activities to lessen disturbance to staging waterfowl. We will continue to work with the state and commercial anglers in a cooperative manner to this end. Electric Motor Areas and Slow, No Wake Areas should not have a major impact on commercial fishing due to their locations.

9. We may not move forward with complementary state regulations for 25 shotshell limit, 100 yard spacing, beach use, camping, etc.

   Response: The proposed shotshell limit and hunting party spacing regulations have been dropped in Alternative E, the preferred alternative. State officers do not actively enforce Refuge-specific non-hunting/fishing recreational use regulations now, and we understand that matching state regulations may not always be possible.

10. Use the beach planning process to consider any beach designations, and needed restrictions or regulations for beach use.

    Response: Concur with beach plan process, and have made several changes in Alternative E to proposed beach-related regulations in Alternative D, including areas open to camping, human waste, and alcohol use. The beach section of the plan was revised in Alternative E, but we realize there may still be differences of opinion regarding dredge material placement site management (bath tubs). Since the Refuge ends up with the responsibility for enforcement, we believe we should manage these sites in a way that safeguards the public and lessens enforcement workload.

11. Supports public suggestions for regulation banning glass containers on the Refuge.

    Response: Concur and have added a new regulation to Alternative E, the preferred alternative, Objective 5.1.

12. Economic recreational benefits cited in the Draft EIS seem very low compared to previous economic studies done on the Upper Mississippi River System.

    Response: We do not disagree, but felt it wise to use Refuge visitation figures we enter in report to ensure consistency, and visits are what drive the economics. Our economist used the same economic models as previous Corps of Engineers studies, but since visits are counted differently and the Refuge is a subset of the river as a whole, the economic benefits are lower. However, in the Final EIS in Chapter 3, end of section 3.4.2, we discuss this difference and also present the higher economic gain figures.

Service Response to Iowa Department of Natural Resources, August 22, 2005 comments. (Letter Page 434)
(Note: due to the comprehensive nature of Iowa's comments, responses were only made to items of concern or suggestions)

1. Ensure that public is not overly regulated and new regulations are needed and targeted to provide the expected results.

   Response: We have made several major changes in Alternative E, the preferred alternative, which has reduced many regulatory-type actions and to ensure the remaining new regulations are needed and targeted.

2. Iowa reminds the Service that management authority for fisheries and mussel resources in Iowa waters remains with the state.

Response: We do not disagree, but recognize that the Refuge shares some of this authority on a national wildlife refuge. However, language in several objectives dealing with fisheries, mussels, and recreational fishing has been augmented in Alternative E to recognize the state's lead and primary role in managing these resources and related recreation.

3. Suggest no hunting March 15 – September 1 in no hunting zones (trails, facilities) versus closed to hunting.

   Response: We believe that some areas warrant a separation of hunting and other recreational uses based on location and circumstances and overriding concern for visitor safety. However, we have made several major changes in Alternative E by dropping some suggested no hunting areas around trails, or greatly reducing the acreage affected by closure. Alternative E depicts 11 administrative no hunting zones covering 3,845 acres compared to the existing 8 zones covering 3,555 acres.

4. Support Closed Area modifications/additions, with specific suggestions on boundaries for Guttenberg Ponds, Kenough Slough, and Pleasant Creek.

   Response: We concur with these modifications and have made adjustments in Alternative E, the preferred alternative.

5. Do not support 25 shotshell daily possession limit and minimum 100 yard spacing requirement for waterfowl hunters on the Refuge.

   Response: These proposals have been dropped in Alternative E, the preferred alternative.

6. Concurs with phase out the use of permanent blinds on the Refuge for waterfowl hunting given the need for consistency on the Refuge and the various issues surrounding permanent blinds.

   Response: The permanent blind issue is difficult given the number of hunters affected and the traditional ties to this method of waterfowl hunting. We appreciate Iowa's support.

7. Work with states on fishing tournaments to avoid duplication.

   Response: We concur and have modified language in Alternative E to strengthen coordination with the states and to ensure a simplified process.

8. Make every effort to keep recreational fish float operations.

   Response: We have made a change in Alternative E to solicit new fish float proposals for any existing floats that may be closed by owners or phased out due to non-compliance with permit stipulations.

9. Recommend that the Service enforce the .08 blood alcohol level for drivers of motor vehicles but use existing intoxication laws for persons on beaches on the Refuge.

   Response: We concur. Alternative E drops the .08 blood alcohol level for persons on the Refuge in favor of using the existing Refuge regulation that ties behavior to alcohol use. We will continue to enforce applicable state alcohol regulations for boat or other vehicle operators.

10. Electric Motor Areas: suggest making these no wake areas instead.

    Response: We have made major changes in Alternative E reflecting both state and public comment. In short, we have dropped 11 of 15 proposed new Electric Motor Areas, 8 of which are

proposed to become seasonal Slow, No Wake Areas (March 16-October 31). We continue to believe that there is a need for a few Electric Motor Areas to provide an alternative experience for hunters, anglers, trappers, and people who enjoy quiet wildlife observation.

11. The Service is cautioned that Iowa is the agency of authority for Slow, No Wake Zones.

    Response: All alternatives have recognized the current process for establishment of no wake zones. We will work through local and state levels of government as appropriate for establishing the areas proposed.

12. Recommend that the Service make a canoe landing at each proposed canoe trail and offered suggestions for several.

    Response: We do not disagree, although realities of railroad tracks and lands, private land, and slope of terrain often limit access points to the Refuge and the river. The specific suggestions will be considered during more detailed planning and implementation of the canoe trails and Refuge accesses.

Service Response to Illinois Department of Natural Resources, August 26, 2005 comments. (Letter Page 440)

1. Continue to allow the use of permanent waterfowl hunting blinds on the Savanna District.

   Response: We appreciate Illinois' concern with the planned phase out of permanent blinds for waterfowl hunting on the Savanna District of the Refuge. This is a difficult issue due to the number of hunters involved and the strong traditions that have developed. However, we believe our concerns with private, exclusive or proprietary use of public lands and waters, continued problems with confrontations and debris, and inconsistency with the other three districts of the Refuge warrant a phase out of the blinds. We have made one change in Alternative E to help ease the transition. The pool-by-pool sequence of phase out will be Pool 12, 14, and 13. This will not only ease our administrative and enforcement burden, but give the greatest number of blind hunters (Pool 13, 250 blinds) more time to adjust to alternative hunting methods.

2. Continue the 200-yard spacing requirement between waterfowl hunting parties.

   Response: We concur and Alternative E reflects no-change in 200-yeard spacing for Illinois portion of Refuge

3. Work collaboratively with the state on fishing tournament permitting.

   Response: We concur and have made modifications to Alternative E, Objective 4.9 to strengthen the collaborative approach to addressing fishing tournaments on the Refuge.

Service Response to U.S. Army Corps of Engineers September 6, 2005 comments. (Letter Page 441)
(Note: due to the comprehensive nature of the Corps of Engineers' comments, responses were only made to major items of concern. A number of relatively minor editorial comments or corrections are not paraphrased but have been incorporated in the Final EIS/CCP)

1. Alternative D is best approach of alternatives presented; reasonable and balanced approach.

   Response: We appreciate the Corps cooperation and support during this planning effort as well as on the multitude of mutual activities on the Upper Mississippi River System.

2. Refuge needs Corps of Engineers' concurrence to implement changes affecting Corps-acquired lands; believe concurrence can be obtained on most of the proposals in Alternative D.

Response: It is our hope that concurrence will come through the Corps of Engineers comments in support of the Final EIS/CCP, or through the many step-down plans that will be prepared in collaboration with the Corps of Engineers (e.g. law enforcement, pool beach plans). We have added wording to many objectives and strategies in Alternative E to emphasize collaboration and cooperation, and inherent in these principles is concurrence.

3. Public use must be addressed in cooperative manner through existing forums.

   Response: We agree and have modified objectives and strategies in Alternative E to reflect this cooperative approach in the implementation of objectives dealing with public use. We have also added a separate section in Chapter 2, section 2.4.1 (Elements Common to All Alternatives) that addresses cooperation and coordination with the Corps of Engineers and the states.

4. Some objectives are very optimistic (e.g. pool drawdowns, boundary survey).

   Response: We have modified the objectives considerably in Alternative E, the preferred alternative, to address these comments. Objective 1.1 (boundary integrity/surveying) was changed to focus on problem areas versus the entire boundary, and Objective 2.2 (water level management) was changed to reflect ecological need, engineering feasibility, and available funding that may influence completing pool drawdowns.

5. Provide prioritized implementation strategy in the plan due to fiscal concerns.

   Response: Appendix L (Implementation Plan) addresses a strategy for implementing various objectives. Since funding sources are varied and subject to year-to-year change, establishing a strict priority is not always practical or in-line with the way the Service receives funding. Also, many actions must receive simultaneous attention. However, we agree that prioritization, even by category of projects, is useful and does help communicate the work the Refuge believes is most important. Changes have been made in Appendix L to reflect this.

6. Address cultural resources earlier in the document; more emphasis.

   Response: We believe that cultural resources are addressed in the appropriate way in Chapters 2, 3, and 4 of the Final EIS/CCP. Several edits have been made based on comments specific to cultural resources. Regardless of cultural resource placement in the Final EIS/CCP, it remains one area of overriding importance, and compliance with laws and regulations will be addressed on a project-by-project basis when actions outlined in the plan are implemented.

7. Identify acquisition authority for bluffland acquisition

   Response: Authority for bluffland acquisition, either in fee or easement, stems from the Record of Decision signed by the Regional Director for the 1987 Refuge Master Plan. That plan identified the bluffland areas and they have carried forward to the Final EIS/CCP. This plan does not alter the approved refuge boundary established by that earlier authority. Many agencies need legislative authority for acquisition, but in the Service, that authority still rests with the agency, although major expansion now require Director's approval and new National Environmental Policy Act compliance documentation.

8. Use "placement site" and "material" versus "disposal site" and "spoil."

   Response: Concur. We have made changes throughout the final document.

9. Want to see their comments/suggestions reflected in Final EIS/CCP.

   Response: Concur and disposition of comments described in this chapter.

10. Support Closed Area management as long as navigational servitude for main channel commercial and recreational boat traffic protected. Establish travel corridor on Pool 8 Closed Area (Limited Development Area).

    Response: We concur and existing and proposed Waterfowl Hunting Closed Areas are designed to take main channel navigational servitude into account. In Alternative E, we have added a travel corridor in the Wisconsin Islands Closed Area (limited development area). Chapter 4, Section 4.2.7 (Environmental Consequences of the Draft and Final CCP/EIS) does state that "Under all alternatives there is no impact to commercial navigation. All proposed actions have been tempered by the requirement in establishment legislation that Refuge management not interfere with the navigation operations carried out by the Corps of Engineers."

11. Support permanent blind phase out.

    Response: We appreciate the support for dealing with this difficult issue in Pools 12, 13, and 14 of the refuge.

12. The Corps of Engineers requests to be part of fishing tournament management process.

    Response: Concur and have added language in Alternative E, Objective 4.9 that includes the Corps of Engineers in both the objective and the strategies for implementation.

13. Closing beaches on Corps-acquired land would require District Engineer approval; address problems through interagency partnership effort involving public.

    Response: We have made several changes in Alternative E, Objective 5.1 to highlight a partnership approach in addressing beach-related policies and maintenance. Any closures for health and safety or bona fide wildlife issues would be coordinated with the Corps of Engineers, states, and the public. The only exception is if a true emergency, but this would likely be rare and not a permanent change without coordination and Corps of Engineers agreement on Corps-acquired areas.

14. Dredged material placement overrides recreational considerations on placement sites; placement sites should not be referred to as recreational beaches; a fee for beach use may have liability consequences.

    Response: We concur and abide by the designations in the Land Use Allocation Plans and agree that placement sites are first and foremost Corps of Engineers project areas and not recreational beaches. However, there is no doubt that the public uses them for recreation. No recreational use fee is proposed in Alternative E, and if any fee is contemplated in the future, it would only be done in coordination with the Corps of Engineers, the states, and the public.

15. Electric Motor Areas and No Wake Zones; establish collaboratively.

    Response: We do not disagree and the purpose of the interagency planning team and the extensive public involvement has helped shape the number, size, and location of proposed Slow, No Wake Areas and Electric Motor Areas. We recognize, however, that there will likely never be total agreement on either the concept or the locations, but input has been substantial as reflected in major changes made in Alternative E, the preferred alternative. Slow, No Wake Zones (linear areas) identified will be established through the normal local unit of government process that has been used in the past.

16. Drawdown objective overly optimistic, some not feasible, some not proven environmentally. Standard timeframe not workable.

    Response: Concur and have changed the language in Objective 2.2 to reflect the uncertain and dynamic nature of pool wide drawdowns, and the need to base decisions on ecological need and engineering feasibility.

17. Clarify Guiding Principles for Habitat Projects so as not to preclude active management strategies (e.g. moist soil units, control structures)

    Response: We have modified the strategies in Alternative E, Objective 3.2 to clarify that active management strategies are not precluded.

18. Restricting watercraft from entry in Waterfowl Hunting Closed Areas would require concurrence from District Engineer. Implement through a partnership program with Corps of Engineers and states.

    Response: Alternative E, the preferred alternative, does not preclude entry in any Waterfowl Hunting Closed Area that straddles the main channel of the river. We have also included travel corridors where needed so the public can access the main channel. For Waterfowl Hunting Closed Areas, if compliance levels with voluntary avoidance require further restrictions, we will work with the Corps of Engineers and the states to affect that change. This intent has been articulated in Alternative E, Objective 4.2.

Service Response to U.S. Environmental Protection Agency, August 30, 2005 comments. (Letter Page 460)

1. The Draft EIS is rated "LO" indicating a lack of objection and EPA did not identify the need for additional information or issues to be considered. It was suggested that an explanation be added on how the CCP will be integrated with the Corps of Engineers' Navigation and Ecosystem Sustainability Program (NESP).

    Response: We have added reference to NESP in Chapter 1, Section 1.4.3.3 in the Final EIS/CCP. Reference to NESP is also made in several objective strategies dealing with habitat improvements, and is also discussed in Appendix L, the implementation plan for the CCP which emerges. We remain committed to a strong partnership with the Corps of Engineers, other agencies, and the states in dovetailing the provisions of the environmental side of NESP with the habitat restoration and enhancement projects identified in the Final EIS/CCP.

Service Response to Minnesota Department of Natural Resources, January 20, 2006 comments. (Letter Page 462)

1. Encourage monitoring of Waterfowl Hunting Closed Areas for disturbance and if necessary implement further restrictions.

    Response: Concur and will be doing monitoring to gauge how well voluntary avoidance is working. Objective 4.2 in Alternative E discusses monitoring, the threshold established for disturbance, and actions to follow should further restrictions be necessary.

2. Concerned about enforcement impacts and the law enforcement step-down plan timetable and contents.

    Response: We replied to Minnesota in separate letter in February outlining the process for state involvement, the timetable for completion (end of CY 06), and the topics and issues to be covered in the plan. This letter was also given to the Wisconsin DNR after receiving their

comments with a similar concern. A strategy calling for completion of the law enforcement step-down has been added to Alternative E, Objective 5.5.

Service Response to Wisconsin Department of Natural Resources, March 6, 2006 comments. (Letter Page 464)

1. Desire that all habitat improvement projects provide for the needs of the entire ecosystem, both fish and wildlife. They would like to meet and establish criteria for making decisions on project features.

   Response: We believe this comment refers to fish habitat improvements as part of habitat projects in Waterfowl Hunting Closed Areas. In Alternative E, the preferred alternative, Objective 4.2 Waterfowl Hunting Closed Areas, fish habitat improvements in closed areas is addressed due to unintended conflicts that may arise when trying to meet fish and waterfowl objectives in the same area. Improved fish habitat can attract more anglers and increase disturbance, especially under a "voluntary avoidance" approach. However, the Refuge is most willing to sit down and discuss this issue more fully and explore setting criteria for consistent project decision-making. A strategy to this effect has been added to Alternative E, Objective 4.2.

2. The State reiterated the need for access to restricted areas (closed areas, slow no wake, electric motor areas) for survey, monitoring, and enforcement work.

   Response: Special area regulations are general public use regulations and were never intended to cover states or other agencies from continuing to carry out their responsibilities for fish and wildlife management and enforcement. We have added a paragraph stating this intent in Chapter 2, Section 2.4.1 (Elements Common to All Alternatives) in the Final EIS/CCP. We continue to recognize, as does the state, that public perceptions are important and good judgment is needed when working in areas or with equipment the general public is restricted from using.

3. The state is concerned about subsequent state regulations matching proposed refuge regulations so that state officers can enforce. An example is the Waterfowl Hunting Closed Area boundaries. The state asks that we continue to work with them to ensure consistency.

   Response: We recognize the difficulties that different rules or regulations would present, both for the citizens of Wisconsin and state conservation officers. Indeed, we prefer similar regulations so that state conservation officers can continue to assist in enforcing Refuge regulations related to hunting and other fish and wildlife-related recreation. We will continue to work with the state, but are prepared to implement needed regulatory changes regardless of the outcome of the state rule making process. To do otherwise would be abdicating our responsibilities to manage the Refuge in accordance with its establishing legislation, the Refuge Improvement Act, and Refuge System policies and regulations.

4. The State is concerned about the timing of the law enforcement step-down plan preparation and urges completion before new regulations or new refuge officers are added.

   Response: We concur with the importance of the plan and have provided the state with a copy of the letter sent earlier to the Minnesota DNR that outlines the process for state involvement, the timetable for completion (end of CY 06), and the topics and issues to be covered in the plan.

5. The State recommends the major disturbance threshold for waterfowl in closed areas be set at 1,000 birds only and not "or 50 percent of the birds present," and recommends an average of 20 disturbances per week versus the one major disturbance per day based on a season-long average that is in Alternate E.

Response: We do not concur. The rationale section of Objective 4.2 articulates our basis for the thresholds, namely human disturbance monitoring and research done on the Refuge over several years. We believe these thresholds are reasonable and defensible for application in other closed areas. We have added additional science-based information on closed areas and disturbance in Appendix Q and believe it will prove a useful reference for current and future managers.

6. Recommend that fire be used as a management tool on islands.

   Response: We do not disagree, and will continue to use fire on islands where it is appropriate and in keeping with basic ecological processes for a site. Several islands were burned in spring, 2006. As stated in our guiding principles for habitat management (Objective 3.2), natural succession may be the best natural process on some islands given the realities of the physical environment and the needs of all species. This approach is also in-line with the Service's policy on biological integrity, diversity, and environmental health, but does not preclude the use of fire where most appropriate and feasible.

7. Recommend that canoe trails be located within Slow, No Wake Areas whenever possible.

   Response: Since canoe trails are linear and entail no other restriction for other user groups or subgroups, there was considerably more latitude in where to site them based on a variety of factors such as habitat type, proximity to landings and communities, and river and backwater flow patterns. Thus, there was no need to locate canoe trails within other "area" designations. Some canoe trails do, however, fall within or adjacent to Slow, No Wake Areas.

Service Response to Iowa Department of Natural Resources, February 10, 2006 comments. (Letter Page 468)

1. Iowa affirmed its jurisdiction over fisheries, navigation, and licensing requirements, and was concerned about the Service's permitting of fishing tournaments and commercial fishing, mussel, and turtle harvest. They agree with the terms "one-stop shopping" and "dovetail with" in Alternative E.

   Response: We concur that Iowa retains jurisdiction over these areas, but acknowledge that the Service also shares jurisdiction and responsibilities on national wildlife refuges. Several objectives dealing with fisheries, mussels, and tournaments in Alternative E clearly recognize the states' lead in fishery resources, and also outlines our intent to use agreements or other mechanisms to meet our regulatory mandates. We will not be stepping-out alone in those areas that have traditionally been managed by the states and will continue to stress a collaborative approach in carrying out our respective responsibilities.

2. Encourage the Service to develop step-down plans in timely manner in coordination with the states and with public involvement.

   Response: Concur

3. The Service should include reference to the Comprehensive State Wildlife Plans, and the Refuge should be a major partner in implementing.

   Response: Concur. The state wildlife plans were completed after the Draft EIS/CCP was assembled and released in May, 2005. The Final EIS/CCP has a section describing these important state wildlife plans in Chapter 1, Section 1.4.3.3, and reference to the plans has been added in appropriate objectives in Alternative E. We believe the state plans will add strength to the CCP, and vice versa.

4. In regard to refuge access, Iowa would like to see improved access for multiple recreational uses, better parking areas for some proposed facilities like trails and canoe landings, and increased shore-line fishing access. They also believe all canoe landings should be available during ice-over conditions for access by ATVs to ice fishing areas.

   Response: Detailed planning for any proposed public use facilities/accesses will consider and try to accommodate the need for parking. We agree that increased shoreline-angling access is important and have identified several areas. However, difficulty in securing railroad rights-of-way remains a limiting factor along the entire Refuge. We generally allow ATV and snowmobile access directly to the ice from Refuge parking and boat landings, and will examine some of the more primitive canoe landings which may present a conflict with current regulations.

5. In Objective 3.1, suggest adding a strategy for maintenance of habitat projects.

   Response: Concur that this is important. In Alternative E, we did add this need in the Operations and Maintenance section, Objective 6.3. We have also added a line-item to the Implementation Plan (Appendix L) for maintenance of habitat projects.

6. Recommends that the Goetz Island No Hunting Zone (Pool 11) be removed.

   Response: Due to its location adjacent to the City of Guttenberg, a no hunting zone in conjunction with the proposed Goetz Island Hiking Trail is warranted. However, we reduced this no hunting zone from 242 acres to 32 acres in Alternative E of the Final EIS/CCP. We believe this change will continue to address safety concerns while keeping most of the area open to hunting.

7. Suggests integrating future Environmental Management Program (EMP) projects with various public use objectives. For example, the proposed Turkey River Project could be a real showcase since tour route, trail, viewing platform, and shoreline fishing could also be done.

   Response: We concur that public use objectives in the plan would dovetail nicely with many proposed EMP projects, and may be a cost-effective way to achieve both resource and public use objectives. This suggestion will be incorporated during detailed planning for all projects in coordination with the Corps of Engineers and the states.

8. Requests that the Electric Motor Area proposed for the Guttenberg Ponds Area in Pool 11 be deleted since access is normally limited anyway for motorboats due to obstructions.

   Response: After a closer examination of the size of the area and inlet/outlet barriers to consistent access, we have deleted this 93-acre area (specifically Big Pond) from Alternative E, the preferred alternative, in the Final EIS/CCP.

Service Response to Corps of Engineers, March 7, 2006 comments. (Letter Page 471)

1. The Corps of Engineers believes the Service did an excellent job in addressing their previous comments on the Draft EIS/CCP and concur with Draft Alternative E with the understanding that interagency partnership activities will continue.

   Response: We appreciate the Corps of Engineers' concurrence, involvement in the planning process, and ongoing efforts to benefit both navigation and the environment on the Mississippi River and the Refuge. The Service will continue the partnership activities, and the collaborative approach has been strengthened in edits to the Final EIS/CCP.

2. The Corps of Engineers looks forward to participating with the Refuge on many of the step-down implementation plans outlined in the CCP, ongoing Corps of Engineers/Service plans, and in coordinating cultural resource plans and needs.

   Response: We also look forward to the continued partnership for step-down plans and other ongoing planning and implementation efforts.

Service Response to U.S. Environmental Protection Agency, March 1, 2006 comments. (Letter Page 473)

1. The Supplement to the Draft EIS is rated "LO" indicating a lack of objection and EPA did not identify the need for additional information or issues to be considered. It was again suggested that an explanation be added on how the CCP will be integrated with the Corps of Engineers' Navigation and Ecosystem Sustainability Program (NESP).

   Response: As noted in an earlier response, we have added reference to NESP in Chapter 1, Section 1.4.3.3 in the Final EIS/CCP. Reference to NESP is also made in several objective strategies dealing with habitat improvements, and is also discussed in Appendix L, the implementation plan for the CCP which emerges. We remain committed to a strong partnership with the Corps of Engineers, other agencies, and the states in dovetailing the provisions of the environmental side of NESP with the habitat restoration and enhancement projects identified in the Final EIS/CCP.

7.5 Elected Official Comments and Response

Service Response to Congressman Green Comments of August 8, 2005 (Letter Page 475)

1. Constituents are against the proposed restrictions to recreation in the Draft EIS/CCP.

   Response: During the 31 public information meetings and public workshops held during the 120-comment period in 2005, we heard from thousands of citizens. Based on this input, we prepared a Supplement to the Draft EIS/CCP, Alternative E, to take into account citizen and agency concerns and suggestions.

2. The Service should select Alternative A as its new preferred alternative.

   Response: We do not believe that Alternative A (no action or current direction) adequately addresses the large number of issues and needs identified in Chapter 1 of the Draft and Final EIS/CCP, including compliance with the Refuge Improvement Act and Refuge System policies and regulations. However, Alternative E addresses many of the concerns and ideas expressed by citizens and agencies, and we believe represents a balanced approach to management of the Refuge.

Service Response to Wisconsin Legislature (eight signatories) August 29, 2005 comments (Letter Page 477)

1. We oppose Alternative D because it usurps state authority on sovereign waters and unnecessarily eliminates recreational opportunities and economic activity.

   Response: We have made many changes to Alternative D in response to comments by developing a new preferred alternative, Alternative E. We recognize and quote the state's 1925 Refuge approval language in the Draft and Final EIS/CCP (Chapter 1), but the Service continues to have responsibility and authority for federal trust species and in meeting the purposes of the Refuge. However, we have developed our plan to ensure that we do not "usurp"

any state authority. Proposals in Alternative E do not limit navigation or use, only the means of navigation and use in an effort to meet the needs of fish and wildlife and the needs of the public who enjoy recreation in a variety of ways. Also, no current recreational use is being eliminated, although there are restrictions on some areas at certain times of the year to meet the needs of wildlife and people. Our analysis of economic impacts in Chapter 4 of the Final EIS/CCP shows a continued gain in economic outputs under Alternatives C through E.

2. We have attached a memo from the Wisconsin Legislative Council which raises issues and concerns about Wisconsin sovereignty and jurisdiction over waters of the Refuge.

   Response: We defer to comments from the Wisconsin Attorney General, and our response, later in this section.

3. The title to fish resides with Wisconsin and Refuge tournament fishing regulations would be redundant.

   Response: We concur with state's lead in fish management and regulation and have edited objectives, strategies and other text in the Final EIS/CCP to clarify this point and stress a cooperative approach. We do believe, however, that the Refuge has shared responsibility and jurisdiction for fishing tournaments on the Refuge. Alternative E outlines an approach that would dove-tail with state regulations and avoid redundancy.

4. We believe increasing Waterfowl Hunting Closed Areas will not improve fish and wildlife populations overall, and that shell possession limits, hunter spacing, and managed hunts are not wildlife conservation tools, just ways to manage people.

   Response: We do not concur that closed area changes will not improve waterfowl well-being based on research and monitoring done on the Refuge and elsewhere. For the Final EIS/CCP we have updated waterfowl information in Chapter 3, and have also added Appendix Q which discusses in detail the science and rationale for closed area changes. The shell limit and hunter spacing proposals have been dropped in Alternative E, and we will continue to work with local waterfowlers and the state to address issues relating to the waterfowl hunting firing line (Gibbs Lake area) north of the Lake Onalaska Closed Area. A special hunt area in Pool 8 (Goose Island) has been deleted in Alternative E, the preferred alternative.

Service Response to Senator Coleman March 9, 2006 Comment Letter (Page 484)

1. Concerned with loss of hunting access and opportunities for Minnesota hunters, especially with the changes proposed in Pool 4, Big Lake closed area proposal. The senator suggests providing replacement hunting opportunities of comparable quality.

   Response: Alternative E opens an additional 3,138 acres to hunting in Pool 4, although not all comparable. Included in these acres of additional hunting area is 638 acres in Buffalo Slough near Big Lake to help any hunters displaced. Also, implementation of these changes are delayed until 2009 in Alternative E to allow three-year monitoring of waterfowl use in Nelson-Trevino and surrounding areas to ensure all information is fully considered before making the change. This will also ease the transition for hunters accustomed to hunting in the Big Lake area and allow them time to explore other alternative hunting areas.

2. Does not favor restricting specific types of watercraft or propulsion type.

   Response: In response to public comment, many of the proposed Electric Motor Areas were dropped in Alternative E in favor of seasonal Slow, No Wake Areas. However, airboats and hovercraft present special problems due to inherent noise and limited ability to maintain slow,

no wake speeds in many backwater situations. Restricting specific types of watercraft or vehicles like ATVs and snowmobiles is an accepted management tool to protect resources and to maintain or enhance visitors' experiences. For example, Minnesota and Wisconsin prohibit airboats on virtually all state wildlife management areas.

Service Response to Congressman Kind March 13, 2006 Comment Letter (Page 485)

1. Strengthen efforts to reduce sedimentation, enhance habitat restoration, and combat invasives.

   Response: We share the concern on these issues. We believe the action alternatives address these issues in a realistic and measurable way by a more aggressive implementation of Pool Management Plans (a 50-year vision for habitat for each pool done collaboratively by the Service, Corps of Engineers, and states), by marked expansion of the Partners for Fish and Wildlife Program in watersheds leading into the refuge, by calling for a 10% reduction in invasive plants by 2010, and by working with others on invasive animal issues. About 78% ($170 million) of the projected funding needs for the life of the plan are devoted to habitat improvement and land acquisition, both of which directly improve the quality and quantity of fish and wildlife habitat.

2. Preserve and build upon the strong partnerships that have been developed.

   Response: Virtually every objective in the Final EIS/CCP has partnerships and coordination as a strategy. A new "Friends of Pool 9" group has started due to the EIS/CCP public involvement process. We are prepared to continue working relationships with long-term partners and new partners, regardless of disagreements on certain parts of the CCP. However, doing the right thing for the refuge, resource, and the public as a whole may mean the loss of support by a few. Any loss of support is usually off-set by new partners who emerge.

3. Work with Wisconsin agencies in developing regulations and future management decisions.

   Response: We have strived to reach consensus with the State of Wisconsin through our counterpart, the Wisconsin Department of Natural Resources, and believe we have done so since overall, they support Alternative E. Coordination will continue on any outstanding issues and through future implementation. This also holds true for the Corps of Engineers, who have endorsed Alternative E. We will continue to work with state and local authorities and strive for harmony and acceptance, tempered by our responsibilities to manage the Refuge in accordance with its establishing legislation, the Refuge Improvement Act, and Refuge System policies and regulations.

4. Maintain access for all users per the Refuge Improvement Act of 1997.

   Response: We concur and we believe Alternative E provides and enhances all the priority public uses outlined in the Refuge Improvement Act while ensuring that they, and other uses, are compatible with the purpose of the Refuge and the mission of the Refuge System. We believe we are coordinating with state law with our proposed actions and will continue to do so. All users have access and ability to navigate, only the means of navigation is affected and often only seasonally. All priority public uses are allowed in Electric Motor Areas and Slow, No Wake Areas.

5. Strongly encourages the Service to adopt voluntary compliance methods in place of mandatory Slow, No Wake Areas, Electric Motor Areas, and waterfowl closed areas in Wisconsin, and monitor the impact.

Response: We gave this comment serious thought and consideration, and have adopted a voluntary compliance approach for all Waterfowl Hunting Closed Areas in Alternative E. However, for Electric Motor Areas and Slow, No Wake Areas, we do not believe the approach is in the best interest of the resource or the public and have not included it in Alternative E of the Final EIS/CCP. There are several reasons for not taking the suggested action:

- *Education, self-regulation, and law enforcement are all vital parts of the compliance equation. Education and self-regulation works for the majority of people. However, a voluntary approach removes enforcement and will eventually erode the level of compliance. A voluntary approach actually punishes the majority of law-abiding citizens by preventing us from taking action against the minority who choose to not abide by voluntary guidelines.*
- *There is little in the literature to confirm the soundness of this approach. Most voluntary compliance literature is in the context of voluntary compliance with existing regulations, not pure voluntary guidelines.*
- *Perhaps the best example in the literature is our existing voluntary avoidance area within the Lake Onalaska Waterfowl Hunting Closed Area, Pool 7. It has been successful in keeping the level of intrusions steady over time, but intrusions still occur and disturb waterfowl during fall staging. In contrast, one of the objectives of slow, no wake and Electric Motor Areas is to limit disturbance to wildlife in the spring and early summer since this is the sensitive nesting and young-rearing period for many species. Disturbance at this time can directly impact recruitment by causing nest abandonment, nest flooding by boat wakes, physical trauma to young which are slower or flightless, and scattering of broods or family groups. On the human side, just one improper intrusion into these areas may ruin the experience for a visitor and dampen his or her desire for future use of the area. Waterfowl Hunting Closed Areas also entail a very different set of circumstances. They are closed by regulation to hunting and trapping which limits use levels, and the voluntary avoidance provision is only in effect for a two to three month period that does not coincide with peak watercraft use.*
- *We currently have one mandatory Electric Motor Area in Wisconsin and it is working well. Airboats are not allowed in virtually all State wildlife management areas (Minnesota and Wisconsin). Some states prohibit any gas-powered motors in management areas.*
- *A voluntary approach in Wisconsin would lead to inconsistent Refuge regulations and confusion with the public who often cross state lines on any given pool.*
- *Setting a threshold which would trigger a mandatory or regulatory approach is problematic. All options examined have serious drawbacks due to variability of sites in terms of size, resources, access, and public use levels and patterns; lack of science on appropriate thresholds; measurement and "violation" definition problems; reliability and consistency of violation reporting by the public; and the additional monitoring burden placed on the Service.*

Service Response to Congressman Green March 6, 2006 Comment Letter (Page 488)

1. Concerned with social and economic impact of Alternative E to communities.

   Response: Social and economic impacts have been reviewed and analyzed in Chapter 4, Environmental Consequences, of the Final EIS/CCP. We do not believe the plan would negatively impact visitation, the main driver of economics. The Division of Economics in Washington prepared our economic analysis using standard economic models and found a positive economic impact for Alternatives C through E. We believe that Alternative E, in its attempt to strike that reasonable balance of uses, will help ensure that the Refuge remains a

destination of choice for both wildlife and people. This integrated approach may prove more sustainable and have positive, long-term natural resource, social, and economic impacts both on the Refuge and in surrounding communities.

2. Service should adopt Alternative A (no action or current direction).

   Response: We do not believe that Alternative A adequately addresses the large number of issues and needs identified in Chapter 1 of the Draft and Final EIS/CCP, including compliance with the Refuge Improvement Act and Refuge System policies and regulations. However, Alternative E addresses many of the concerns and ideas expressed by citizens and agencies, and we believe represents a balanced approach to management of the Refuge.

Service Response to the Wisconsin Legislature (eight signatories) March 1, 2006 Comment Letter. (Page 489)

1. We are still generally opposed to Alternative E because it usurps state authority on sovereign waters and unnecessarily eliminates treasured wildlife and non-wildlife based recreational opportunities and economic activity.

   Response: As noted in a previous comment and response, we recognize and quote the state's 1925 Refuge approval language in the Draft and Final EIS/CCP (Chapter 1), but the Service continues to have responsibility and authority for federal trust species and in meeting the purposes of the Refuge. However, we have developed our plan to ensure that we do not "usurp" any state authority. Proposals in Alternative E do not limit navigation or use, only the means of navigation and use in an effort to meet the needs of fish and wildlife and the needs of the public who enjoy recreation in a variety of ways. Also, no current recreational use is being eliminated, although there are restrictions on some areas at certain times of the year to meet the needs of wildlife and people. Our analysis of economic impacts in Chapter 4 of the Final EIS/CCP shows a continued gain in economic outputs under Alternatives C through E.

2. We have attached a January 13, 2006 memo from the Wisconsin Legislative Council which raises issues and concerns about Wisconsin sovereignty and jurisdiction over waters of the Refuge.

   Response: We defer to comments from the Wisconsin Attorney General, and our response, later in this section.

3. Nearly every constituent and group we have heard from is opposed to new restrictions and supportive of maintaining the current recreational opportunities.

   Response: It is not unusual or unexpected to find opposition to change. We have made a concerted effort to keep citizens informed and to consider their comments and suggestions in crafting the Final EIS/CCP. Alternative E in the Final EIS/CCP contains 17 major changes in response to public and agency input during nine public meetings and through written comments received. Written comments on the Supplement to the EIS reflect a more balanced perspective than elected officials may receive, with 165 persons in favor of Alternative A (139 of these were in one petition) and 143 persons in favor of Alternative B, D or E. We continue to believe that Alternative E, the preferred alternative, is a balanced approach that meets the greatest needs of both wildlife and people on the Refuge.

4. Our constituents have not expressed a demand for non-motorized canoe areas and we are concerned about additional search and rescue efforts needed if gasoline motors are prohibited in certain areas. We are concerned about loss of access for activities like hunting and trapping and effects on disabled persons.

Response: We heard from a number of people and organizations during scoping, public meetings, and through written comments who favored the establishment of Electric Motor Areas. In response to public comment, we made substantial changes to the number of Electric Motor Areas, going from 17 total areas in Alternative D to 5 total areas in Alternative E which equals less than 1% of the Refuge. Hunting, fishing, and trapping remain open in these areas, and we do not believe the number and size of areas presents an undue burden on disabled persons due to the abundant adjacent areas of the Refuge for other motorized craft. Also, the relatively small number and size of Electric Motor Areas should not increase incidents of lost or stranded persons requiring search and rescue efforts.

5. The choice of closed areas remains controversial; we suggest a pool-by-pool approach over time.

   Response: We recognize that changes to the system of closed areas in effect since 1958 causes concern to some hunters. Just as waterfowl management must take a holistic, landscape approach for effective conservation, we believe that a Refuge-wide approach to closed areas is in the best interest of both waterfowl and the hunting public. We have incorporated many changes from earlier alternatives in Alternative E, the preferred alternative, due to public input at public meetings and workshops. Since these meetings were attended by persons interested in one or two local pools, we believe that in effect we have developed the preferred closed area system with pool-by-pool input.

6. It is critical that the maximum amount of acres be open to deer hunting for recreation and minimizing disease and environmental impacts.

   Response: We do not disagree, although it is necessary to limit all hunting in Waterfowl Hunting Closed Areas during the waterfowl season to meet objectives for these areas, and to establish small scattered no hunting zones to deal with public safety concerns. We are currently working with state and local officials for a deer hunt in the Goose Island area, Pool 8, Wisconsin to help reduce the deer herd. We remain committed to following Wisconsin DNR's lead in deer management.

7. Concern about the economic impact that Alternative E will have, especially in regard to hunting, fishing, and trapping.

   Response: As noted in an earlier comment and response, social and economic impacts have been reviewed and analyzed in Chapter 4, Environmental Consequences of the Final EIS/CCP. We do not believe the plan would negatively impact visitation, the main driver of economics. The Division of Economics in Washington prepared our economic analysis using standard economic models and found a positive economic impact for Alternatives C through E. We believe that Alternative E, in its attempt to strike that reasonable balance of uses, will help ensure that the Refuge remains a destination of choice for both wildlife and people. This integrated approach may prove more sustainable and have positive, long-term natural resource, social, and economic impacts both on the Refuge and in surrounding communities.

8. Concern that proposed pet restrictions will eliminate people's ability to swim their dogs.

   Response: We have changed Objective 5.4, Dog Use Policy, in Alternative E in the Final EIS/ CCP to address this concern while still protecting wildlife and other persons on the Refuge.

9. Concern that not enough emphasis is placed on invasive species management.

   Response: We share the concern with the impacts that invasive species can have on habitat and native fish and wildlife populations. Alternatives D through E of the Final EIS/CCP calls for a 10% reduction in invasive plants by 2010 which we believe is a realistic objective depending on

funding levels. Controlling invasive animals represents an incredible basin-wide challenge beyond the confines and capabilities of the Refuge, and this is recognized in the rationale section of the invasives animal objective (2.4) in the plan. We will continue to work with the states and other agency partners in addressing invasive animals.

10. Concern that there is not enough access to shoreline and disabled fishing; work with Corps of Engineers to improve access at locks and dams.

    Response: We share the concern for shoreline and disabled fishing, although the realities of railroad tracks and lands, private land, and slope of terrain often limit access points to the Refuge and the river for shoreline fishing and especially disabled anglers. In Alternative E, we have called for the addition of five additional accessible fishing piers, four new walk-in accesses, and improvement to five parking areas which often provide additional shoreline fishing opportunities. In addition, Alternative E retains four fishing float concessions which provide fishing opportunities for those without boats or who are disabled.

11. Concern with loss of public support and associated benefits by going forward with proposals.

    Response: As noted in an earlier comment and response, virtually every objective in Final EIS/CCP has partnerships and coordination as a strategy. A new "Friends of Pool 9" group has started due to the CCP public involvement process. We are prepared to continue working relationships with long-term partners and new partners, regardless of disagreements on certain parts of the CCP. However, doing the right thing for the Refuge, resource, and the public as a whole may mean the loss of support by a few. Any loss of support is usually off-set by new partners who emerge.

Service Response to the Wisconsin Attorney General March, 6, 2006 Comment Letter (Page 493)

1. The plan adopted by the Fish and Wildlife Service must assiduously abide by the reservation of all rights by the State of Wisconsin and must not intrude into areas of regulation that were reserved for the State.

   Response: Neither the Wisconsin Department of Natural Resources nor the Wisconsin Attorney General's comments on Alternative E have said that the Service has intruded or impinged on state authority. The Attorney General's comments do not say that the Service has crossed a line that would constitute intrusion into state authority. We continue to recognize and respect the various state and Corps of Engineers authorities, tempered by the Service's own authorities for carrying out its federal trust species responsibilities, and managing a national wildlife refuge in accordance with it's legislative purpose, the Refuge Improvement Act of 1997, and Refuge System regulations and policies.

2. Suggested that regulation of fishing, boating, hunting and other state regulated activities be done in the closest consultation with the state.

   Response: We agree and have been in close consultation with the state since the beginning of the planning process. The states are all represented on the Interagency Planning Team, and we have had several meetings with the State of Wisconsin to discuss and find solutions to issues. The Wisconsin Department of Natural Resources, in their comments on Alternative E, supported Alternative E with the understanding that we would continue to work on outstanding issues of concern (see Wisconsin Department of Natural Resources comments and response).

3. Any restrictions on navigation that may be imposed under Alternative E must be reasonable restrictions that are balanced with other public rights that are protected under the Public Trust Doctrine in the Wisconsin Constitution.

   Response: Neither the Attorney General's comments nor the Wisconsin Department of Natural Resources have asserted or said that Alternative E would contravene Wisconsin's Public Trust Doctrine. The Attorney General's comments indicate that the Public Trust Doctrine embodies exactly the type of program we have been trying to develop. We are seeking to balance competing uses, acknowledging that no one public right is absolute. In the case of Slow, No Wake and Electric Motor Areas, they constitute less than 5 percent of the total Refuge and less than 8 percent of the water area of the Refuge. Slow, No Wake Areas are also seasonal, so there are no restrictions for four-and-a-half months of the year. These areas are also open to hunting, fishing, wildlife observation, and other currently allowed uses. We believe our proposal is in keeping with the Attorney General's urging that "any such restrictions are reasonable and are not imposed to the exclusion of other key factors that affect the conservation of resources in the Refuge."

4. The CCP has an undue focus on controlling human uses to the exclusion of dealing with resource conservation and protection such as pollution, sedimentation, invasive species, and habitat loss.

   Response: As noted in an earlier comment and response, managing public use on a national wildlife refuge is an inseparable part of overall administration and resource management. The Refuge Improvement Act requires that CCPs address wildlife-dependent public use and visitor service facilities. As the most visited refuge in the Refuge System with an estimated 3.7 million annual visits, it is to be expected that public use-related issues would need addressing.

   However, we believe the plan does address resource issues in a realistic and measurable way by a more aggressive implementation of Pool Management Plans (a 50-year vision for habitat for each pool done collaboratively by the Service, Corps and states), by marked expansion of the Partners for Fish and Wildlife Program in watersheds leading into the Refuge, by calling for a 10% reduction in invasive plants by 2010, and by working with others on invasive animal issues. About 78% ($170 million) of the projected funding needs for the life of the plan are devoted to habitat improvement and land acquisition, both of which directly improve the quality and quantity of fish and wildlife habitat. Chapter 2, Table 4, outlines more than 360 habitat-related actions that are Refuge priorities and a part of all alternatives.

7.6 Petitions Received and Response

7.6.1 First Comment Period Petitions

Petition 1 – 180 signatures (Cordova, Illinois area citizens)

"In response to the proposed changes for the Upper Mississippi River National Wildlife and Fish Refuge, the undersigned people are requesting consideration for the families who use the river as a place of recreation. Most people are responsible in their use of watercraft in all areas of the river. Recreational boating is a source of income in the area as well as a means of having quality family time in a safe environment. We agree that migratory paths of various wildlife deserve consideration, but we believe that the national waterways belong to all the people. We ask that places such as Steamboat Slough remain available for recreational use."

Response: We have made several changes in Alternative E, the preferred alternative, to address concerns regarding general recreation on the Refuge. All current types of recreation will continue, although there are time and place restrictions on a portion of the Refuge. In Pool 14, which includes Steamboat Slough, there is one seasonal Slow, No Wake Area in the backwaters north of Princeton State Wildlife Area. Due to its size and shallow-water, it should not measurably affect recreation in the Cordova/Princeton area, and the area remains open to fishing, hunting, wildlife observation, camping, and other uses. There is a canoe trail identified through Steamboat Slough, but this designation does not preclude other types of watercraft or any other current use.

Petition 2 – 77 signatures (some Wisconsin citizens, most unknown)

"Don't change anything, leave nature deal with the changes."

Response: We do not believe that no action or current direction would address the myriad of issues and needs identified in Chapter 1 of the Final EIS/CCP. However, as noted elsewhere in this comment and response chapter, many changes were made for the preferred alternative in response to public concerns.

Petition 3 – 12 signatures (Bellevue, Iowa area citizens)

"We the undersigned, believe the Mississippi River is a public waterway to be used BY THE PEOPLE. We believe the National Fish and Wildlife Service SHOULD NOT CONTROL this waterway by restricting boats with gas motors off the channel, require fees for boat ramps, or charge and/or close all beaches."

Response: We believe that establishing Electric Motor Areas and Slow, No Wake Areas as identified in Alternative E, the preferred alternative, is a reasonable approach to meeting the needs of fish and wildlife on a national wildlife refuge, and for addressing the various needs and conflicts that come with high visitation rates. These areas encompass approximately 8 percent of the water acres on the Refuge, with the remaining 92 percent unrestricted during peak visitation periods. The fee for use of Refuge-administered boat ramps was dropped in Alternative E. There is no proposal at this time for any recreation fee, and no proposal to close all beaches. Beach closures or restrictions will only be used to address chronic public use problems or safeguard wildlife or habitat values.

Petition 4 - 2,939 signatures (La Crosse, Wisconsin area citizens)

"The undersigned Citizens petition the U.S. Fish and Wildlife Service (FWS) as follows:

1. The FWS has recommended Alternative Plan D to the proposed Comprehensive Conservation Plan. We are opposed to Alternative Plan D and recommend that it be denied.

2. We favor Alternative Plan A (current plan now in force) to the FWS Comprehensive Conservation Plan and recommend that Alternative Plan A be adopted with the opportunity for modifications, with public support on a pool by pool basis."

Response: We do not believe that Alternative A (no action or current direction) adequately addresses the large number of issues and needs identified in Chapter 1 of the Draft and Final EIS/CCP, including compliance with the Refuge Improvement Act and Refuge System policies and regulations. However, Alternative E, the preferred alternative, addresses many of the concerns and ideas expressed by citizens and agencies, and we believe represents a balanced approach to management of the Refuge. We believe the extensive public involvement effort, with

31 public meetings and workshops in communities up and down the Refuge, resulted in extensive pool-by-pool analysis and comment by the public. Most of the more than 3,700 persons attending the meetings provided input on the one or two pools they live near and use.

Petition 5 - 74 signatures (Green Sanctuary Committee, Woodstock, Illinois)

"The Fish and Wildlife Service's primary mission is to protect fish and wildlife and their habitats contained within the national wildlife refuge system. As such, activities must be prohibited that inflict significant damage to wildlife and their habitat and disrupt the natural state of quiet and equilibrium.

Fish and wildlife do not thrive in noisy, polluted areas with jetskis churning the waters and degrading the shorelines. People (like us) who appreciate nature and visit the Refuge for solitude and revitalization also do not thrive under these conditions.

Therefore, we support the "enhanced alternative B" and its call for elimination of personal watercraft throughout the Upper Mississippi National Wildlife Refuge. In addition, we believe off-road vehicles such as ATVs as well as marine outboard two-stroke motors must be prohibited for the protection of the refuge.

The "enhanced alternative B" was crafted by concerned citizens and best protects refuge resources such as air and water quality, wildlife and solitude. We deplore any degradation of the refuge. We urge FWS to adopt this alternative."

Response: We do not believe that Alternative B is the preferred alternative for this particular refuge due to the mix of ownerships and jurisdictions, level and importance of recreation, and the size and length of the Refuge. We believe that Alternative E strikes a reasonable and sustainable balance between the needs of fish and wildlife and the needs of people in accordance with the Refuge Improvement Act and Refuge System policies and regulations. Off-road vehicles will continue to be prohibited except on navigable waters during ice-over conditions. We have addressed watercraft use conflicts by establishing 13 Electric Motor Areas and Slow, No Wake Areas, and strengthened the protection of migrating birds through changes to the system of Waterfowl Hunting Closed Areas and Sanctuaries encompassing 43,764 acres.

7.6.2 Second Comment Period Petitions

Petition 1 - 25 signatures (La Crosse, Wisconsin area citizens)

"Dear Mr. Hultman,

We are writing to ask you to reconsider the State of Wisconsin's authority over navigation on the Upper Mississippi River and the consequences of your planning effort.

We believe that your Comprehensive Conservation Plan for the Upper Mississippi River Wildlife and Fish Refuge has unfortunately been put on the fast track for approval. We have attended several meetings with your agency and with other concerned river conservationists and various groups.

We remain concerned that your effort to expand the authority of your agency and usurp the power of the State of Wisconsin regarding navigation is ongoing and has not been addressed.

We believe that it is paramount that you withdraw from your plan any and all restrictions on navigation OR put on hold until those issues can be settled with the State of Wisconsin.

As the days and weeks pass we draw dangerously close to your deadline of March 6, 2006. We remain concerned that once this plan is signed the only avenue open to us would be a costly lawsuit that will further divide this once supportive river community. We have long been supporters of the work your agency and other agencies.

Our support for your work has eroded over the course of your planning process and successful river habitat programs like the Environmental Management Program and Navigation and Ecosystem Sustainability Program are in jeopardy of losing their public support. Please resolve these constitutional issues FIRST so we can all proceed with planning for this great river resource we all love."

Response: As noted in earlier comments and responses, the Service believes that it has the authority for the actions described in Alternative E, the preferred alternative in the Final EIS/CCP. Neither the Wisconsin Department of Natural Resources nor the Wisconsin Attorney General's comments on Alternative E have said that the Service has intruded or impinged on state authority. The Attorney General's comments do not say that the Service has crossed a line that would constitute intrusion into state authority. We continue to recognize and respect the various state and Corps of Engineers authorities, tempered by the Service's own authorities for carrying out its federal trust species responsibilities, and managing a national wildlife refuge in accordance with it's legislative purpose, the Refuge Improvement Act of 1997, and Refuge System regulations and policies.

Petition 2 - 139 signatures (Quad City Bass Club)

"We the undersigned respectfully ask that Alt A. become the final decision on the draft CCP and EIS for the Upper Mississippi River National Wildlife and Fish Refuge. The refuge has not shown sound biological data to support Alt E. and would waste federal tax dollars on signs, buildings and staff. They have admitted to not addressing sedimentation and habitat problems in the past. Deferred to the state to manage the fishery. They have chosen to take the easy task of restricting public access to the refuge and create controversy between refuge users. WE SUPPORT ALT. A NO CHANGE."

Response: As noted in earlier comment and response, we do not believe that Alternative A (no action or current direction) adequately addresses the large number of issues and needs identified in Chapter 1 of the Draft and Final EIS/CCP, including compliance with the Refuge Improvement Act and Refuge System policies and regulations. However, Alternative E, the preferred alternative, addresses many of the concerns and ideas expressed by citizens and agencies, and we believe represents a balanced approach to management of the Refuge. Alternative E does address sedimentation and habitat issues in a meaningful and realistic way, and we have always recognized the state's lead in fishery management, although we believe the Refuge plays a role. If tackling some of the public use issues and challenges is the easy path, this was certainly not reflected in the scores of public meetings attended by thousands of citizens.

Petition 3 - 131 signatures (Fountain City, Wisconsin area citizens)

"To Don Hultman Refuge Manager, US Fish and Wildlife Service Upper Mississippi River Wildlife and Fish Refuge. RE: Your Comprehensive Conservation Plan for the Upper Mississippi River Refuge, Alternative E. We oppose the proposed Slow No Wake Zone along Merrick State Park."

Response: We believe this Slow, No Wake Zone, Pool 5a, is warranted based on concerns expressed by visitors using the adjacent Merrick State Park. However, this and all other Slow, No Wake Zones will go through the local unit of government approval process, as is normal and customary for designating Slow, No Wake Zones on the river. Thus, this area is a proposal by the Refuge, not a final decision.

7.7 Form Letter or Form E-mail Comments and Response

7.7.1 First Comment Period

Form letter 1 (post cards) - 295 individuals (Sierra Club-Midwest)

Comment: Support protecting the Mississippi River for future generations of people, fish and wildlife. The final Conservation Plan must allow people and nature to co-exist. Support Alternative D to ensure adequate water quality and habitat for fish, wildlife and quality recreational opportunities for future generations.

Response: Comments are noted. Alternative E, the preferred alternative, is a modification of Alternative D. Many of the features or actions in Alternative D are also found in Alternative E. However, changes were made based on public input at public meetings and workshops, and in response to written comments. We believe that Alternative E continues to meet the spirit of these comments.

Form letter 2 – 20 individuals (based on alert from National Rifle Association)

Comment: Limiting the number of shotshells for waterfowl hunting is unnecessary and would unfairly target youth and beginning hunters. Closure of areas to hunting should not be done unless biologically necessary. Electric Motor Areas would make hunter access to these areas very difficult, and concerned about permit-only hunts and fees. Some of the letters specifically preferred Alternative A.

Response: The daily possession limit of 25 shotshells for waterfowl hunting in Alternatives B and D was deleted in Alternative E, the preferred alternative. The modifications to the existing system of Waterfowl Hunting Closed Areas as described in Alternative E is based on decades of surveys and recent energetics studies. Even with the changes, the percentage of the Refuge open to hunting in Alternative E is 78% compared to the current 80%, and the gap is actually narrower since some areas are only closed for part of the season. As noted in earlier responses, major changes were also made to the number of Electric Motor Areas, and Alternative E contains five areas totaling 1,852 acres versus 16 areas totaling 14,498 acres in Alternative D. Also, the proposed managed hunt in Pool 7 was dropped in favor of working with area waterfowlers and the state in addressing issues of crowding and firing line behavior. We do not believe that Alternative A (no action or current direction) adequately addresses the large number of issues and needs identified in Chapter 1 of the Draft and Final EIS/CCP, including compliance with the Refuge Improvement Act and Refuge System policies and regulations.

Form letter 3 – 120 individuals (unknown "sponsor," letters from throughout U.S.)

Comment: Understand the need for flexibility in refuge management, but opposed to any restrictions regarding motorized watercraft, and specifically the Electric Motor Areas in Alternative D. As a taxpayer and boat owner who pays federal tax on the boat and fuel, any reduction in access is unacceptable.

Response: In response to these and other comments, we have made many changes as reflected in Alternative E, the preferred alternative. When compared to the other alternatives, these changes include a major reduction of Electric Motor Areas in favor of seasonal Slow, No Wake Areas, dropping of a boat ramp fee, modifying beach-related use regulations, dropping shot shell limits and spacing for waterfowl hunters, and changing boundaries and entry regulations for Waterfowl Hunting Closed Areas. The number of canoe trails was reduced by two trails in Alternative E compared to Alternative D. However, canoe trails remain open to all watercraft type (unless within an otherwise restricted-use area) so should not affect traditional and customary uses.

Form letter 4 – 1,850 (Blue Water Network based in San Francisco, California)

Comment: The Service's primary mission is to protect wildlife and its habitat and activities that damage wildlife and habitat and that disrupt traditional activities like hunting and fishing must be prohibited. Support an enhanced Alternative B for the Refuge, and believe that ATVs, two-stroke outboards, personal watercraft and snowmobiles should be prohibited.

Response: As noted in earlier response, we do not believe that Alternative B is the preferred alternative for this particular refuge due to the mix of ownerships and jurisdictions, level and importance of recreation, and the size and length of the Refuge. We believe that Alternative E strikes a reasonable and sustainable balance between the needs of fish and wildlife and the needs of people in accordance with the Refuge Improvement Act and Refuge System policies and regulations. Off-road vehicles will continue to be prohibited except on navigable waters during ice-over conditions. We have addressed watercraft use conflicts by establishing 13 Electric Motor Areas and Slow, No Wake Areas, and strengthened the protection of migrating birds through changes to the system of Waterfowl Hunting Closed Areas and Sanctuaries encompassing 43,764 acres.

Form letter 5 – 20 individuals (Prairie du Chien,Wisconsin area citizens)

Comment: Strongly disagree with the contents of the Draft EIS/CCP and concerned about closing areas of the Refuge that have been used for generations. The river has been and should be a multi-purpose resource for the benefit of fish, wildlife, and people. Changes which diminish hunting, fishing, boating, and camping will not gain consensus. Favor Alternative A, no action, and this will allow more time to enact a plan that will gain public support.

Response: By law, national wildlife refuges are to be managed first and foremost for fish and wildlife in accordance with their purposes. However, we concur that this Refuge can be managed effectively to benefit fish, wildlife, and people, and we believe the goals and objectives in Alternative E, the preferred alternative, strongly support this. Alternative E reflects many changes based on extensive public input at meetings, workshops, and through written comments. All types of traditional recreation currently enjoyed on the Refuge will continue, although there are reasonable time and place restrictions on a portion of the Refuge to meet the needs of wildlife and the needs of a large and diverse public. We believe this balanced approach is in the best long-term interest of the resource, area communities and economy, and the public at large. Alternative A, no action or current direction, does not meet the multitude of needs outlined in Chapter 1.

7.7.2 Second Comment Period

Form Letter 1 – 193 individuals (permanent blind owners/users, Pools 12-14 area)

Comment: Hunters, anglers and trappers pay the largest portion of funds for conservation and Alternative E has a negative effect on them. The plan spends most of its funds on creating canoe, hiking, and bike trails and does little for wildlife. Specifically, want to keep permanent blinds for the following reasons:

Hunter safety – having hunters running around for place to hunt in dark is dangerous
Habitat – permanent blinds provide nesting sites for waterfowl and habitat for other birds and fish
Tradition – this is way we have always hunted in the Savanna District and there is no reason to change it.

Response: We recognize that hunters and anglers have been and continue to be major financial supporters for conservation in this country. However, operation and maintenance funds for national wildlife refuges do not come from the sale of licenses or Duck Stamps, but from general tax revenues. The Refuge Improvement Act requires that each refuge facilitate compatible hunting, fishing, wildlife observation, photography, interpretation, and environmental education. The facilities in the plan are designed to support these various wildlife-dependent uses. Fish and wildlife management remains a major component of all alternatives in the Final EIS/CCP. Habitat enhancement and land acquisition account for 78 percent of the estimated cost of implementing Alternative E, the preferred alternative, over the next 15 years.

As noted in an earlier response to Illinois Department of Natural Resources comments, phasing out permanent hunting blinds is a difficult issue due to the number of hunters involved and the strong traditions that have developed. However, we believe our concerns with private, exclusive or proprietary use of public lands and waters, continued problems with confrontations and debris, and inconsistency with the other three districts of the Refuge warrant a phase out of the blinds. We also acknowledge that permanent blinds do provide nesting sites for Canada Geese and Mallards, and micro-habitat for other fish and wildlife. However, we believe the concerns outweigh these benefits, and habitat for Canada Geese and Mallards remains abundant without the blinds. We have made one change in Alternative E to help ease the transition. The pool-by-pool sequence of phase out will be Pool 12, 14, and 13. This will not only ease our administrative and enforcement burden, but give the greatest number of blind hunters (Pool 13, 250 blinds) more time to adjust to alternative hunting methods.

7.8 Public Comment by Topic or CCP Objective

(Note: number in parenthesis denotes number of similar comments received)

1.1 Refuge Boundary

Comment: Support plan to identify, survey and post areas where encroachment most likely (9).

Response: Comments are noted.

1.2. Acquisition within Approved Boundary

Comment: Support land acquisition (16) and believe the ecological health and viability of the Refuge depend upon it (4).

Response: We concur with these comments and completing land acquisition within the authorized Refuge boundary is an important objective in Alternatives B through E.

Comment: Want money ear-marked for land acquisition to be used for fish stocking and eradication of choking weeds (3).

Response: Funding appropriated by Congress for land acquisition must be used for land acquisition. The funding source for land acquisition for the Refuge is the Land and Water Conservation Fund, funding for which comes mainly from off-shore oil and gas leasing fees paid to the United States.

1.3 Bluffland Protection

Comment: Support efforts to aggressively acquire blufflands to protect upland habitat and terraces as an important corridor for migration of non-waterfowl. (19)

Response: Concur as reflected in Alternatives B through E.

1.4 Research Natural Areas and Special Designations

Comment: Support management of Natural Areas and efforts to achieve special designations (RAMSAR Wetland of International Importance and Important Bird Area). Study degraded habitat in these areas to learn how to replicate them (9).

Response: Concur as reflected in Alternatives B, D, and E.

Comment: Create a Research Natural Area for oak savannas at the Lost Mound Unit, Savanna District (NW Illinois Prairie Enthusiasts).

Response: We concur with the ecological importance and significance of the oak savanna and prairie at the Lost Mound Unit, Savanna District of the Refuge. However, we do not believe that natural area designation is appropriate given the level of disturbance, and in some cases contamination, that has occurred at the Lost Mound Unit (former Savanna Army Depot). We are committed, however, to conserving and enhancing the oak savanna habitat at Lost Mound through prescribed burning, invasive plant removal, and other methods.

Comment: Natural areas need to be re-identified. For example, Goose Island (Pool 8) is designated as a natural area in the Land Use Allocation Plan, but is programmed to be converted to forest.

Response: The Goose Island area of the Refuge was never formally adopted as a federal Research Natural Area by the Service and there is no intent to pursue such designation. Thus, habitat management of the area will be guided by what is best for the resource in cooperation with the Corps of Engineers, Wisconsin, and local units of government which all have a role in the Goose Island area.

2.1 Water Quality (chemistry and sediments)

Comment: A majority of individuals/organizations citing water quality as a concern (81) listed it as their top priority.

Response: We concur that water quality is a critical aspect of the environmental health of the Refuge which is one reason it was treated as a separate objective in the Draft and Final EIS/CCP. We also recognize in the text that water quality is an issue beyond the scope of the Refuge, but have identified strategies to address that we believe are realistic and can help address water quality impacts originating off-refuge.

Comment: Support efforts to standardize water quality criteria and address sedimentation and siltation especially in backwaters (71).

Response: Concur and objectives and strategies in the Final EIS/CCP reflect this.

Comment: Private citizen concerned that islands the Service has helped build in Lake Onalaska are cutting off water flow and increasing sedimentation along shoreline.

Response: Like all habitat projects, we have worked with the Corps of Engineers, Wisconsin Department of Natural Resources, and local units of government and associations in designing island projects. The design work includes a look at flows and sediment transport, among other variables. This analysis does not indicate that islands constructed in Lake Onalaska are the cause for any substantial increase in sedimentation.

Comment: General concern that limiting speed and certain types of boats will not reduce sedimentation or improve water quality (5).

Response: We do not disagree, although motor type and how it is used can affect water quality and sediment in the immediate area of operation. However, our proposals for Slow, No Wake Areas, no wake zones, and Electric Motor Areas are not intended to address sedimentation and water quality issues. They are intended to address fish and wildlife disturbance, public safety, or conflicts within or between different user groups.

Comment: Concern that dumping raw sewage, nutrient loads, agricultural and storm water run-off are all affecting water quality (3).

Response: We concur that these actions can measurably affect water quality. However, most of these actions occur off-refuge and come under the jurisdiction of state or federal agencies who deal with water and nutrient discharges. We generally report potential violations of pollution control regulations to the appropriate state agency, and will continue to do so. The Final EIS/CCP does include strategies to address water quality by working with landowners in watersheds (Objective 2.1).

Comment: The Refuge should focus on watershed agreements and impact of point and non-point water quality sources.

Response: We concur although have limited ability to address the myriad of watershed and basin wide land use issues that affect the quality of water entering the Refuge. We have identified in the plan strategies to address a watershed-based approach that we believe is realistic and can help address water quality impacts originating off-refuge.

2.2 Water Level Management

Comment: Support water level controls to mimic natural water level fluctuations to benefit habitat (25).

Response: Comments are noted and water level management remains an important feature in the Final EIS/CCP.

Comment: Concerned that the water level in Pools 9 and 10 is kept too high all year causing a lack of vegetation and thus habitat (3).

Response: This concern was also raised at public meetings and workshops in communities near Pools 9 and 10. Water level management of all pools remains under the control of the Corps of Engineers. We have brought this issue up with the Corps of Engineers and will continue to discuss it with them.

2.3 and 2.4 Invasive Plants and Invasive Animals

Comment: Invasives should become top priority after water quality. Want greater partnership with state agencies to fight invasives (79).

Response: We concur that addressing invasive plants and animals is a high priority, thus the plan treats them as separate objectives. Controlling invasive species is a difficult challenge since they often originate off-refuge and control methods are either costly or have yet to be developed. Invasive animal species in particular do not lend themselves to direct control in a large river system and effective measures are often dependent on political and management actions beyond the boundary of the Refuge. However, we have strengthened strategies in these objectives in Alternative E (which include working with the states and others), and have also ranked invasive species control high in the Implementation Plan, Appendix L.

Comment: Want active controls to fight invasives like purple loosestrife. Recommend using volunteers to physically eradicate invasives on islands and help educate public (3).

Response: See response above. We concur with the use of volunteers and role of education and these are included in the strategies in the plan.

Comment: Want active coordination and improved public awareness campaign to control Asian carp and zebra mussel spread (5).

Response: See responses above.

3.1 Environmental Pool Plans

Comment: Develop diverse partnership providing a balanced approach to habitat and water quality restoration and management (2).

Response: We concur as reflected in the many strategies in the Final EIS/CCP which emphasize partnerships. We have also added a new section in Chapter 2, Section 2.4.2 (Elements Common to All Alternatives), that emphasizes coordination and collaboration with the states and Corps of Engineers on all aspects of the plan.

Comment: Overall support pool drawdowns and recognize benefits (10).

Response: Concur, see comments and response under 2.2, Water Level Management.

3.2 Guiding Principles for All Habitat Management Programs

Comment: Adopt and use guiding principles (5) and employ management practices which restore/ mimic natural ecosystem processes promoting diverse habitat with minimum maintenance and cost (2).

Response: We concur and Alternative E in the Final EIS/CCP reflects these comments.

3.3 Monitoring Fish and Wildlife Populations

Comment: Monitoring is a critical step to assess status and trends of wildlife populations. Increase efforts and coordinate with states and other agencies, providing periodic reports to public (18).

Response: Comments are noted and we believe the Final EIS/CCP affirms these comments.

Comment: Increase monitoring to include Red-shoulder hawks, warblers, Pileated Woodpeckers, neo-tropicals and migrant shore birds (2).

Response: Although we generally concur with this comment, the range of species monitored is often limited by staffing, funding, or number of qualified volunteers. The plan calls for updating the Refuge wildlife inventory plan, and it is at this time that the range of species that will monitored will be selected

3.4 Threatened and Endangered Species

Comment: Fully protect the habitats for threatened and endangered species, increase inventory, monitoring, and recovery. Encourage public education at every opportunity (4).

Response: We concur and Alternative E in the Final EIS/CCP reflects increased emphasis on threatened and endangered species.

Comment: Identify other federally listed species in adjoining areas (like Indiana bats) and coordinate monitoring activities.

Response: Since the Refuge CCP is specific to the Refuge, it would not be appropriate to stray to far afield with actions and initiatives, especially given the restraints of staffing and funding. We did examine records for Indiana bat occurrences and found these records show the bats are some distance from the Refuge. We will continue to provide assistance to our counterparts in the Service's Ecological Services and Fisheries programs, as well as the states and non-governmental organizations, for off-refuge threatenened and endangered species monitoring as appropriate.

Comment: Protect federally-listed monkshood flower and Pleistocene snail.

Response: We concur. The Driftless Area National Wildlife Refuge is managed as part of the Refuge Complex and its purpose is to protect these two species. A CCP for this refuge was recently completed and calls for a marked expansion of habitat protection for these species, with the eventual goal of having enough secure habitat, and secure populations, to de-list the species.

3.5 Furbearer Trapping

Comments:

Address liberal beaver trapping ruining habitat for duck marsh and rat houses. Want Minnesota to sanction otter trapping and dates to coincide for beaver/otters. (3)
Wants muskrat season to end December 31 to allow population to recover from loss of habitat and prevent over-harvesting. 75% of rats taken in first 2 weeks especially in Pool 5A.
30-day season long enough to allow muskrat population to build back up (too low). (3)
Want airboat use authorized during winter to retain safety when trapping. (3)

Give each trapper 5-10 more tags specifically for dry land trapping to control predators (raccoon/possum).

Increase trap tag allotment to pre-1970 issue of 40 tags and adjust trap hours to mirror states.

Allow raccoons caught incidental to spring beaver trapping as legal game.

Ban all hunting and trapping on Refuge (3)

Leg hold and Conibear traps pose serious threats to non-target wildlife including T&E species. Mitigate hazard and seek incidental take permits as necessary.

Anyone who makes profit out of activities on refuge should be required to have a Special Use Permit and be charged accordingly. (3)

Fully analyze trapping programs or suspend trapping until program is fully analyzed, reviewed, and brought into compliance with Refuge policies. Plan relies heavily on state data not independently confirmed by the Service. Beaver and red fox populations are declining but trapping limits are unchanged.

Response: All alternatives in the Final EIS/CCP call for an update of the Refuge Trapping Plan by June, 2007. There will be a separate environmental assessment completed as part of that planning process, as well as public involvement as outlined in Alternative E. Thus, it is premature to respond to most of the specific comments received on trapping. The comments above, along with new input, will be considered as a new trapping plan is prepared.

3.6 Fishery and Mussel Management

Comment: Largest and most widely used U.S. river refuge needs a full time fishery biologist (3).

Response: We concur and a fishery biologist position is included in the preferred alternative of the Final EIS/CCP.

Comment: The Refuge needs to take an active and advisory role in fishery and mussel management, especially in concert with the states through the technical section of the Upper Mississippi River Conservation Committee.

Response: We concur as reflected in the preferred alternative.

Comment: Would like 15-inch limit on walleye and saugers. Bag or creel limit should be lowered from 6 to 4, and would like more restrictions on fish harvesting and selective walleye harvesting.

Response: We believe, as reflected in the Final EIS/CCP, that the states have the lead for management of sport and other fisheries, including regulations determining size and take limits. Thus, we generally defer to the states for any take regulations that are applied on the Refuge.

Comment: Ensure stocking program supports/supplements fishery efforts since fishing directly impacts economic growth.

Response: The Refuge does not actively participate in any stocking programs since we believe this is a responsibility carried out at the discretion of the states based on their survey information and objectives. The Genoa National Fish Hatchery, Genoa, Wisconsin, does do some fish rearing and stocking in coordination with the states.

3.7 Commercial Fishing and Clamming

Comment: The Refuge should issue permits for commercial fishing and clamming.

Response: We believe Alternative E in the Final EIS/CCP outlines a sensible approach for dove-tailing any Refuge permit requirements with the current permitting processes of the states who retain the lead for commercial fishing and mussel harvest.

Comment: Insure the Service coordinates with states to avoid jurisdictional issues on commercial use.

Response: Concur and this is reflected in the Final EIS/CCP.

Comment: Final decision on Waterfowl Hunting Closed Area entry regulations and electric motor only areas must take into account commercial fishing and biological monitoring.

Response: We have made several changes in Alternative E that address concerns for both commercial fishing and entry by other agencies engaged in monitoring activities.

The large Waterfowl Hunting Closed Areas also used by commercial anglers are now voluntary avoidance versus no fishing, no motors. Small Waterfowl Hunting Closed Area are voluntary avoidance and no motors, but these areas are generally not of interest to commercial anglers. We will continue to work with commercial anglers on ways to limit timing and methods of harvest in closed areas in the fall to minimize disturbance to resting and feeding waterfowl. Electric Motor Areas have been scaled back to just five areas and should not affect commercial fishing. Bona fide biological monitoring and other resource and law enforcement work is exempt from public use restrictions in certain areas. This was clarified in the Final EIS/CCP in Chapter 2, Section 2.4.1.

Comment: Closure of lower half of Pool 5 would make commercial fishing impossible.

Response: See response above. The Weaver Bottoms Closed Area in Pool 5 is a voluntary avoidance area from October 15 to the end of the state duck season in Alternative E, the preferred alternative.

Comment: Commercial anglers need to have unrestricted access above Lock and Dam 9.

Response: See response above. The Harper's Slough Closed Area above Lock and Dam 9 is a voluntary avoidance area from October 15 to the end of the state duck season in Alternative E, the preferred alternative.

Comment: The Refuge should ban all commercial fishing and clamming as an incompatible refuge use (2).

Response: Do not concur. Commercial fishing can be a valuable management tool in keeping fish populations in balance with habitat, especially in regard to introduced species such as common carp, and more recently, Asian carp. Clamming or mussel harvest is closely regulated by the states so that harvest does not harm populations or species. Wisconsin recently closed the mussel harvest based on population data. The Refuge will continue to work with the states in managing commercial fishing and clamming to ensure it remains a compatible use.

Comment: Commercial anglers could be impacted by closures during duck season (2), and commercial fishing in Lansing, New Albin, and Harpers Ferry is a livelihood for many.

Response: We do not disagree and made changes to Alternative E due to comments received from commercial anglers and the states. See other comments and responses in this section.

Comment: Create travel corridors for commercial anglers to check nets and lines during waterfowl season (2).

Response: Travel corridors for general access around the core of Waterfowl Hunting Closed Areas have been incorporated in various alternatives, including Alternative E, the preferred alternative. The need for travel corridors specifically for commercial anglers is no longer an issue since in Alternative E, entry into large closed areas is at the discretion of the operator under the voluntary avoidance guidelines adapted. However, this idea has merit to help limit disturbance to waterfowl and will be pursued in coordination with commercial anglers and the states.

3.8 Turtle Management

Comment: Support turtle ecology study and management of turtles (5).

Response: Comments are noted and reflect the direction in Alternatives B, D, and E in the Final EIS/CCP.

Comment: There is no proof that turtle harvest is beneficial to Refuge as required by Refuge System regulations dealing with commercial uses on refuges.

Response: We do not disagree, although there is also no proof that turtle harvest as prescribed by state regulations, which the Refuge adopts, are posing any harm to turtle populations. However, we recognize the need for better information and Alternatives B, D, and E call for both increased turtle monitoring to understand population dynamics and human impacts, and for a turtle management strategy which would address the question of whether harvest contributes to achieving Refuge purposes or Refuge System mission as required in 50 CFR 29.1. This issue is also complicated by the mix of ownerships and jurisdictions on the river floodplain. As called for in the Final EIS/CCP, we will continue to work on this and other commercial uses of natural resources to ensure compliance with Refuge System policy and regulations.

Comment: The lack of information is not reason to dismiss the alternative component of fish and turtle sanctuaries.

Response: We do not concur. As noted in Chapter 2, Section 2.3, there is a lack of scientific information and no concurrence among resource managers and biologists that additional fish sanctuaries, or new turtle sanctuaries, are warranted. We believe that other actions in Alternative E of the Final EIS/CCP, namely Electric Motor Areas and Slow, No Wake Areas, provide additional protection and some measure of "sanctuary" for aquatic species during the critical breeding and young-rearing season.

Comment: Research is required to provide scientific basis for turtle management decisions and restrictions.

Response: Concur, and this is reflected in Alternative B, D, and E of the Final EIS/CCP under Objective 3.8.

3.9 Forest Management

Comments:

Refuge forest needs to be evaluated, inventoried, and managed to improve the type and make up of the forest (13).

Hire a forester who understands fire and flood driven ecosystems, and recognize the need for large patches and older forest with high canopy closure (3).

Concerned about impact of dying silver maples and bird species loss as forest trees die, disappear, and are replaced by less desirable hardwoods.

Supports balanced forest management that provides adequate habitat for cavity-nesting game and non-game species.

Allow retention of 70% closed canopy for forest birds like Red-shouldered Hawks and warblers (2).

Harvest some trees to promote healthy/diverse forest. Some could be taken down and replaced with wetland/upland plantings and allowed to re-forest naturally.

Recommend using dredged material to add topographic diversity restoring elevations and soil moisture to support floodplain forest habitats.

Response: We concur with most of these comments and they are addressed in Alternative B, D, and E in the Final EIS/CCP. Specific comments and suggestions on forest composition and structure will be addressed in the Forest Management step-down plan to be completed by 2010. The first priority is to complete a forest inventory by 2008 which will form the basis of more detailed planning. In addition, the Corps of Engineers, which has responsibility for forest management on about half of the lands that are part of the Refuge, is actively working on a forest management strategy as part of the pre-planning for the Navigation and Environmental Sustainability Program. This strategy, and potential increase in funding, could accelerate forest management actions.

Comment: Concern about disturbing mature woodland forest near the proposed Kain Switch Hiking Trail, Pool 9, south of New Albin, Iowa.

Response: This hiking trail has been scaled-back considerably in Alternative E (2.9 miles versus 4.3 miles) and will run close to the road versus into the heart of this unique forest area. Also, the trail is meant to be natural or primitive in nature and designed and constructed in a way that causes little or no impact to the existing forest.

3.10 Grassland Management

Comment: Support grassland management, including restoration and protection of native prairie and savannas for diverse species which rely on grasslands and forest (8).

Response: Concur and reflected in the Final EIS/CCP.

Comment: Add grass to dikes and establish grassland habitat for ground nesting birds on constructed islands.

Response: We agree that establishing grass on dikes, islands, and other areas may be the best management strategy depending on site. However, as stated in our guiding principles for habitat management (Objective 3.2), natural succession may be the best course on some areas given the realities of the physical environment and the needs of all species. This approach is also in-line with the Service's policy on biological integrity, diversity, and environmental

health, but does not preclude the planting of grass on dikes and islands to benefit ground nesting birds where most appropriate, feasible, and sustainable.

4.1 General Hunting

Comment: Wants to keep minimum of 80 percent of Refuge open to hunting and recommends adjusting current areas open to hunting that may provide better sanctuaries.

Response: In Alternative E we have made several adjustments to Waterfowl Hunting Closed Areas and No Hunting Zones, and added explanatory information about the acreage and percentage of the Refuge open to hunting. The percentage of the Refuge open to hunting is substantial compared to most national wildlife refuges, and the percentage of 78 percent in Alternative E is a minimum. The actual percentage is expected to rise as land acquisition is completed and these additions are opened to hunting.

Comment: Concerned about loss to overall hunting area (44).

Response: We have tried to minimize any reduction in areas open to hunting while still meeting the needs of waterfowl and other wildlife which depend on the Refuge for either all or a portion of their annual life cycle. Hunting remains a priority public use in keeping with the Refuge Improvement Act. We made several changes in Alternative E to address this comment and concern. The acres of Waterfowl Hunting Closed Areas/Sanctuaries declined by 780 acres in Alternative E compared to current conditions or Alternative A. We reduced the areas affected by a restriction on open water hunting substantially from Alternative D to Alternative E, along with the acres in administrative no hunting zones. The phase-out of permanent hunting blinds and the exception for leaving decoys out overnight in Pools 12-14 in Alternative E should open up additional areas of the Refuge to the general public for hunting by drastically reducing instances of proprietary use.

Comment: Oppose all hunting on the Refuge (11).

Response: We understand some citizens concern with hunting on national wildlife refuges. However, hunting on refuges remains an important form of outdoor recreation for millions of citizens and a use which is to be facilitated when compatible with the purpose of the refuge and the mission of the Refuge System (Refuge Improvement Act). We have taken care in Alternative E, the preferred alternative, to ensure the right balance between the needs of wildlife and people in keeping with the Refuge Improvement Act and Service policy and regulation.

Comment: Want airboat restrictions during hunting, either by area or seasonally (10).

Response: Alternative E in the Final EIS/CCP contains both Electric Motor Areas and Slow, No Wake Areas that would restrict speed, airboats, and hovercraft during all or some of the hunting season. We believe the changes made in Alternative E compared to other alternatives provide a reasonable accommodation for persons desiring a different hunting experience.

Comment: Wants continued deer hunting opportunities to continue in the Reno Bottoms area, Pool 9 (2).

Response: Reno Bottoms remains open to deer hunting in Alternative E, the preferred alternative. Seasonal restrictions on speed, airboats, and hovercraft in a portion of Reno Bottoms designated a Slow, No Wake Area will cause some inconvenience to bow hunters, but the restrictions end October 31 before the general deer gun season opens.

Comment: Against deer hunting changes in Sabula, Iowa area.

Response: In Alternative E, the preferred alternative, there are no changes to existing Waterfowl Hunting Closed Areas or Sanctuaries that would affect current deer hunting opportunities in the Sabula area..

Comment: Concerned about loss of deer bow hunting opportunities from proposed changes to Waterfowl Hunting Closed Areas and No Hunting Zones (5).

Response: We have made substantial changes to Waterfowl Hunting Closed Areas and No Hunting Zones in Alternative E, the preferred alternative. The total acreage open and suitable for bow hunting changes little from current conditions, but we recognize that any change creates an inconvenience if an area formerly open is closed.

Comment: Concerned about proposed closing of John Deere Marsh hunting area, Pool 11 (3).

Response: We have made several modifications to the John Deere Marsh Area in Alternative E, the preferred alternative. This alternative establishes a 107-acre walk-in hunting area while still maintaining a closed area on either side to meet the needs of waterfowl (dabbler ducks) in this stretch of Pool 11. We believe Alternative E addresses the concerns for loss of hunting opportunity in this area.

Comment: Address disabled hunting opportunities and access (3).

Response: Disabled access via walking or wheelchair remains a challenge given the terrain and obstacles such as railroad tracks and rights-of-way. However, we make every effort to design and construct accessible ramps and docks to help disabled persons getting into and out of watercraft used for duck hunting, the main type of hunting on the Refuge. It is Service policy to accommodate the needs of the disabled for recreational activities whenever possible, and we will continue to explore ways to do this in both facilities and programs.

Comment: Suggest not putting new wildlife viewing facilities in existing hunting areas since it creates conflicts (4).

Response: Most wildlife viewing platforms are generally on the edges of areas where hunting occurs, and thus there are generally no direct conflicts between viewers and hunters. Many of the existing or proposed wildlife observation decks (Alternative E) do overlook areas closed to hunting, mainly because waterfowl tend to congregate in these areas during fall migration. In all cases, we consider hunting when choosing locations for viewing facilities, realizing that many hunting areas also provide excellent spring migration viewing opportunities when hunting seasons are generally closed.

4.2 Waterfowl Hunting Closed Areas and Sanctuaries

Comment: Concerned about and generally opposed to changes of Waterfowl Hunting Closed Areas in Pool 4 near Wabasha, Minnesota and Nelson, Wisconsin (Big Lake/Nelson-Trevino) hunting area (46).

Response: We have made several changes to the closed areas in Pool 4 in Alternative E, the preferred alternative, to try and accommodate hunter's concerns. Alternative E opens an additional 3,098 acres to hunting in Pool 4, although not all comparable. However, we have also made a change in Alternative E that opens an additional 678 acres (Buffalo Slough) near the Big Lake area to help any hunters displaced. Also, implementation of these changes are delayed until 2009 in Alternative E to allow three-year monitoring of waterfowl use in Nelson-

Trevino and surrounding areas to ensure all information is fully considered before making the change. This will also ease the transition for hunters accustomed to hunting in the Big Lake area and allow them time to explore other alternative hunting areas.

Comment: Boat access is severely limited in the Nelson-Trevino area compared to the Big Lake area, so the swap is not equal just because of access issues.

Response: We agree that access to these two areas is markedly different and will affect hunting access and thus the hunting experience. We have tried to mitigate these effects by changes in Alternative E as outlined in the previous comment and response. The new Big Lake Closed Area in Alternative E may also increase the quality of hunting in adjacent areas (e.g. downstream of Hwy. 25 causeway, Robinson Lake, and Buffalo Slough) since more waterfowl will stay in the area, possibly further off-setting the access issue.

Comment: One person raised several specific issues and questions concerning the dynamics of waterfowl food and closed areas, the basis for setting a threshold of disturbance in Alternative E, and the overall effects of disturbance on waterfowl.

Response: A detailed response to these issues is provided in Appendix Q (Waterfowl Hunting Closed Areas, History, Description, Background and Rationale for Alternative E), Attachment 1.

Comment: Prefer voluntary avoidance areas to mandatory regulations which limit access to Waterfowl Hunting Closed Areas (19).

Response: Alternative E, the preferred alternative, uses voluntary avoidance for all closed areas, a major change from other alternatives based on comments received from the public and some states. However, small closed areas (less than 1,000 acres) also have a no motor regulation from October 15 to the end of the respective state duck season since waterfowl in these smaller areas are more vulnerable to disturbance from watercraft.

Comment: Only support current voluntary avoidance or restricted access areas (Lake Onalaska Voluntary Avoidance Area and Mertes Slough Electric Motor Area) (4).

Response: Comment is noted.

Comment: Recommend possible trial period on new closed or voluntary avoidance areas, then monitor to insure they are meeting biological goals (4).

Response: We do not support a trial period for closed areas since trial periods tend to alter human behavior given their known end point. However, we do support monitoring of closed areas and the new voluntary avoidance provisions in Alternative E. Monitoring is a part of the closed area objective in Alternative E, the preferred alternative. We also support overall monitoring of closed area effectiveness and making future changes on a more timely basis should the data suggest a change is needed (adaptive management).

Comment: Many oppose all new closed areas outlined in the various alternatives (27), while a few support some new closed areas (6).

Response: We understand that changes to the system of Waterfowl Hunting Closed Areas of the Refuge are generally met with resistance since the changes affect long-standing patterns of public use. However, the issue and need for change is thoroughly documented in the Final EIS/CCP, and in particular Appendix Q which was added as part of the Supplement to the Draft

EIS/CCP and is part of the final document. We believe that changes to a system that has remained virtually unchanged since 1958 are needed based on habitat conditions, monitoring data, disturbance studies, and energetics information.

Comment: Concerned about the proposed addition to, and the special hunt designation of, the Goose Island No Hunting Zone, Pool 8 (10).

Response: The Goose Island No Hunting Zone expansion to the north (235 acres) has been dropped in Alternative E in response to public comment. The area will remain open to hunting and no special hunting program is established in Alternative E. The expansion of the no hunting zone to the south remains in Alternative E since it is deemed important to make the existing area more effective as a rest area for waterfowl and to address firing line concerns.

Comment: Suggests rotating closed areas in conjunction with drawdowns allowing wildlife to thrive without shutting down anyone's favorite hunting or fishing area for too long.

Response: Waterfowl develop patterns of use over time, and changing closed areas on a frequent basis can diminish their effectiveness. Likewise, the public is generally not agreeable to frequent changes in areas open or closed to hunting or other uses since it disrupts patterns, opportunities, and year-to-year planning.

Comment: Hunting areas should only be limited as a last resort based on biological data (4).

Response: We concur to a point and have tried to limit the number of acres closed to hunting to that which is needed biologically. However, it must always be kept in mind that one of the main purposes of the Refuge when established by Congress in 1924 was to serve as a "refuge and breeding place for migratory birds" and this at times must take precedent over recreational uses.

Comment: Would rather have smaller bag limit than closing areas completely (2).

Response: Daily harvest and possession limits are an important part of overall waterfowl conservation, but they do not replace the need to provide food and rest for waterfowl during migration. The Refuge also does not set harvest limits. This is done nationally by the Service, flyway councils, and the states.

Comment: Most boaters don't comply with regular boat regulations let alone voluntary regulations. Assuming voluntary avoidance will work over long-term is plain silly (3).

Response: We have established a threshold of disturbance in Alternative E in conjunction with voluntary avoidance and indicate that more restrictions will be pursued if the threshold is exceeded. We believe that voluntary avoidance, as suggested at several meetings and in written comments, may prove successful given our experience with the Lake Onalaska Voluntary Avoidance Area.

Comment: Open closed areas to low impact managed hunts, increase voluntary avoidance areas, and increase number of closed areas, but reduce their size to spread-out bird populations.

Response: Many of these suggestions are incorporated in Alternative E of the Final EIS/CCP. However, we do not see the merit in opening closed areas to low-impact managed hunts since it would still introduce disturbance to waterfowl and would add an administrative and management workload.

Comment: Closed areas should be closed to all activities not just hunting.

Response: We do not disagree, but have opted with a voluntary avoidance approach in Alternative E, the preferred alternative, to limit entry and disturbance to waterfowl.

Comment: What about a probationary deer hunting period allowed in waterfowl closed areas after migration?

Response: Although peak migration can occur at different times during the hunting season depending on weather, birds continue to move through the Refuge until full ice-up. Even then, ice conditions can abate and birds will use these areas. Due to these variabilities from year-to-year and often week-to-week in the fall, opening the areas based on migration patterns would be difficult.

Comment: Concerned about watercraft use regulation changes in Reno Bottoms and its negative effect on waterfowl hunting (5).

Response: We understand these concerns, recognizing that other hunters see a restriction in boat speed and types of watercraft as a benefit to their hunting experience.. We have made several changes to the Reno Bottoms area in Alternative E of the Final EIS/CCP to help accommodate concerns. These changes include making the area a seasonal Slow, No Wake Area with no restrictions on speed or watercraft type after October 31, and deleting from any designation Pickerel Slough and land and water to the east of it (866 acres).

Comment: Concerned about closing Gerndt Lake (also called Garnet Lake locally) and Wisconsin River Delta in Pool 10 just south of Prairie du Chien, Wisconsin (4).

Response: We have made several changes for Alternative E of the Final EIS/CCP that we believe help address some of the concerns. The Wisconsin River Delta area is a Special Hunt Area in the preferred alternative, meaning it will be closed to all hunting and trapping from November 1 to the end of the state duck hunting season. This change will help alleviate concerns with the loss of duck hunting and fall fishing in this area since it will be open to all uses before November 1.

Comment: Closing open water hunting on Potosi Pool (Pool 9, Grant County, Wisconsin) is good especially if Canvasbacks are increasing there.

Response: Comment is noted.

Comment: Don't close Albin Lake to hunting there are already closed areas in Genoa, New Albin, and South Lansing.

Response: There are no changes to closed areas in this area of Pool 9 in Alternative E, the preferred alternative.

Comment: Concerned about opening previously closed area near Pleasant Creek, Pool 13 south of Bellevue, Iowa (2).

Response: We examined this concern closely and talked to adjacent landowners concerned with the reduction in the closed area. We do not believe this change will negatively impact hunting on adjacent land. There is no strong biological reason for keeping this nearly 600 acres of seasonally dry bottomland in the Pleasant Creek Closed Area, and opening it is in line with goals to facilitate hunting on the Refuge.

Comment: Concerned about closed areas near Ferryville and impact on economy (2).

Response: There are no changes proposed for this area in Alternative E, the preferred alternative. Alternatives B and D proposed "no open water hunting" in these areas, neither of these alternatives are preferred in the Final EIS/CCP.

Comment: Concerned about economic impact if hunting changes are made in Pool 13.

Response: No changes to current closed areas or sanctuaries in Pool 13 are identified in Alternative E, the preferred alternative. Permanent waterfowl hunting blinds are being phased out in Alternative E, but we do not believe this will measurably impact the level of hunting activity or have a negative economic impact. The opposite may occur as areas "reserved" by permanent blinds would now be open to all and provide more opportunity for more waterfowl hunters.

4.3 Waterfowl Hunting Regulation Changes

Comment: There were specific comments on proposals in Alternative D to impose a 100-yard minimum spacing between waterfowl hunting parties (6 for, 1 against) and a 25 shotshell daily possession limit for waterfowl hunters (9 for, 11 against).

Response: Based on input at public meetings and workshops, these provisions were dropped in Alternative E, the preferred alternative in the Final EIS/CCP. The existing 200-yard spacing requirement in the Savanna District, Pools 12-14, Illinois side, remains in Alternative E since hunters in those areas overwhelming favored keeping this requirement.

Comment: Desire that open water waterfowl hunting continue where allowed by Wisconsin regulations (Grant County portion of Refuge) (5).

Response: We believe that a portion of Pool 11, Grant County, Wisconsin, provides a critical feeding and staging area for Canvasback and Lesser Scaup. We have made modifications in Alternative E to protect the area that is most important, which will still allow open water hunting in adjacent areas. A proposal in the draft of Alternative E released in December that would prohibit open water hunting in all Minnesota and Wisconsin waters within the Refuge was dropped. Current state law already prohibits this type of hunting, with the exception of Grant County, Wisconsin.

Comment: Favor banning duck hunting guides who preclude individual hunters from some areas, or support special use permit proposal, and support better enforcement (6).

Response: We believe that hunting guides can provide a valuable service to some segments of the hunting community. However, we concur that better oversight, permitting, and subsequent law enforcement is needed, as reflected in Alternative E, the preferred alternative.

Comment: Ban mechanical decoys and/or limit number of decoys per hunter (4).

Response: We believe that these kinds of issues/suggestions are better handled on a national or state basis rather than with a Refuge-specific regulation.

Comment: Ban the exception in Refuge regulations which allows waterfowl decoys to be left out overnight in Pools 12-14 (Savanna District) (3).

Response: We concur and have added this provision in Alternative E, Objective 4.5, in the Final EIS/CCP.

Comment: Want mandatory course required before getting duck stamp to include duck identification, estimating distance, ethics and safety (4).

Response: We defer to the states for hunter education requirements, and believe that all of these topics are taught in hunter education and safety courses. We will, however, continue to stress these topics in our education and outreach efforts identified in the strategies for several hunting-related objectives in Alternative E, the preferred alternative.

4.4 Firing Line – Pool 7, Lake Onalaska (Gibbs Lake area)

Comments: There were several concerns and suggestions received in comments on this objective. They are listed below, followed by a single response.

Recognized that there is a problem that needs to be addressed (9)

Concerned that any changes or a managed hunt will make things worse by concentrating hunters nearby within what is already a very limited hunting area (7)

Adjust boundaries (either North or South) of Lake Onalaska hunting area to remedy firing line problems and review periodically to gauge success (3).

Address firing line problem by placing stakes where hunters must hunt within a certain distance, and enforce (2).

Solve Gibbs Lake problem by closing hunting at 12 noon each day, thus giving waterfowl more feeding and resting time.

Response: There was considerable concern expressed at public meetings and workshops about proposals in Alternatives B through D in the Draft EIS/CCP. Since this is a relatively local issue and no clear consensus emerged from public input, Alternative E of the Final EIS/CCP calls for more public and state involvement to help draft a plan for this area. The comments and ideas above will be considered, along with additional input received, when drafting the plan. Also, the deadline for completing the plan was moved to October 1, 2006 versus July 1, 2006 in the draft of Alternative E.

4.5 Permanent Hunting Blinds on Savanna District

Comments: There were more than 200 written comments received on the issue of permanent waterfowl hunting blinds in the Savanna District, Pools 12-14. Approximately 200 comments wanted to see the use of permanent blinds continue, and 193 of these comments came in form letters signed by current blind owners/users (see Section 7.7). There were 10 written comments favoring the elimination of permanent blinds.

Response: As noted in our earlier response to Illinois DNR comments, we appreciate the concern with the planned phase out of permanent blinds for waterfowl hunting on the Savanna District of the Refuge. This is a difficult issue due to the number of hunters involved and the strong traditions that have developed. However, we believe our concerns with private, exclusive or proprietary use of public lands and waters, continued problems with confrontations and debris, and inconsistency with the other three districts of the Refuge warrant a phase out of the blinds. We have made one change in Alternative E in the Final EIS/CCP to help ease the transition. The pool-by-pool sequence of phase out will be Pool 12, 14, and 13. This will not only ease our administrative and enforcement burden, but give the greatest number of blind hunters (Pool 13, 250 blinds) more time to adjust to alternative hunting methods.

4.6 Potter's Marsh Managed Hunt, Savanna District

Comment: Would like to see changes in the management and administration of the Potter's Marsh Managed Hunt (4).

Response: The preferred alternative, Alternative E, outlines several changes to improve and economize the administration and management of the Potter's Marsh Managed Hunt while preserving a quality waterfowl hunting opportunity and experience.

Comment: Would like to see Potter's Marsh area closed to fishing during the duck hunting season (2).

Response: Although we understand that conflicts between these two uses can at times occur, we do not believe the level of fishing during the prime duck hunting hours warrants a closure to fishing.

4.7 Blanding's Landing Managed Hunt Program

Comment: Keep the permanent blinds in this area but eliminate the drawing and go to a first-come, first-secured system (3).

Response: Although we concur with opening the area on a first-come, first-secured basis, the use of permanent blinds still represents problems as noted in the Final EIS/CCP. Thus, Alternative E, the preferred alternative, opens the area but eliminates the use of permanent blinds per the schedule in Objective 4.5.

Comment: Opening-up Blanding's Landing would be a good thing and provide more hunting opportunities.

Response: Comment is noted.

4.8 General Fishing

Comment: Restrictions on fishing would violate Wisconsin constitutional rights for open navigation and use of Wisconsin waters (10).

Response: As noted in earlier comments and responses to the state, we recognized and quote the state's 1925 approval language in Final EIS/CCP (Chapter 1) and concur to a point that does not interfere with federal trust responsibilities and meeting the purposes of the Refuge. However, provisions in Alternatives B and D that would have limited entry or fishing in Waterfowl Hunting Closed Areas were dropped in Alternative E, the preferred alternative, in favor of voluntary avoidance and/or no motor restrictions. None of the provisions in Alternative E preclude navigation or use, including fishing, only the means of navigation and use.

Comment: Expand fishing access (including shoreline fishing) for physically limited, youngsters and non-boat owners (5).

Response: We share the concern for shoreline and disabled fishing, although the realities of railroad tracks and rights-of-way, private land, and slope of terrain often limit access points to the Refuge and the river for shoreline fishing and especially disabled anglers. In Alternative E, the preferred alternative in the Final EIS/CCP, we have called for the addition of five additional accessible fishing piers, three new walk-in accesses, and improvement to five

parking areas which often provide additional shoreline fishing opportunities. In addition, Alternative E retains four fishing float concessions which provide fishing opportunities for those without boats and the disabled.

Comment: Provide parking lots where fishing opportunities are expanded (3).

Response: We concur that parking is often an issue. Detailed planning for any proposed public use facilities/accesses will consider and try to accommodate the need for parking.

Comment: Support a fishing platform at Winneshiek Slough Landing.

Response: Comment is noted. Alternative E, the preferred alternative, includes an accessible fishing platform at this location.

Comment: Eliminate state fishing license reciprocity (2).

Response: We acknowledge that people are for and against this provision which allows persons with one license to fish two states on the Mississippi River. By policy and practice we defer to the states for game and fish licensing requirements on the Refuge.

Comment: Address fishing opportunities that have been diminished by excessive sand, siltation and sedimentation (3).

Response: We share these concerns for the effect that sedimentation has on fish habitat and fishing opportunities. All alternatives in the Final EIS/CCP identify cooperative projects with the states and Corps of Engineers to address this issue. For example, there are 60 projects identified to increase water depth, 28 projects to divert flows to decrease sedimentation, and 13 fish passage projects identified in the plan.

Comment: Balance the needs of fall anglers with the needs of waterfowl and waterfowl hunters (5).

Response: In Alternative E, the preferred alternative, we have made changes to public entry guidelines to accommodate early fall fishing by moving the effective date to October 15 versus October 1 in other alternatives.

Comment: Protect fish spawn areas from human disturbance in spring (2).

Response: We believe that the Electric Motor Areas and Slow, No Wake Areas in Alternative E, the preferred alternative, help address disturbance to many backwater fish spawning areas by slowing or limiting the type of watercraft in the spring.

Comment: Address conflicts between anglers and jet-ski, airboat, and hovercraft users (3).

Response: Similar to the comment and response above, we believe that the series of Electric Motor Areas and Slow, No Wake Areas scattered throughout the Refuge in Alternative E will help address conflicts between and within user groups, including anglers.

4.9 Fishing Tournaments

Comment: Refuge must coordinate and regulate fishing tournaments with the states and the Corps of Engineers (8).

Response: Concur and the objective and strategies in Alternative E affirm this.

Comments:

Concern with loss of income, impact to communities if tournaments banned/reduced.
Tournament anglers care deeply about the resource.
Against another layer of permitting (3).
Impacts to fish not proven; there is low mortality post release from tournaments.
Concern about singling out tournament anglers to benefit other users (2).
Negative portrayal of bass anglers is wrong.
Concerned about closed area and sanctuary impact to tournaments.
Concern that fishing tournaments are "out of hand" and create conflicts with other Refuge users (7).
Concerned about noise and excessive speed (safety) during fishing tournaments (4).
Tournaments tie up parking, boat ramps, and entire fishing areas for days.
Ban all fishing tournaments as crass commercial exploitation of public resource (4)
Eliminate out of state fishing tournaments.
Fishing tournaments should be managed from a fish stock perspective in conjunction with states.
Wants bass fishing tournament participants to buy commercial fishing license (3).
Concern about lost of income/economic impacts if bass tournaments are restricted or reduced.
Limit bass anglers to only keeping 2 fish versus 6 fish.
Use Geographic Positioning System coordinates to guide tournament anglers from sensitive areas
Don't allow any fishing tournaments during fall waterfowl hunting.

Response: Alternative E, the preferred alternative in the Final EIS/CCP, calls for working with the states and the Corps of Engineers to develop a plan by 2008 to more effectively manage fishing tournaments on the Refuge, for the benefit of both tournament participants and the general public who share the Refuge. There is no proposal to eliminate fishing tournaments. The strategies in Objective 4.9 give more details on how this step-down planning would proceed and what would be entailed, including additional public involvement and review. Thus, it is premature to respond to most of the specific comments received on fishing tournaments. The comments summarized above, along with new input, will be considered as planning for tournament fishing management proceeds.

4.10 Wildlife Observation and Photography

Observation Areas

Comment: Increased Refuge visitation demands more non-consumptive platforms (5).

Response: We concur and Alternative E, the preferred alternative, reflects this. Wildlife observation is also one of the priority public uses identified in the Refuge Improvement Act and is to be facilitated.

Comment: Great River Bird Trail designation has already spawned three annual bird festivals and continues to draw visitors to area.

Response: Comment is noted.

Comment: Observation facilities are not needed. The flood retention basin in Dubuque, Heritage Pond, and several ponds near the highway in Guttenberg are excellent locations to view wildlife or take photographs. Even marinas are better than recommended observation tower locations.

Response: Comment is noted.

Comment: Don't place observation decks or platforms where they will conflict with established traditional hunting areas (6).

Response: As noted in a previous comment and response, most wildlife viewing platforms are generally on the edges of areas where hunting occurs, and thus there are generally no direct conflicts between viewers and hunters. Many of the existing or proposed wildlife observation decks (Alternative E) overlook areas closed to hunting, mainly because waterfowl tends to congregate in these areas during fall migration. In all cases, we consider hunting when choosing locations for viewing facilities, realizing that many hunting areas also provide excellent spring migration viewing opportunities when hunting seasons are generally closed.

Comment: Oppose observation tower near Goose Island due to limited parking and safety concerns, especially during summer (4). Can it be moved to Shady Maple area instead? Want handicapped access at Goose Island tower.

Response: The observation platform at Goose Island has been dropped in Alternative E, the preferred alternative.

Comment: Oppose spending money on observation decks when there are already many scenic bluffs or state park areas to view wildlife (3).

Response: Although we agree that these areas provide excellent viewing areas, many areas on the Refuge provide unique viewing opportunities due to the concentrations of waterfowl and other waterbirds.

Comment: Trempealeau National Wildlife Refuge already has many features to view wildlife, don't spend money on something already available.

Response: The Upper Miss Refuge is 261 miles long and many residents and visitors are too far away to take advantage of Trempealeau's opportunities. Also, there are viewing opportunities on this refuge due to unique habitat and large concentrations of some species that are not available at Trempealeau refuge.

Comment: Adding new trails and towers doesn't protect or restore habitat, only destroys it through filling wetlands and construction (5).

Response: Although these facilities do not directly protect or restore habitat, they do foster contact and connection with wildlife and wild places which leads to greater understanding and appreciation. This in the end can result in more support for overall conservation programs, including the protection and restoration of habitat. Our site selection, design, and construction of facilities always try to avoid or minimize any impacts to wetlands or other sensitive habitat.

Comment: Would observation tower near Browns Marsh only be accessible via bike trail? We believe a one mile access route is too far for many to walk and suggest an alternative location in the Clearwater Resort area near Lake Onalaska.

Response: The state bike trail running along Brown Marsh receives many thousands of users each year and this overlook is designed to take advantage of this opportunity. Thus, we believe access to this particular overlook is appropriate. Other sites on Lake Onalaska were considered during development of the plan.

Hiking Trails

Comment: Support the additional hiking trails called for in the plan (24).

Response: Comments are noted.

Comment: Would like hiking trails and surrounding areas to be multiple-use (e.g. hunting and fishing), not exclusive-use (2).

Response: We generally concur that hiking trails can be open to a variety of uses, including hunting. However, we believe that some areas warrant a separation of hunting and other recreational uses based on location and circumstances and overriding concern for visitor safety. However, we have made several major changes in Alternative E, the preferred alternative, by dropping some suggested no hunting areas around trails.

Comment: Recommend more trails near flood plain forest at Rush Creek in Vernon County, Root River bottoms at Mill Stone Landing in Houston County, Wisconsin River Bottoms in Crawford County, and the bottoms east of Fish Farm Mounds along Highway 82 dike near Lansing. These areas have better parking and don't require coordination with railroad.

Response: We considered these suggested areas in developing Alternative E but believe they are not suitable at this time given terrain, periodic flooding concerns, feasibility given floodplain location, and other factors. There was also a concern of including too many trails given the 15-year horizon of the plan.

Comment: Oppose the Kain Switch trail (6), the John Deere Trail (1), and the trail near Barton's (2).

Response: In response to these and other comments, several changes were made to hiking trails in Alternative E, the preferred alternative, including dropping some trails, making them shorter, or deleting associated no-hunting zones.

Canoe Trails

Comment: Many written comments specifically expressed support for canoe trails (72).

Response: Comments are noted.

Comment: Canoe trail markers are an unnecessary cost and need maintenance after spring floods, and canoes can go anywhere they want now. Provide pool maps for canoeists, so other users don't have to see more signs.

Response: For persons unfamiliar with backwater areas of the Refuge, the combination of maps and signs is an important service. We try to use the least amount of trail markers necessary, and place them above the normal high-water mark whenever possible to reduce maintenance.

Comment: The boating report states that small boat/canoe use is declining but the Service is increasing canoe trails by 425 percent.

Response: The most recent boating study on Pools 4-9 in 2003 by the Minnesota Department of Natural Resources cited a decline in fishing boats and a trend toward runabouts or larger "cruise" vessels. There was no trend indicated for non-motorized craft, although they did represent 2 percent of boats in the study. The use of a percentage for the increase of canoe trails is somewhat misleading. In Alternative E, the preferred alternative in the Final EIS/CCP, the number of canoe trails increases from the current 4 to 19. A total of 19 canoe trails on a water-based refuge 261 miles in length does not seem excessive, especially since they involve little cost and maintenance other than trail markers.

Comment: Want proposed canoe access at Conway Lake (Pool 9) to include parking area (2).

Response: Parking associated with this access in Alternative E will be explored during detailed site planning. We will be seeking cooperation from the railroad on this particular access, which could affect parking and other features.

Comment: Canoe trails around Wyalusing State Park great example of activities that increase canoe use and appreciation of watershed resource.

Response: Comment noted; this is an existing canoe trail system.

Comment: Consider having a canoe launch at the mouth of Crooked Creek, Pool 13.

Response: A boat ramp is identified in Alternative E, the preferred alternative, at this location. This ramp would double as a canoe launch.

Comment: An alternative canoe trail could be made in Shingle Creek area of Black River Bottoms by removing downed timber below power lines near Lytles Landing.

Response: This idea has merit, but a canoe trail at this area was not included in Alternative E, the preferred alternative, due to other options in the area (existing Long Lake Canoe Trail).

Comment: Address speeding motor boats along Long Lake canoe trail. Canoe trails great concept, but if you don't exclude motor use there what's the point?

Response: Canoe trails were never intended to exclude other uses, including other types of watercraft, but to provide a canoeing option for people less familiar with the river, or who prefer a marked route or trail. We realize that conflicts may occur, but these are addressed through the Electric Motor Areas and Slow, No Wake Areas proposed in Alternative E of the Final EIS/CCP.

Comment: Provide boat landings or launch areas at proposed canoe trails (3).

Response: We do not disagree, although realities of railroad tracks and lands, private land, and slope of terrain often limit access points to the Refuge and the river. We will continue to look for ways to enhance access during more detailed planning and implementation of the canoe trails.

Comment: Oppose exclusive use canoe trail in Ambrose area, is there a real or perceived need here (2)?

Response: All canoe trails, unless within an Electric Motor Area or Slow, No Wake Area, are open to all other types of watercraft and are not canoe-only areas.

Comment: Opposed to Conway Lake canoe trail in Pool 9 north of Lansing, Iowa (3).

Response: Alternative C in the Draft EIS/CCP identified a 12-mile canoe trail that went through the Conway Lake area. However, this trail was dropped in Alternative D and Alternative E, the preferred alternative.

Comment: Opposes canoe trail on Pool 4 "where current is too strong;" has towed many canoeists back up river.

Response: The Nelson Dike Canoe Trail is the only canoe trail in Alternative E, the preferred alternative. This trail is located in a predominantly backwater area some distance from the main channel of the river and currents are not expected to present a serious problem for canoeists or kayakers.

Bike Trails

Comments:

For bike trails (10)
Against bike trails (4)
Don't close these areas to hunting and use exclusively for bikes
Bike Trails disrupt wildlife, waste money and don't reflect wild nature of Refuge (3)
Concerned duck stamp money is being used for these trails

Response: Comments for and against bike trails are noted and are indicative of the divergent view points on certain public uses and facilities. Of the three new bike trails in Alternative E, the preferred alternative, the first is on an existing paved road currently closed to hunting, the second is in an existing closed or no hunting area, and no determination has been made in regards to hunting on the third. It remains our policy to keep trails open to hunting unless there is a bona fide safety or conflict concern due to location. Some existing trails through areas open to hunting include a buffer only so the surrounding area remains open. Like all public use, there is some disturbance to wildlife on bike trails, but this is considered minor given timing and levels of use, and the low noise associated with biking. Biking and bike trails continue to grow in popularity, and are an excellent way to view wildlife, one of the priority public uses of the Refuge System. No duck stamp funds are used for bike trails or any other public use facilities or programs since these funds must be used for land acquisition.

Auto Tour Routes

Comments: For auto tour routes (5) and against auto tour routes (5), especially if they impinge on hunting areas.

Response: Comments noted. Any auto tour routes should not impinge on areas currently open to hunting since they are located on existing roads.

Comments: Recommend widening Red Oak Road to accommodate 2-lane traffic and promote as scenic byway (2). Against Red Oak Road as scenic byway since substantial number of ducks and geese use the adjacent shoreline as a resting area. The ducks and geese seem more affected by pedestrian than vehicular traffic.

Response: The proposed Red Oak Wildlife Drive/Bike Loop would be a cooperative venture with Allamakee County and the railroad since it is mostly off-Refuge and would follow existing roads. Any decisions on width of road or other amenities would be done during future detailed planning. Since this drive would follow existing roads, disturbance to waterfowl from vehicles is not expected to increase. Bike traffic could increase disturbance to waterfowl, but it is not expected to be substantial since birds are already conditioned to vehicle traffic.

Comment: An auto tour route already exists at Trempealeau National Wildlife Refuge.

Response: The two new auto tour routes in Alternative E, the preferred alternative, are located adjacent to Pools 9 and 11 which are some distance from Trempealeau Refuge in Pool 6. Thus, they offer auto tour opportunities for persons who would not frequent Trempealeau Refuge. The other existing tour route is on the Lost Mound Unit, Pool 13 near the southern end of the Refuge.

Photography Blinds

Comments: For photography blinds and expanded photo opportunities (34), and against photography blinds (3).

Response: Comments are noted.

4.11 Interpretation and Environmental Education

General

Comment: Necessary, but don't divert funds from law enforcement or wildlife management.

Response: Funding for interpretation and environmental education is a separate line item in the Refuge System and Refuge budget. Funds for law enforcement and wildlife management are not diverted to these accounts, although it is recognized that staff on the Refuge wear many hats and often assist with all programs.

Comment: Would rather see money earmarked for this be used for habitat improvement.

Response: Interpretation and environmental education are two of the six priority uses that are to be facilitated on national wildlife refuges. Any funding received specifically for interpretation or environmental education are to be used to support those activities, so there is little to no latitude to earmark those funds for habitat improvement. However, habitat conservation and improvement remains a higher priority than these or other public uses.

Signs and Signage

Comments:

Maintain signs (2)
Signs detract from natural beauty (2)
Better signs at landings and beaches quickly address litter and human waste policies (4)
Use signs as reminders at landings outlining hunter ethics during hunting season (5)
"Closed unless open" in regards to beach-related uses would mean fewer signs

Need well designed signs reminding folks to “pack out” trash (leave no trace) campaign (3)

Put sign designs on web first to get public opinion on effectiveness before going “final”

Response: We realize that signs and signing must be approached with care to balance the public’s need for information with the impact signs can have on the scenic qualities of an area. This Refuge provides a particular signing challenge due to its size and length, high visitation, high number of access points, and floodplain nature. Many of these comments are suggestions which will be considered when designing and placing signs in accordance with Fish and Wildlife Service standards.

Visitor Contact Facilities/Visitor Center

Comment: Support building new offices with visitor contact facilities (7) and insure they are well located.

Response: Comment is noted.

Comment: Central visitor center great way to promote public education and awareness, should be priority on construction list (2).

Response: Due to the construction and maintenance costs of a central visitor center, it was not carried from Alternative C to Alternative E, the preferred alternative. Also, we believe that modest visitor contact areas in conjunction with the four district offices will better meet the needs of the public on such a long refuge touching scores of communities, and be a more efficient use of limited construction dollars.

Interpretive Events

Comments:

Fund an interpretive trailer that could be moved and used at various locations up and down river throughout year

All events should be geared to raise public awareness (3)

Supports Mississippi Flyway Birding Festival, great economic boost and public education opportunity (2)

Response: Comments are noted, and the trailer is a great idea, but due to other higher priority needs for facilities that more directly support visitors to the Refuge, it was not included in Alternative E, the preferred alternative.

Comment: If this is already the most visited Refuge in the country, do you need to keep promoting it?

Response: This is a fair question. We do not consider interpretive and environmental education programs as promotion, but a charge from Congress in the Refuge Improvement Act of 1997. There are, however, indirect benefits to increased public awareness of the Refuge. Citizens who know and understand the Refuge are more apt to care about it and the Mississippi River as a whole, which generally leads to fiscal and political support for improving habitat for fish and wildlife.

Environmental Education

Comments:

The more people understand natural resource management the more they will voluntarily support managing it (5)
Solicit more volunteers and conservation clubs to provide education during fall migration
Important endeavor but not at the expense of hiring needed biologists

Response: Comments noted and we concur.

Visitor Services Staffing

Comments:

Proactively regulate visitor activities to reduce conflicts with resource objectives
Important public outreach feature (5)
Needs aren't great enough to warrant increased staff levels

Response: Comments are noted.

4.12 Fish Floats

Comments: Support the continuation of fish floats for an alternative fishing opportunity (15), and would like to see them eliminated because they are eyesores and restrict open water fishing (2).

Response: As noted in the rationale section in Alternative E, Objective 4.12, Chapter 2 of the Final EIS, we believe that the four existing fish floats provide a valuable alternative fishing experience for persons without boats and/or river experience, and for disabled persons. Strategies in the objective are designed to improve float appearance, function, and safety.

Comment: Want fish floats to be clean, regulated, and licensed.

Response: Concur, and this is reflected in Alternative E, the preferred alternative.

4.13 Guiding Services

Comments:

Ban waterfowl hunting guides who attempt to restrict access to individual hunters
Increase guiding services using non-motorized boats
Guides monopolize entire areas reducing the opportunities for individual hunters (3).
Limit to certain designated areas assigned by permit issued by the Fish and Wildlife Service
Enforce guide requirement to have Coast Guard license and Refuge special use permit (5)

Response: These comments are noted and will be considered when writing guiding policy and when developing a consistent process for issuing permits as noted in Objective 4.13, Alternative E, the preferred alternative.

5.1 Beach Use and Maintenance Policy and Regulations

Comments:

Beaches offer important affordable recreational opportunities

Vital to local communities where users may not be able to afford other river uses

If areas need to be closed, allow them to stay open for families to swim, camp, picnic during summer since backwater is safer for these activities due to lack of current.

Backwater beaches without current are necessary for safety of beachcombers and swimmers

Allow marinas to dredge sand and place on beaches or near marinas to create beaches

Wants beach near Dubuque with walk-in or vehicle access

Coordination with other agencies, education, and law enforcement best ways to handle "party" beaches (3)

Beach use should be limited to designated sites that are most durable and support extensive human impact

For restrictions outlined in Alternatives C, B, or D (6)

Against any restrictions to current use and regulations (11)

For closing areas if biologically necessary (2)

Mark areas that are of wildlife concern such as turtle breeding grounds

Against closing or restricting use of beaches to benefit turtle breeding areas (2)

Want camping and over night mooring allowed (11)

Want restrictions to where camping and mooring would be allowed (1)

Human waste must be addressed for health reasons (16)

Recommend signs and informational campaigns on human waste policies (6), and recommend better monitoring and fines for non-compliance (2)

How do you prevent people who "pack it out" from dumping in water when they leave a beach?

Add portable toilets at boat landings (4)

No large ugly toilets on beaches, high cost to maintain and idiots will vandalize

Educate campers on "cat hole" human waste burial methods (3)

Only 1% of overall waste problem is from human waste

For the blood-level based (.08) alcohol consumption limitations (5), and against any new alcohol regulation (5)

Create some alcohol free beaches (3)

For some level of beach maintenance (11)

Implement an "adopt a beach or boat landing program" to address problems (4)

Initiate "leave no trace" education program to address litter and human waste (5)

Ban glass on beaches (7)

Close beaches for a week where litter is a problem

Response: These comments are indicative of the large amount of public comment also received at the 21 public meetings and workshops held after release of the Draft EIS/CCP in May, 2005. Based on these comments, and in consideration of the above written comments, many changes were made in the supplement to the EIS, Alternative E, the preferred alternative. These

changes include keeping current regulations defining where and when camping is allowed, dropping a new alcohol consumption regulation, modifying human waste regulations, and clarifying beach planning in cooperation with the states and Corps of Engineers. Some of the specific location or maintenance comments will be considered during the beach planning process. A ban on food and beverage glass containers was added in Alternative E, as well as a strategy for addressing beach clean-up and maintenance through an adopt-a-beach program. The policy for closing areas to protect wildlife resources and public health and safety was simplified and clarified. Adopting a "Leave No Trace" program was retained in Alternative E. Providing portable toilets at landings or on beach areas was not deemed a realistic option given the floodplain nature of the Refuge, cost, increased maintenance workload, and past experience with portable toilets.

5.2 Electric Motor Areas (includes Slow, No Wake Areas, Alternative E)

Comments: Support Electric Motor Area designation (55) and against Electric Motor Area designation (180, includes 112 form letter comments).

Response: Designating Electric Motor Areas generated considerable written comment as well as comments at all public meetings and workshops. Based on these comments, substantial changes were made for Alternative E, the preferred alternative. These changes included dropping four proposed areas completely, and converting eight Electric Motor Areas to seasonal Slow, No Wake Areas. Collectively, the remaining five Electric Motor Areas and eight Slow, No Wake Areas encompass 11,572 acres, or approximately 8 percent of the water area of the Refuge.

Comment: Make all proposed Electric Motor Areas slow no wake instead (10).

Response: See comment and response above.

Comment: Phase out airboats, hovercraft, and jet skis entirely by 2010 or 2015 (2).

Response: We do not believe prohibiting certain types of watercraft throughout the entire Refuge is reasonable or warranted given the size of the Refuge, mix of jurisdictions and authorities in many areas, and the desires expressed at the public meetings and workshops. We believe that Alternative E, the preferred alternative, represents a reasonable approach to limiting disturbance from certain types of watercraft through the use of time and space constraints.

Comment: Technology now allows people to access areas they were never meant to, Electric Motor Areas and Slow, No Wake Zones are necessary to manage for biological reasons (5).

Response: Comment is noted and we concur as reflected in Alternative E.

Comment: Canoeists can do their thing now but if you convert areas to Electric Motor Areas it prevents others from using traditional hunting/fishing areas (2).

Response: We made major changes in Alternative E, the preferred alternative to address the concerns of access for hunting and fishing. The number of Electric Motor Areas was reduced from 17 in Alternative D to 5 in Alternative E. Eight Electric Motor Areas were changed to seasonal Slow, No Wake Areas which should have minimal effect on hunting and fishing access since all motorized watercraft, except airboats and hovercraft, are allowed.

Comment: Where is scientific data supporting need for electric motor only or slow no wake zones?

Response: The wildlife science literature contains scores of papers documenting the effect of watercraft and associated speed and noise on wildlife. An excellent overview of the literature on the effects of recreation on wildlife is maintained by the Montana Chapter of the Wildlife Society and can be accessed via their website at www.montanatws.org. Studies on waterfowl disturbance on the Refuge are also well-documented and it is generally accepted in the wildlife management profession that motorized watercraft speed and noise disturbs wildlife. Limiting motor size, type, and speed, or banning combustion motors completely, are commonly used management practices on national wildlife refuges and state wildlife management areas. However, the purpose of the Electric Motor Areas and Slow, No Wake Areas is to also limit disturbance to persons engaged in hunting, fishing, wildlife observation and other activities in these areas, and to enhance the quality of the experience. Citizens' concerns for the loss of quiet and solitude on the Refuge, and concerns over conflicts between and within various user groups, was expressed at scoping meetings prior to drafting the EIS/CCP. We have also received concerns about certain watercraft from trappers in their annual reports. In the most recent recreational boating study on Pools 4 thru 9 (Minnesota DNR, 2004), respondents listed boat speed and wakes, personal watercraft, and careless operation by others as concerns. The study also showed that 56 percent of respondents were either neutral, mildly supportive, or strongly supportive of setting aside non-motorized areas on the Mississippi River.

Comments:

Don't restrict hunters to electric motors only in Black River Bottoms area, only makes access too difficult for hunters (8)

Hunted Black River Bottoms for 14 years and have never seen an electric motor or canoeist there due to strong current, so why set aside this area?

Strong current in Black River doesn't allow you to go at no wake speed

Trempealeau Refuge is only a few miles from proposed Black River Bottoms Electric Motor Area. Isn't this duplication at additional expense and displacement of other user groups?

Big Marsh/Mud Lake in Pool 7 is a good alternative to the Black River Bottoms area.

Response: In Alternative E, we have changed the designation of this area from an Electric Motor Area to a seasonal Slow, No Wake Area in response to comments and concerns. Boats with outboard motors or mud-type motors are permitted year-around which should lessen access and current concerns. We have also added language in Alternative E so that "slow, no wake" matches state regulations, which in Wisconsin, means a person can use a speed to maintain steerage. This provision should help address the concern of strong current. Although Trempealeau Refuge is approximately 15 miles distance and only allows boats powered by electric motors or hand, it does not contain the unique bottomland forest found on Upper Miss Refuge. The Black River Bottoms provides a unique experience to hunters, anglers, and wildlife observers and is closer to the major population center of La Crosse/Onalaska. We believe the Big Marsh/Mud Lake area in Pool 7 upstream of the Black River Bottoms may provide a good alternative. Thus, we have delayed implementation of the Black River Bottoms Slow, No Wake Area until 2008 to allow further exploration of the Big Marsh/Mud Lake proposal.

Comment: Opposes Electric Motor Area in Pool 8 between Blue and Lawrence lakes. Recommends reducing the size of the area around Blue Lake and shifting it south of Blue Lake, through Target Lake and end it at the area just north of Lawrence Lake.

Response: In Alternative E, the preferred alternative, we have changed the designation of this area from Electric Motor Area to a Slow, No Wake Area. This designation will dramatically change the accessibility since boats with outboard and shallow-drive motors will be allowed,

although airboats and hovercraft would be excluded. We also looked at various configurations suggested by the public, including the recommendation above. Based on this review, the boundary of this area remains virtually the same in Alternative E as the area presented in the supplement to the Draft EIS/CCP. We have added Appendix R to the Final EIS/CCP which gives more details on the resource and public use rationale for this and all other Electric Motor Areas and Slow, No Wake Areas.

Comment: Support the heron sanctuary designation on a part of the existing Mertes Slough Electric Motor Area, Pool 6 (6).

Response: We appreciate this comment, but have deleted the sanctuary designation in Alternative E, the preferred alternative. We felt that overlaying sanctuary status over an existing restricted area would be confusing, lead to additional signing and sign maintenance costs, and be of limited value since the level of disturbance is low under the electric motor only designation.

Comment: Consider smaller areas for Electric Motor Areas and make larger areas Slow No Wake (4).

Response: As noted in an earlier comment/response, we made substantial changes in Alternative E, the preferred alternative. These changes included dropping four proposed areas completely, and converting eight Electric Motor Areas to seasonal Slow, No Wake Areas. Collectively, the remaining five Electric Motor Areas and eight Slow, No Wake Areas encompass 11,572 acres, or approximately 8 percent of the water area of the Refuge. Electric Motor Areas are relatively small, averaging 370 acres and a total of 1,852 acres.

Comment: Consider seasonal Electric Motor Area restrictions versus year-around (9).

Response: We considered this and other comments about the season for Electric Motor Areas. However, we believe that setting aside these areas year-around also meets the needs of hunters, anglers, trappers, cross country skiers, and others who desire an area with more quiet and solitude. Wildlife also benefits by the reduced disturbance, regardless of the season.

Comment: Must have designated travel corridors through any Electric Motor Area or Slow, No Wake Area.

Response: We avoided most main travel corridors such as tributaries and deep sloughs when laying out the boundaries of the areas. Providing either a motorized or any-speed travel corridor through these areas would negate many of the reasons for establishing them.

Comment: Does not believe "giving" canoeists and kayakers both spillways in Reno Bottoms area in Pool 9 is fair (there are two spillways in Dam 8 at very upper end of Pool 9 that are popular fishing areas for some visitors).

Response: A portion of the Reno Bottoms area is now a Slow, No Wake Area in the preferred alternative and is open to motorized watercraft, except airboats and hovercraft, as well as canoeists and kayakers. We also modified the boundary in Alternative E to exclude 866 acres from any designation, which allows unrestricted means of access to the east spillway via Pickerel Slough or other avenues.

Comment: Concerned about safety in Electric Motor Areas due to sudden storms or bad weather (3).

Response: In emergency situations, we would expect the public to take whatever action is necessary for their health and safety, including "violating" any rule. There are also only five relatively small Electric Motor Areas designated in Alternative E, the preferred alternative.

Comment: Quiet non-motor zones should be provided for visitors and formal monitoring for future updates of the CCP. Expressly commend the Service for Electric Motor Areas since delicate backwaters are essential to health of fish and wildlife, and uphold these restrictions through interagency collaboration (2).

Response: Comments are noted and we believe are reflected in Alternative E, the preferred alternative.

Comment: Proposed Electric Motor Area for 9-Mile Island in Pool 12 should be Slow, No Wake Area instead.

Response: We concur and this designation change was made in Alternative E, the preferred alternative.

Comments: In regard to comments specifically mentioning area and seasonal restrictions on airboat and hovercraft use in the supplement to the Draft EIS/CCP (Draft Alternative E), 35 were for the restrictions and 7 were opposed.

Response: Comments are noted. Written comments are one form of input and we realize that many persons who currently use airboats or hovercraft throughout the Refuge do not support the restrictions in Alternative E, the preferred alternative. However, we believe Alternative E represents a balanced approach to meet the needs of all user groups, as well as the needs of wildlife in these backwater areas.

5.3 Slow No Wake Zones

Comments:

For additional Slow, No Wake Zones (10)
Against additional Slow, No Wake Zones (11)
Bass tournament anglers and 50% of boat owners already ignore Slow, No Wake Zones (3)
Recommend a speed limit instead of slow, no wake
If goal is to protect plants use a slow, no wake or channel marker to designate affected areas
Slow, no wake creates a problem in shallow areas since boats can't operate on plane (3)

Response: Comments are noted. Slow, No Wake Zones, designed to reduce boating speed along linear stretches, always reflect a mixture of support or disdain. Alternative E, the preferred alternative, identifies 11 additional Slow, No Wake Zones to address safety and human disturbance problems, or to address bank erosion. We believe this number is reasonable and addresses the most pressing problem areas. In Alternative E we have also adopted the respective state definition for "slow, no wake," which in some states includes a speed limit. Adopting the respective state definition also reduces confusion and layering of regulations.

Comment: Would like Slow, No Wake Zone near northwest entry to Jack Oak Slough, Pool 11, near Eagles Roost Resort, Cassville, Wisconsin, for safety.

Response: This area was considered, but not included since it did not rank as a high priority area based on resource or safety concerns expressed by staff or the public.

Comment: Make Crooked Slough, Pool 13, and all associated backwaters slow, no wake.

Response: In Alternative E, we have identified a speed and distance restriction for Crooked Slough in-line with Iowa regulations. This restriction requires boats to slow down to less than 5 mph when approaching or passing other slow or stationary craft. We believe this will provide the needed safety regulation while not unduly restricting boat travel on this very long corridor.

Comment: Reduce proposed Slow, No Wake Zone in Minnesota Slough, Pool 9, to 200 yards of the Fish Lake curve area.

Response: Concur, and this change was made for Alternative E, the preferred alternative.

Comment: Opposes Slow, No Wake Zone for the Fountain City area since it's a main thoroughfare for boaters using campgrounds and two businesses (5).

Response: We believe this Slow, No Wake Zone is warranted based on concerns expressed by visitors using the adjacent Merrick State Park. However, this and all other Slow, No Wake Zones will go through the local unit of government approval process, as is normal and customary for designating Slow, No Wake Zones on the river. Thus, this area is a proposal by the Refuge, not a final decision.

5.4 Dog Use Policy

Comments:

Dogs need to be under voice or leash control to prevent human or wildlife disturbances (17)
Against all dog restrictions (3)
Support continued hunting with dogs (7)
Wants dog swimming allowed (5)
Owners need to be responsible for picking up dog waste

Response: We have made changes to this objective in Alternative E, the preferred alternative, to simplify the new regulation language. We believe this new regulation protects wildlife and other visitors, while allowing the water training of retrievers and other dogs which was a concern in some areas, particularly in and around La Crosse, Wisconsin. We also added language addressing dog waste.

5.5 General Public Use Regulations

Comment: No written comments on this objective were received from the public. See comments from the states earlier in this chapter in regard to a step-down law enforcement plan, which was added to the strategies in this objective in Alternative E of the Final EIS/CCP.

6.1 Office and Shop Facilities

Comment: All money should go to improving fish and wildlife on Refuge, not building offices (13).

Response: Offices and shops are a basic need of any operation. As noted in Chapter 4, Environmental Consequences, many of the Refuge offices and shops are inadequate in terms of public accessibility, information, and programs, and continue to have unresolved structural safety issues. Inadequate maintenance and storage capacity also negatively effects efficiency of field operations and condition of heavy equipment and vehicles. Also, costs of new buildings are off-set to some degree since the current annual lease payments for offices at Winona and La Crosse would be eliminated.

Comment: Support building new office and shop facilities (5).

Response: Comments are noted.

6.2 Public Access Facilities

Comments:

Against all new fees (64)
Approve boat launch fees if they are used for new landing facilities in same area (5)
Use money generated by fees to hire more law enforcement officers
Require everyone using Refuge to have annual for-fee permit or Federal Duck Stamp and use money for habitat restoration or protection (7).

Response: The boat ramp fee in Alternatives B, C, and D was dropped in Alternative E, the preferred alternative. Also, a general, annual recreation fee was strongly opposed by the majority of people at public meetings and workshops. However, the concept of a fee, but not an actual proposal, remains in Alternative E, in-line with recent laws governing recreational user fees on federal public lands. If fees are charged, they are specifically earmarked for the refuge where collected to enhance visitor facilities and programs, not for habitat or other work. Federal Duck Stamps do allow "free" entrance to national wildlife refuges which charge entrance fees, but the proceeds go into the nationwide Duck Stamp land acquisition fund. No Duck Stamp funds are used for land acquisition at the Upper Miss Refuge since the funding source is the Land and Water Conservation Fund.

Comment: Support new boat access proposal (7).

Response: Comments are noted.

Comment: Boat landings at Campion and St. Feriole are excellent examples of well thought-out, user friendly, and economically feasible boat landings.

Response: Comment is noted.

Comment: Boat landing at Big Slough near Lansing looks nice but not as practical as the old landing. Parking was reduced by 50% and curbs cause problems when maneuvering.

Response: We understand the concerns at this and other landings. These issues will be considered when rehabilitating or constructing new landings, and communicated to persons doing the design work. Also, we think it would be wise to get input from citizens using these areas before designs are finished and contracts awarded.

Comment: Can you use money from boat gas tax for improved boat landings?

Response: No, any federal excise tax on fuel goes to accounts other than refuges.

Comment: Support walk-in accesses (4).

Response: Comments are noted.

Comment: New canoe trails need launch and landings established, otherwise tough to use (4).

Response: We do not disagree, although access development is often hampered by roads, railroads, and physical terrain.

Comments: If a canoe access off Highway 26 (Pool 9, Iowa side) is a goal look at three existing parking areas between Conway Lake and Lansing, one is at extreme south end of Conway (3). Supports a canoe launch along existing road near Big Slough eliminating need for Conway Lake access. Not feasible to construct parking off Highway 26 down steep bank, across railroad tracks in floodplain.

Response: We will take these comments into consideration when doing more detailed planning for the Conway Lake canoe access, or other accesses along Highway 26. The railroad tracks and terrain present a considerable challenge along this and other stretches of the Refuge for any type of access.

Comment: Ensure access doesn't require canoe portage across highways (2).

Response: Concur, and we will avoid this situation in any accesses developed.

Comment: Supports signed and maintained portages on dikes between pools with steps or gravel path instead of trying to balance canoe going up and down steep rocks.

Response: We do not disagree, but the dikes or dams between pools are under the jurisdiction of the Corps of Engineers. It is unlikely that the Corps of Engineers would entertain any actual recreational development of the dams since their purpose is for water control and management.

Comment: Would like some canoe-only campgrounds.

Response: Since Electric Motor Areas are open to camping, they do serve to a degree as canoe-only camping areas. Given the ease of access to remote areas of the Refuge with canoe, many other areas offer the opportunity to get away from heavily-used beach areas along the main channel. However, we acknowledge that secluded, sandy areas in the backwaters are limited.

Comment: Support additional parking areas (8).

Response: Comments are noted.

6.3 Operation and Maintenance Needs

Comment: Concern for costs of maintaining infrastructure resulting from the Environmental Management Program.

Response: Concur and we have added more information on this need in Alternative E, the preferred alternative, and in the Appendix L, Implementation Plan, in the Final EIS/CCP.

6.4 Public Information and Awareness

Comments:

Need more information at public access points to garner public compliance (4)

Focus on information campaigns and public information sites (5)

Use marinas, boat landings, sporting good stores, and brochures for information programs

Kiosks very valuable where there are high number of visitors (2)

Response: We concur and believe the information and awareness efforts outlined in Alternative E of the Final EIS/CCP reflect these comments.

Comment: All the money earmarked for public information campaigns doesn't promote wildlife habitat (2). Spend money on fish and wildlife programs instead due to budget constraints (3).

Response: We believe the public has a need for basic information about the Refuge, its fish and wildlife, and the rules for public use. This is a basic function of managing public lands. As noted in earlier responses, there are indirect and positive benefits to increased public awareness of the Refuge. Citizens who know and understand the Refuge are more apt to care about it and the Mississippi River as a whole, which generally leads to fiscal and political support for improving habitat for fish and wildlife.

Comment: Recommend using newsletters to keep public apprised of changes and results of changes (5).

Response: Newsletters are costly from a production, printing, and mailing standpoint. We have learned through the process of producing the CCP that a website is a valuable tool, and will continue to use it, and the media, to provide information to the public on programs and actions of the CCP which emerges from the Final EIS.

Comment: Kiosks specifically needed at St. Feriole Slough, Villa Louis, and Campion landings near Prairie du Chien.

Response: These landings are managed by the City of Prairie du Chien and not within the Refuge. Although we place Refuge kiosks at many non-Refuge landings in cooperation with cities and towns, there are fiscal and maintenance constraints to placing at all of the 200-plus boat landings in Pools 4 through 14. However, we are currently partnering with the city to place kiosks at two of the landings.

6.5 Staffing Needs

Comment: Hire more Law Enforcement Officers, they're spread too thin (10).

Response: We concur, and added four additional full-time law enforcement officers to this objective in Alternative E, the preferred alternative.

Comment: Support hiring forester (8).

Response: Comments are noted.

7.9 General Comments and Response

This section contains comments and responses to input that did not logically fit in the objectives or categories in Section 7.8.

During both comment periods, a large number of persons or organizations specifically stated their preference for an alternative being considered. A summary of this preference is in Table 35. If a comment did not mention a specific alternative, even if in favor or opposed to certain aspects of an alternative, it is not included in the table.

Petitions and form letters obviously impact these numbers, and it is difficult to weigh the qualitative aspects of a comment in a petition or form letter compared to a written original comment from an individual or organization. For example, during the second comment period, one petition accounted for 139 of the 165 comments specifically wanting Alternative A, while the 112 comments specifically wanting Alternative E were individually written.

Table 35: Comments Stating an Alternative Preference[1]

Alternative Preferred	First Comment Period (Draft EIS/ CCP) Number of Written Comments/ Signatures	Second Comment Period (Supplement or Alt. E) Number of Written Comments/ Signatures
Alternative A: No Action	3,086	165
Alternative B: Wildlife	1,840	9
Alternative C: Public Use	1	0
Alternative D: Integrated	387	22
Alternative E: Modified Integrated	0	112

1. Includes number of signatures on petitions, and number of individual form letters/e-mails discussed in Sections 7.6 and 7.7

Also, comments for or against a particular alternative represent the opinions, perspectives, and values of those commenting. Without a random sampling of the general public, one cannot conclude that these numbers represent the views or desires of society as a whole, or of all people who use or benefit from the Refuge.

Comment: Concerns with the new walk down access and bank fishing area off of Highway 35 just south of Stoddard, Wisconsin. These concerns include adequate parking, pedestrian safety, and funding (Wisconsin Division of Transportation Systems Development, Southwest Region).

> *Response: We share these concerns. The access and bank fishing to this popular fishing area created by an Environmental Management Program project is only identified in Alternative E. We realize that many questions concerning design, funding, and maintenance will need to be answered if this project moves forward. As with all projects adjacent to roads and highways, we will work collaboratively with the state and other agencies before proceeding.*

Comment: Alternative D, the preferred alternative, should be rejected because it bans appropriate and priority uses without justification. Concerned about compliance with the National Environmental Policy Act (National Marine Manufacturers Association and Personal Watercraft Industry Association).

Response: In response to public input, the Service issued a Supplement to the Draft EIS/CCP which presented a new alternative, Alternative E, as the preferred alternative. Major changes were made, especially in regards to Electric Motor Areas. Neither Alternative D nor Alternative E bans any priority use in these areas, only the means of use is affected. All areas, except Waterfowl Hunting Closed Areas, remain open to the priority public uses of hunting, fishing, wildlife observation, photography, interpretation, and environmental education. We believe the Final EIS/CCP contains extensive documentation of issues and justification for the actions presented, and complies with all requirements of the National Environmental Policy Act.

Comment: Alternative A should be designated the preferred alternative because it best accomplishes the Refuge's goals, accommodates the broadest mix of uses, and ensures fair and environmentally sound boating management (National Marine Manufacturers Association and Personal Watercraft Industry Association).

Response: We do not believe that Alternative A, no action or current direction, meets the multitude of needs outlined in Chapter 1 of the Final EIS/CCP, nor ensures compliance with the Refuge Improvement Act of 1997 and various Service policies and regulations governing national wildlife refuges. However, Alternative E, the preferred alternative, reflects many changes based on extensive public input at meetings, workshops, and through written comments. All types of traditional recreation currently enjoyed on the Refuge will continue, including boating by any means on at least 90 percent of the water area of the Refuge. We believe the time and place restrictions on a portion of the Refuge meet the needs of wildlife and the needs of a large and diverse public. We believe this balanced approach is in the best long-term interest of the resource, area communities and economy, and the public at large.

Iowa Tribe of Oklahoma Comment on Draft EIS/CCP

file - CCP
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Iowa Tribe of Oklahoma

R.R. 1, Box 721
Perkins, Oklahoma 74059
(405) 547-2402
Fax: (405) 547-5294

5/12/2005

US Fish & Wildlife Service
ATTN: CCP Comment
Room 101, 51 East Fourth Street
Winona, MN 55987

RE: Upper Mississippi River

Dear CCP Comment:

We received the notification of your district's improvement program. I understand that some of the project is a previous improvement and you do not foresee any impact of Native American or Euro-American archaeological resources.

The Iowa people have an historic presence in Multiple County. Please keep the Iowa Tribe of Oklahoma informed if anything new is discovered.

The historical preservation of the Iowa Tribe of Oklahoma is very important. Many religious and cultural artifacts have been discovered. During excavation if anything is unearthed please give me a call at 405-547-2402 ext. 323 or e-mail me at etipton@iowanation.org.

Thank you for your cooperation in this matter.

Sincerely,

Erin C. Tipton
Historical Preservation

ECT/jr

Minnesota Department of Natural Resources Comment on Draft EIS/CCP

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Minnesota Department of Natural Resources

Southern Region
261 Hwy 15 South
New Ulm, MN 56073-8915
507-359-6010

August 31, 2005

Mr. Don Hultman
Upper Mississippi River NW&FR
Attn: CCP Comment
Room 101
51 East Fourth St
Winona, Minnesota 55987

RE: U.S. Fish and Wildlife Service Comprehensive Conservation Plan

Dear Mr. Hultman:

The Minnesota Department of Natural Resources (MNDNR) would like to commend the US Fish and Wildlife Service (USFWS) for developing a comprehensive and diverse plan for management of the Upper Mississippi River National Wildlife and Fish Refuge over the next 15 years. We support the Refuge Vision and Goals as outlined in the plan and believe the six fundamental uses of the Refuge should continue to drive management and use of the system. We believe the issues generated during your initial scoping meetings reflected the variety of use and experiences sought by the public and your recommended Alternative D provides that diversity. We have attached our specific comments regarding Alternative D Objectives. General comments are as follows:

We strongly support your recommendations for habitat and water quality improvements through increased rate of land acquisition, bluffland protection, decreased sedimentation, pool-scale drawdowns, control of invasive plants and animals, increased inventory and monitoring, and threatened and endangered species recovery. These actions are critical to the long-term sustainability of the Mississippi River and should be of highest priority. Many of these actions can be addressed by implementing the Environmental Pool Plans. Pool Plans were developed through a diverse partnership and would provide a balanced approach to habitat and water quality restoration and management on the Refuge. We will continue our strong partnership with the USFWS and other agencies, NGO's, and the public to implement the Pool Plans to accomplish these activities.

We agree that developing additional rules for beach use, camping, and other related recreational activities in the refuge are needed. Given the high level of recreational activities on the Refuge and the potential impacts on fish and wildlife habitat, it is important that USFWS maintain a perspective that looks into the future and anticipates increases in user numbers and recreational activities. We suggest the USFWS consider eliminating or restricting the use of airboats, hover crafts, jet skis, and any other motorized mechanism that negatively impacts fish and wildlife resources in these critical habitats, and negatively affects other recreational pursuits in these areas. Exemptions should only be granted to federal or state agencies for research, monitoring, or law enforcement purposes, and use should be avoided whenever possible in closed areas during critical times of the year such as waterfowl migration.

DNR Information: 651-296-6157 • 1-888-646-6367 • TTY: 651-296-5484 • 1-800-657-3929

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Minnesota Department of Natural Resources Comment on Draft EIS/CCP

Alternative D calls for significant changes and increases in regulations for a wide variety of recreational and commercial uses in the refuge. These changes will increase law enforcement demands and impact MNDNR Conservation Officers as they receive calls and complaints regarding Refuge regulations. This is especially important considering there are not enough federal wardens to meet current needs or to enforce additional regulations resulting from the Comprehensive Conservation Plan (CCP). While we recognize MNDNR Enforcement staff are not directly responsible for enforcing Refuge specific regulations, they will be called to address problems as the public often does not discern between state and federal wardens. In order to fully evaluate the level of support needed and our ability to assist the USFWS in implementing the CCP, we request that the following enforcement issues be addressed:

1. Location and availability of federal enforcement staff to answer calls for service from the public and other law enforcement agencies.
2. Expectations for other law enforcement agencies to respond to violations occurring in the refuge when and if USFWS staff are not available.
3. Jurisdiction of other law enforcement personnel responding to federal law violations on Refuge property.
4. Costs to other agencies to provide law enforcement on Refuge property as well as the need to alter or modify existing work plans and work loads.
5. Development of a response and referral plan for public inquiries directed to the MNDNR regarding service and information related to the Refuge and regulations.

We appreciate the opportunity to comment on this plan and the efforts you have taken to include other partners and the public in the planning process. Meetings between MNDNR and Refuge staff have been productive and have helped us better understand the issues being addressed. We look forward to continued cooperation as we work together to improve the Mississippi River for fish and wildlife while accommodating public use.

Please contact me or Tim Schlagenhaft (507-280-5058) of my staff if you have any questions regarding our comments and recommendations.

Sincerely,

Cheryl Heide

Attachment

c: Gene Merriam
John Guenther
Craig Mitchell
Randy Evans
Ken Varland
Walt Pop
Mark Holsten
Dave Leuthe
Rebecca Wooden
Tim Schlagenhaft
Huon Newburg

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Minnesota Department Natural Resources Comment on Draft EIS/CCP

Minnesota Department of Natural Resources - Specific Comments on USFWS CCP, Alternative D

Objective 1.2 - Land Acquisition

We agree with the need to continue land acquisition efforts within Refuge boundaries and suggest you add an additional strategy such as: "Work with state, local governments, and private land trusts to identify critical tracts for purchase. " The MNDNR through the Natural Heritage Program and County Biological Survey has identified areas of high biodiversity, which may be integrated into this long-term strategy.

Objective 2.2 - Water Level Management

We strongly support the continued use of drawdowns to improve vegetation growth and encourage a more natural deposition of bottom material for island creation. We recommend increasing the frequency and duration of drawdowns to more closely resemble the natural hydrograph (including investigating the potential for winter drawdowns) to improve habitat and possibly offset costs associated with island development.

Objective 2.3 – Invasive Plants

We encourage quick, responsive action for controlling new infestations of invasive plants within the Refuge. At a minimum, we recommend simultaneous actions of inventory work and control of invasive plants to prevent or minimize further spread throughout the Refuge.

Objective 3.7 - Commercial Fishing and Clamming

We find the proposed strategies to be consistent with our desired management of commercial fishing. It is important that commercial fishing licenses be issued as a single permit through the states and not become a dual licensing procedure.

There should also be clarification that the USFWS could not allow commercial harvest of mussels in state waters where commercial clamming has been eliminated.

Cooperation between USFWS and the four states on commercial fishing will be important as Asian carp species become established within the Refuge. These species will have an effect on commercial harvest and may have population impacts to native species that are currently harvested commercially. We encourage you to include these concerns in the CCP to increase awareness of this potential problem.

Objective 3.9 – Forest Management

We agree more attention needs to be focused on improving forest resources and we recommend you add the following strategy: Support a balanced forest management approach that provides adequate habitat for cavity nesting game and non-game species. Allow for the retention of closed or primarily (>70%) closed canopy for forest birds such as red-shouldered hawks, cerulean warbler, etc. We support completing a forest inventory and hiring a Refuge Forester, and encourage incorporation of the forest management practices included in the Environmental Pool Plans.

Objective 3.10 – Grassland Management

We agree that many species of wildlife are dependent on grassland habitat. The Minnesota DNR recently produced an action plan for waterfowl management entitled "The Challenge to Restore Minnesota's Wetland and Waterfowl Hunting Heritage, a Two-year Action Plan, 2004-2005". This report recommends increasing grassland areas where possible to improve nesting success of waterfowl and other ground-nesting bird species. As such, we recommend USFWS add a strategy under this objective to increase grassland acreage within the Refuge. Furthermore, we recommend the use of native species, particularly clump forming plants, which will provide nesting conditions favorable to birds as well as turtles.

Objective 4.2 - Closed Areas

We support efforts to provide refuge and sanctuary for migrating waterfowl. The Minnesota DNR report referenced above identifies fall security as being insufficient in some areas to attract and hold migrating ducks. Your proposal to increase the number of Closed Areas within the Refuge supports DNR's strategy to establish additional waterfowl sanctuaries, refuges (ideally one every 25 miles), migratory waterfowl feeding and resting areas and other restricted boating areas to reduce disturbance and increase use by migrating waterfowl.

We have heard, however, a considerable amount of concern from anglers about the proposal to make Closed Areas off-limit for fishing during the period of October 1 to the close of the respective state waterfowl season. Fall fishing is an extremely popular activity and we feel that not allowing angling during this period in all Closed Areas is overly restrictive and will not be supported by the public. We suggest the following modifications be made to Alternative D that support the biological need to provide security, feeding and resting areas for waterfowl while continuing to allow fishing opportunities for the public:

1. Delay the no entry/angling period until later in October, perhaps second or third week of October when diving duck numbers begin to build. This would allow some fall angling to occur while still providing migrating waterfowl the benefits of Closed Areas.
2. Use additional Voluntary Avoidance Areas as have been used in Lake Onalaska in Pool 7. This may be effective in reducing waterfowl disturbance and would foster education and participation of anglers.
3. Extend the period of no entry (for motorized craft only) in the Closed Areas after the waterfowl season to late December. Climatic trends and increases in available habitat have extended open water use by waterfowl in many sections of the Refuge. This extension would provide additional benefits to late staging waterfowl including tundra swans, and grant a more primitive and quiet experience for those trappers and anglers who desire that experience.

Objective 4.9 - Fishing Tournaments

We support the language in Alternative D relating to tournaments on the Refuge. The USFWS could play a key role in facilitating tournament regulations that are consistent between states and are acceptable to tournament organizers and the general public. We recommend existing state rules be used as a foundation for this process. As with commercial fishing, it is important that tournament permits be issued as a single process through the states and not become a dual permitting procedure. Given the time frame and procedures required to change state

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rules/statutes, the January 2008 goal may be optimistic.

Objective 5.1 – Beach Use and Maintenance

At present, Subp. 2, C&D satisfy MNDNR concerns regarding the ability to close and/or restrict beach use and other recreational activities that may significantly impact critical wildlife habitat. The flexibility to implement this management strategy, when deemed necessary, is important for such species as turtles and ground nesting birds.

Objective 5.2 - Electric Motor Areas

We support the concept of this Objective and all locations and provisions identified in Alternative D. However, we are somewhat disappointed that larger contiguous areas, (i.e. the entire Weaver Bottoms, including everything east and south from Murphy's Cut/Halfmoon Landing to the main channel) which were discussed and recommended in earlier planning, (i.e. Manager for a Day Workshops, etc.) were not identified and incorporated into Alternative D.

Objective 6.2 – Public Access Facilities

We are concerned about your proposal to implement a self-service launch fee at Refuge operated boat ramps. We believe it will put additional strain on existing free, non-Refuge facilities (city, county, state) that are already crowded, and will create some areas on the river that would have no free public access on the Minnesota side (i.e. Pool 5a). We are willing to work with you to explore other options for maintenance and operations of these facilities.

Wisconsin Department of Natural Resources Comment on Draft EIS/CCP

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

WISCONSIN DEPT. OF NATURAL RESOURCES

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2478

August 29, 2005

Mr. Don Hultman, Refuge Manager
Upper Mississippi River NW&FR
51 E. Fourth St., Room 101
Winona, MN 55987

Subject: Comprehensive Conservation Plan Comments

Dear Mr. Hultman:

Thank you for the opportunity to comment on the Comprehensive Conservation Plan (CCP) for the Upper Mississippi River Wildlife and Fish Refuge. The Upper Mississippi is one of the true jewels of the Midwest and the Fish and Wildlife Service's concern for the River's natural resources is deeply appreciated by our department.

We are aware that you will be developing a new preferred alternative this fall. The following comments primarily refer to the Alternative D, although we also have several important general comments on the CCP.

General CCP Comments

We salute your public outreach efforts on this plan to date and urge the USFWS to continue the public dialogue and work closely and in concert with the public and all the agencies involved with the development and implementation of any proposed changes. The public involvement associated with the release of this plan has been one of the largest ever witnessed from the river public. Although much of the initial response was negative, the workshops helped to bring that large group together to talk and help find solutions. This new found enthusiasm for the river should be cultivated to allow a greater interaction and relationship with the public on current and upcoming Upper Mississippi River issues. We offer our assistance to help you and the large public audience you have energized, to develop the next steps in a positive manner.

As you are aware, the State of Wisconsin reserved certain rights, under sec. 1.035, Wis. Stats., when the Upper Mississippi River Refuge was created. These rights remain critically important to us yet today. As such, ***Wisconsin reserves the right to provide free and open navigation to the residents of the state in all waters of the state including the Mississippi River. In addition, Wisconsin reserves the right to regulate fishing in all waters of the state including the Mississippi River.***

We strongly support your emphasis on habitat and habitat management. However, we believe the plan should be broadened to include the larger ecosystem, including fisheries. The refuge's original authorizing language makes it clear that the Upper Mississippi should address the needs of multiple species within the Upper Mississippi River without limiting the emphasis to waterfowl and other migratory bird species. The CCP needs to be strengthened in this area.

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We believe the Plan needs to thoroughly discuss efforts to address all rare and declining species and their habitats. All border states have recently identified these as "Species of Greatest Conservation Need" within their nearly completed "Comprehensive Wildlife Conservation Strategies". All states have been charged by Congress via The Fish and Wildlife Service to author these plans with the purpose of keeping species from becoming federally listed. In addition to migratory birds and turtles, the Upper Mississippi River is a major repository for rare fish and freshwater mussels and can play a critical role in the conservation of the Midwest's biodiversity. Wisconsin has identified numerous "Species of Greatest Conservation Need" that largely depend on the Mississippi River floodplain and associated habitats to survive. Because of this, our state is poised to work closely with and coordinate efforts to conserve these species. Specifically, the Service should emphasize coordinating efforts with respective states to protect and enhance identified "Species of Greatest Conservation Need" and their habitats.

We believe a Law Enforcement step-down plan should be added to the other 13 step-down plans proposed, particularly since there is no law enforcement plan for the Refuge at present. We appreciate the work the refuge officers are already doing. However, we see a need to focus their efforts on new and existing refuge regulations to leverage law enforcement resources, rather than to duplicate the efforts of State officers. Wisconsin DNR Wardens will not be able to enforce many of the rules proposed, particularly public recreation restrictions, since they are prohibited from holding Federal law enforcement credentials and many proposed changes would not be codified in State statutes or Administrative Code and therefore could not be enforced.

The Wisconsin DNR is pleased to read about your intention to update the Land Use Allocation Plan (LUAP) in cooperation with the U.S. Army Corps of Engineers and other public agencies. Keeping a high proportion of the Upper Miss. Refuge available for public recreation will remain important to the citizens of all the bordering states. We recommend the USFWS consider a land acquisition boundary expansion for the Refuge, beyond the boundary established in the 1987 master plan. By working with "willing sellers only" we hope you can purchase or establish long term conservation easements on more than the 1000 acres per year referenced in the CCP.

We suggest you update the public use figures and economic data for the Refuge. We believe the economic information depicted in Table 24 and section 3.4.2, are off by a significant margin. It is our understanding that the numbers generated by Caudill 2004, was done by using the Economics of Recreation study (1990). Based on numerous recreational studies done during the last 15 years we would expect recreation use and economic benefit numbers to increase not decrease as this section seem to indicate. We have generated numbers for the 19 counties and these numbers are very different from your numbers. For the region, using the 1990 data (old data) we calculated the direct and indirect economic benefit to be 4,582 jobs, $254,560,000.00 generated and 7,636,800 daily visits. On a national basis, we calculated the jobs generated are 11,773, $763,680,000.00 generated and 10,320,000 daily visits. Since the document does not contain any specifics on how the numbers were generated, we will need additional information on your estimate.

Comments on Alternative D

We support the concept of Paddle/Electric motor areas for resource protection reasons and/or to provide a diversity of recreational experiences. However, we would withdraw that support on the Refuge unless the USFWS works closely with the public to delineate the boundaries of these areas. The Department is well aware of the strong public opposition this proposal has received, and believes the concept needs to be publicly supported. Furthermore, USFWS must consider the impact on commercial fishing, evaluate seasonal closures and consider boundary changes as options to the proposal in Alternative D.

2

Wisconsin Department of Natural Resources Comment on Draft EIS/CCP

2478

Wisconsin DNR recognizes the importance of Closed Areas to waterfowl management and supports the "steppingstone" theory of spacing. Proposed boundary or location changes will need to be developed in close cooperation with the public and other agencies, particularly in pools 4, 7 and 10. Of specific concern to Wisconsin residents is the significant increase in Closed Areas within our border waters. We understand that high quality habitat is located within Wisconsin, but Closed Area changes in Alternative D result in an unfair loss of recreational opportunity for our residents, especially in pools 4 and 10. We have an additional concern with the northward expansion of the Goose Island no hunting zone in pool 8. It should not restrict deer hunting since this area funnels deer entering and leaving the overpopulated Goose Island County Park. This important deer hunting (especially bowhunting) area must remain available to help manage the large deer herd and minimize disease concerns.

Closed areas must remain open to fishing during the waterfowl season as we believe closing them to fishing would violate the intent of the Wisconsin legislation allowing establishment of the Refuge. ***Therefore, as an alternative to closing fishing in the Closed Areas of the refuge we would like to work with you to craft a phased approach for providing necessary sanctuary for waterfowl while still allowing fishing and appropriate navigation in the Closed Areas. Alternative approaches may include but are not limited to voluntary closed areas, slow-no-wake, electric trolling motor with travel lanes for motored craft and no motor areas. Any options that involve reallocating production or uses from one refuge purpose to anther (e.g. waterfowl production at the expense of fishing or fish habitat restoration) should be supported by adequate cost-benefit alternatives analysis which includes reasonable estimates of what changes in production or use are expected. If such information is not available, the options should be scientifically evaluated in a suitable pilot study prior to widespread implementation.***

One further comment on the concept of steppingstone habitat: we also believe the approach should be applied to all species within the ecosystem, including the fishery. Many studies have documented the migratory movement of fish and depending on the species guild these steppingstones can be spaced from a few to several thousand miles apart. We must manage for fisheries' needs as well as avian needs, since they are all trust species. We are also seeking your assurance that the FWS will no longer oppose the construction of cost-effective fisheries habitat structures within refuge closed areas. We believe this habitat work is vital to the stepping stone concept.

We believe your final management decision for non-motorized and closed areas must address both commercial fish and biological monitoring concerns. Commercial fishing is a business for some residents in the states along the refuge, and in both of these areas the ability to fish would be eliminated. Late fall is an important time of year to commercially fish due to the market value and schooling of fish in cooling waters. Additionally, biologists from the southern region of the Upper Mississippi River suggest that the best time to catch silver and bighead carp is in the fall. Therefore, it is important for the USFWS to include a provision for commercial fishing to meet the needs of this business sector and provide a mechanism for possible management of invasive species. The second concern is that Wisconsin DNR river managers and researchers need to be able to do our biological monitoring work within any Non-Motorized Areas and Closed Areas. Our department has a continuing need to gather important natural resources data in these areas. Our staff must have the ability to do this with motorized boats. We request that the final CCP explicitly authorize our department, as well as, other state fish and wildlife agencies to enter these special designation areas for this work. We recognize that we have an obligation to minimize any disruption to these special designation areas, but the work must be done.

We strongly urge that furbearer trapping continue on the Refuge for biological and social reasons. Although it is not one of the "big 6"uses, trapping is included in the original statement of purpose for this refuge.

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We support establishment of Hiking Trails, Canoe Trails and Observation Platforms to provide recreational and educational opportunities to a wide variety of users. However, we believe that these activities can occur without precluding hunting. Most of Wisconsin trails allow hunting adjacent to them and users are notified by signs and news releases.

Other specific comments

Open Water Hunting:

Wisconsin DNR supports Objective 4.3, #3, the elimination of Open Water Hunting in the refuge. Pool 11 (river miles 586-591) is the only area on the Refuge in Wisconsin where this type of hunting is allowed.

Specific Regulation Changes:

We feel obligated to inform you that if the USFWS decides to move forward with the 25 shot shell limit, 100-yard spacing, camping rules and managed hunts, the state may not enact complementary state regulations.. These changes would have to go through our rule making process, which would involve considerable public input and Natural Resources Board approval. The USFWS must also realize that slow no wake zones in Wisconsin may only be enforced if local units of government have established them and the zones are properly marked.

Beach Use and Management:

Wisconsin DNR believes that recreational uses on the Mississippi River, such as beach use, camping and boating should continue in their current form and we are eager to start the beach planning process again. Specifically, we believe that empty dredge material sites, known as "bathtubs", should be open to the public. Public use of these areas has little effect on wildlife habitat as the areas are already highly disturbed. Our Conservation Wardens prefer the availability of "bathtub" beach use because it concentrates the "party crowd" away from other users and sensitive natural resource areas. We understand the concern with human waste at bathtub beaches (and all beaches for that matter) and believe that an educational campaign may be the best way to address the issue at this time. We would certainly be willing to work with you to address the human waste issue.

Beach related uses were assessed and assigned a compatibility determination. Within Alternative D, the beaches will remain open-unless-closed, which is a reasonable approach to start the planning process. The step-down plan should include long term partnership teams, like the Recreation Work Group, to assess beach designation and management. As these teams assess the beach designations, they can consider whether such designations as Day-Use only, No-alcohol and Closed beaches are appropriate. This beach planning process should also provide the public with the opportunity to comment during the process and when recommendations are made.

Wisconsin DNR supports two additional points regarding beach management. We support your definition of intoxication and believe it is reasonable since it reflects the laws in the adjoining states. Wisconsin DNR also supports the public in their call for the prohibition of glass containers on the Refuge and Corps of Engineers lands. It is a responsible action to help protect river users and wildlife on the river.

Thank you again for the opportunity to review and comment on the Draft Comprehensive Conservation Plan for the Upper Mississippi River Wildlife and Fish Refuge. It is an ambitious plan. I hope our

4

Wisconsin Department of Natural Resources Comment on Draft EIS/CCP

comments are helpful in crafting your final preferred alternative. We will look forward to reviewing the revised management alternative (E) and EIS amendment when they become available.

Sincerely,

2478

Scott Hassett
Secretary

c Holly Stoerker, UMRBA, 415 Hamm Building, 408 St. Peters St, St. Paul, MN, 55102
Rick Nelson, USFWS, 4469 48th Ave. CT, Rock Island, IL 61201
Tim Schlagenhaft, MNDNR, 2300 Silver Creek Rd, Rochester, MN, 55906
Mike Griffin, IDNR, 206 Rose Street, Bellevue, IA 52031
Dan Sallee, ILDNR, 2317 East Lincolnway, Suite A, Sterling, IL 61081
Scott Humrickhouse, WDNR, 1300 West Clairemont Ave., Eau Claire, WI 54702-4001
Gretchen Benjamin, WDNR, 3550 Mormon Coulee RD, La Crosse, WI 54601
Patrick Henderson, Office of the Governor, State Capitol 115 E, Madison, WI 53702
Todd Ambs, WDNR, GEF II – AD/5
Tim Andryk, WDNR, GEF II – LS/5
Todd Peterson, WDNR, GEF II – WM/6
Laurie Osterndorf, WDNR, GEF II - AD/5
Tom Hauge, WDNR, GEF II – WM/6
Signe Holtz, WDNR, GEF II – ER/6
Senator Dan Kapanke
Senator Ron Brown
Senator Dale Schultz
Representative Michael Huebsch
Representative Barb Gronemus
Representative Jennifer Shilling
Representative Lee Nerison
Representative Gabe Loeffelholz

Iowa Department of Natural Resources Comment on Draft EIS/CCP

Fields of Opportunities

STATE OF IOWA

THOMAS J. VILSACK, GOVERNOR
SALLY J. PEDERSON, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
JEFFREY R. VONK, DIRECTOR

August 22, 2005

Upper Mississippi River NW&FR
CCP Comment
Attn: Don Hultman, Refuge Manager
Room 101
51 East Fourth Street
Winona, MN 55987

3401

Dear Mr. Hultman:

This letter represents the Iowa DNR comments on the Upper Mississippi River National Wildlife and Fish Refuge Draft Environmental Impact Statement and Comprehensive Conservation Plan May 2005.

As you know the management of the Upper Mississippi River is a complex multi-jurisdictional task. The Iowa Department of Natural Resources is proud to be a partner in the management of this important natural resource. We value having the most visited USFWS Refuge along Iowa's border. The economic impact of these visitors and the recreational opportunities that the River provides to Iowans and to the nation are very significant.

The Iowa Department of Natural Resources is an advocate for sportspersons, recreationists, and a clean diverse environment. This plan proposes many changes which many members of the public view as being very restrictive. The Iowa DNR cautions the Refuge to review all regulation changes to ensure that the public that uses the refuge is not overly regulated and the proposed regulations are needed and targeted to provide the expected results for the Refuge.

My staff has read the plan and has several specific comments on some of the proposed actions. For the sake of clarity these comments will address the proposed actions and issues presented in Table 1: Alternative Comparison by Issue/Objective, Upper Mississippi River NW&FR.

If not specifically exempted comments will be on the Alternative D. (Preferred Alternative)

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515-281-5918 TDD 515-242-5967 FAX 515-281-6794 www.iowadnr.com

Iowa Department of Natural Resources Comment on Draft EIS/CCP

Goal 1 Landscape

1.2 Refuge Boundary: Iowa DNR agrees with the CCP and encourages the Refuge and the COE to survey the boundary to keep encroachment down and identify boundaries.

1.2 Acquisition within approved boundary: Iowa DNR agrees and supports the Service in acquisition of critical habitats as well as considering public recreational values.

1.3 Bluffland Protection: Iowa DNR supports bluffland protection as outlined in the CCP. The Iowa DNR along with many other partners has been working on protection of this resource.

1.4 Research Natural Areas and special Designations: Iowa DNR agrees.

Goal 2 Environmental Health

2.1 Water Quality: Iowa DNR agrees. We have embarked on the same course. We welcome another partner in this massive effort. When implemented, please contact your partners including the Iowa DNR to make the best use of the additional resources you will be bringing to the problem. This will also keep duplication of efforts to a minimum.

2.2 Water Level Management: Iowa DNR supports integrated water level management of the Mississippi River Pools. Water level management task forces have been formed in the St Paul and Rock Island districts of the COE. As you are aware any pool level water level management would require a cooperative effort of all river management agencies. We also support the establishment of the Access Trust Fund to facilitate river access during drawdowns.

2.3 Invasive Plants: Iowa DNR supports the Service as an active partner in efforts to reduce and inventory invasive plants from the Refuge. We support an increased emphasis by the Service on educational efforts. Current signage must be maintained.

2.1 Invasive Animals: Iowa DNR welcomes the Service as an active partner in the control invasive animals on the Refuge.

Goal 3 Wildlife and Habitat

3.1 Environmental Pool Plans: Iowa DNR as a partner in preparation of these plans, supports aggressive implementation of these plans. We would also like to see the Refuge seek additional funding through the Department of the Interior for implementation of the plans.

3.2 Guiding Principals for all Habitat Management Programs: Iowa DNR supports the Service proposing funding for more Habitat Management Programs. The guiding principals for every habitat project should be how well the project meets the needs for providing habitat. These projects should be evaluated on a case by case basis to provide the best habitat for sustaining the ecosystem of the Upper Mississippi River.

3.3 Monitor and Investigate Fish and Wildlife Populations and Their Habitats: Iowa DNR supports increased monitoring in partnership with adjacent agencies.

3.4 Threatened and Endangered Species Management: Iowa DNR supports the monitoring and plan preparation for these species.

3.5 Furbearer Trapping: Iowa DNR supports continuing the current trapping and harvest on the Refuge.

3.6 Fishery and Mussel Management: Iowa DNR supports increased involvement by the refuge in fishery and mussel management on the refuge. We encourage the Refuge to take an active role in UMRCC fisheries technical section. The UMRCC fisheries technical section also has a mussel ad hoc committee. Iowa DNR reserves the rights of the state to manage fisheries and mussel resources in Iowa waters.

3.7 Commercial Fishing and Clamming: Iowa DNR supports more involvement by the Refuge in Commercial fishing and clamming on the refuge. Iowa DNR cautions the Service that the management authority for these resources is the Iowa Department of Natural Resources. We see no need for additional permits to commercial fishers. The States and the UMRCC keep commercial fishing statistics and they are reported to the UMRCC. These statistics are available to the Refuge.

3.8 Turtle Management: Iowa DNR agrees this species needs more attention on the refuge however we reserve the right to manage this species. Iowa DNR has commercial harvest data on turtles that is available to the refuge.

3.9 Forest Management: Iowa DNR concurs with the Refuge CCP to increase involvement in forest management.

3.1 Grassland Management: Iowa DNR agrees.

Goal 4 Wildlife-Dependent Recreation.

4.1 General Hunting: Iowa DNR agrees with the CCP except we suggest adding the 6 new no hunting zones as no hunting zones from March 15 to September 1st every year. This accomplishes the goal of reduced user conflicts during the high use period of the summer but does not exclude traditional use during the fall for hunting based recreation. We have this specific comment on the Proposed Crooked Slough No Hunting Zone; the Service needs to open the area just downstream of the emergency spillway to fishing and boating. This area currently and traditionally attracts many anglers.

4.2 Waterfowl Hunting Closed Areas: Iowa DNR supports additional or modified closed areas for a total of 21 refuge wide. We understand that by supporting this section we are supporting limiting access to fishing and boating to these areas. The lack of disturbance to migrating waterfowl and the purpose for which the refuge was created were the factors that brought us to this decision. Iowa DNR also requests that some of the closed area boundaries need to be coordinated with the states to reduce conflicts. Iowa Department of Natural Resources would like to receive detailed maps of all the proposed closed areas to help eliminate most conflicts with this issue. In no case should the closure dates extend beyond the period from October 1 to the close of the duck season. Iowa DNR makes the following comments on specific closed areas:

Pool 10 proposed Guttenberg Ponds Waterfowl Sanctuary, move the West boundary East to exclude Swift Slough from the proposed Closed area.

Pool 12, the new closed area proposed called Kenough Slough should be moved North to the area known as Hires Lake. Menominee slough should be left open for boat traffic.

Pool 13 Pleasant Creek Closed area, remove Caseys Island and make the East boundary the land on the West side of the slough behind Caseys Island.

4.3 Waterfowl Hunting Regulation Changes: Iowa DNR does not believe that the 25 shell limit and 100 yard hunter spacing will be productive and enforceable in handing the problems that these rules were designed to minimize. The 25 shell limit was proposed to reduce "skybusting" or shooting/wounding waterfowl that are out of effective range. This can be a problem but we believe there are more effective ways to handle this problem. Education (4.11) of hunter user groups could help solve this problem. We are concerned with over regulation of constituent groups with the regulation having a minimal chance of affecting the issue that is trying to be solved. Also enforcement of the 100 yard spacing is not practical. Iowa DNR defers to the state of Wisconsin on the New Open water areas within that state.

4.4 Firing Line – Pool 7 Lake Onalaska: Iowa DNR has no standing in this issue.

4.5 Permanent Hunting Blinds on Savanna District: Iowa DNR has a long tradition of support for permanent blinds use on the Mississippi River. We also realize that the issue of proprietary use of public hunting areas and the deposition of litter into the River are real problems with the use of permanent blinds on the UMR NF&WR. We also realize that all other districts within the Refuge have adopted rules prohibiting the use of permanent hunting blinds on the refuge. For the reasons outlined above, to limit proprietary use, and to make Refuge regulations more uniform the Iowa DNR will concur with a phase-out of permanent hunting blinds in the Savanna District.

4.6 Potter's Marsh Managed Hunt- Savanna District: Iowa DNR has no standing on this issue.

4.7 Blanding Landing Managed Hunt Program: Iowa DNR has no standing on this issue.

4.8 General Fishing: Iowa DNR supports the addition of the new fishing piers/docks. Iowa DNR is in favor of promoting bank, shore, and openwater fishing on the Refuge. We believe there are more areas than identified in the plan that need to be added to accommodate shore fishing. Iowa DNR fisheries staff are willing to help identify these areas with Refuge staff.

4.9 Fishing Tournaments: The states already have a permit system in place. We request the Service work with the states to reduce duplication of effort and coordinate with the states for any information the Service needs.

4.10 Wildlife Observation and Photography: Iowa DNR supports in principle the use of existing and new facilities in the plan. We also suggest the 21 canoe trails each have a landing or launch delineated. However, we disagree with the idea that any hiking, biking, or auto tour route or trail be closed year-round to hunting. The reasoning used in the CCP is to avoid user conflicts. Iowa DNR suggests many of these areas can be closed to hunting from March 15 to September 1st to alleviate perceived user conflicts. The public has been using these areas for years while they have been managed for multiple use. Iowa DNR is also concerned with the addition of refuge areas and the potential impact on expanding white-tailed deer populations. CWD is already present in Wisconsin, and the Iowa DNR has initiated an intensive CWD detection plan including

counties adjacent to Wisconsin. The Iowa DNR does not support any areas where deer can not be hunted and/or sampled for this detection effort.

4.11 Interpretation and Environmental Education: Iowa Department of Natural Resources believes strongly in interpretive and educational programs. We support their use by the Refuge to inform and educate the public and user groups. We also believe that some of the conflicts perceived by user groups can be handled by good public education on functions of the refuge. Iowa DNR believes that "skybusting" and hunter spacing (100 yard rule) can be better handled under this objective than under objective 4.3.

4.12 Fish Floats: Iowa DNR believes there are user groups of anglers that use these fish floats. We are concerned that the phasing out of this program will indirectly limit this recreational activity. Every effort should be made to keep this type of recreational activity on the refuge. The Iowa DNR does agree that there has been safety, non-compliance, and regulatory issues that needed to be addressed. The Coast Guard should be consulted regarding license requirements and suggest operator obtain a current pilot and engineer license

4.1 Guiding Services: Iowa DNR agrees with the CCP.

Goal 5 Other Recreational Use.

5.1 Beach Use and Maintenance: Iowa DNR recognizes the historic and growing use of these beaches. We can find no reference in the code of Iowa where the public can be denied entry to a public use facility if their blood alcohol level is .08 or above. Iowa as well as most states have laws requiring the driver of a motor vehicle to have alcohol levels below a certain point but do not limit or define the alcohol limit for what is commonly referred to as public intoxication. We therefore recommend the Service enforce the .08 level on drivers of motor vehicles and expect that persons deemed to be publicly intoxicated be subject the current law.

5.2 Electric Motor Areas: Iowa DNR is aware that a group of users would like areas of the River where they can recreate without the noise and speed that is associated with motorized craft. We also recognize that a substantial portion of sportspersons view not being able to motor into these areas as a detriment to their ability to use the Refuge. Iowa DNR cannot support the proprietary use of one area by one user group over another. We suggest making these areas no wake areas with any size motors operated at no wake speed.

5.3 Slow No-Wake Zones: The Iowa DNR is willing to work with the Service on the proposed no wake zones. The Service is cautioned that the Iowa Department of Natural Resources is the agency with authority in this matter.

5.4 Dog Use Policy: Iowa DNR concurs.

5.5 General Public Use Regulations: Iowa DNR concurs.

Goal 6 Administration and Operation

6.1 Office and Shop Facilities: Iowa DNR concurs.

6.2 Public Access Facilities: Iowa DNR recommends the Service make a canoe landing at each proposed Canoe Trail. Without a landing the public will have a hard time using these areas. We also have this specific comment on Browns Lake in Pool 13 canoe landing; we believe a canoe landing should be put into Browns Lake near the Iowa DNR parking lot known as Blakes Lake in Green

Iowa Department of Natural Resources Comment on Draft EIS/CCP

Island Wildlife Area. This landing should be cut through the trees to Browns Lake to be used by canoeist during the open water season and by ice fishing anglers during the winter. That these landings can be used for ATV access to the River during ice over conditions.

6.3 Operations and Maintenance Needs: Iowa DNR agrees with the CCP.

6.4 Public Information and Awareness: Iowa DNR is in favor of this.

6.5 Staffing Needs: The Service should set its own staffing needs to meet the plan.

Thank you for the opportunity to comment on the Plan. We respectively request that preferred alternative D be amended to include our comments.

Sincerely

Jeffrey Vonk, Director
Iowa Department of Natural Resources

Illinois Department of Natural Resources Comment on Draft EIS/CCP

Illinois Department of
Natural Resources
One Natural Resources Way • Springfield, Illinois 62702-1271
217.785.0075 • http://dnr.state.il.us

Rod R. Blagojevich, Governor
Joel Brunsvold, Director

August 26, 2005

2457

Mr. Don Hultman
Refuge Manager
Upper Mississippi River National Wildlife and Fish Refuge
51 E. Fourth Street - Room 101
Winona, Minnesota 55987

Dear Mr. Hultman,

I would like to thank you and your staff for your recent visit and summary presentation of the Comprehensive Conservation Plan (CCP) for the Upper Mississippi River National Wildlife and Fish Refuge (UMRNWFR). The Illinois Department of Natural Resources (IDNR) appreciates and supports the efforts of the Fish and Wildlife Service to address the long term management of the Nation's Wildlife and Fish refuges. At your request, I would like to address a couple of the issues which we discussed during our meeting.

As I stated in my April 6, 2004 letter commenting on your draft plan, the IDNR takes great pride in a long history and tradition of waterfowl hunter management on dozens of State managed areas throughout the Upper Mississippi and Illinois River systems. We appreciate the desire of the Fish and Wildlife Service (FWS) to standardize waterfowl hunter management on the UMRNWFR and eliminate the use of permanent blinds in the Savanna District, as it did on the rest of the Refuge since the 2000 season. It remains the recommendation of the IDNR that you reconsider this decision and continue to allow waterfowl hunters the continued use of permanent blinds in the Savanna District. In addition, we appreciate and would like to recognize that you are reconsidering your elimination of a spacing distance between blind sites and will continue to utilize the 200 yard blind spacing requirement standard on IDNR managed waterfowl sites.

I would also like to address the issue of Fishing Tournaments on the Refuge. Our understanding from the meeting discussion is that as with any commercial event held on the Refuge, a Special Use Permit is required and it is the intent of the FWS to begin enforcing this requirement. We appreciate your commitment to consult with the appropriate IDNR officials during the permitting process and are confident this program can be conducted smoothly.

Thank-you again for taking the time to visit my office and discuss the UMRNWFR CCP and to provide explanation and the opportunity to comment on those parts of the CCP for which we have concern, as described above. We ask that you reconsider our request for reinstatement of permanent blinds and look forward to reviewing your new "preferred alternative", Alternative E, when it is issued. Please do not hesitate to contact me or my representative on your CCP Interagency Planning Team, Tom Beissel, Regional Wildlife Biologist in our Sterling office.

Sincerely,

Joel Brunsvold

Joel Brunsvold
Director

JB:TB

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U.S. Army Corps of Engineers Comment on Draft EIS/CCP

DEPARTMENT OF THE ARMY
MISSISSIPPI VALLEY DIVISION, CORPS OF ENGINEERS
P.O. BOX 80
VICKSBURG MS 39181-0080

REPLY TO ATTENTION OF

September 6, 2005

Executive Office

2497

Mr. Don Hultman
Upper Mississippi River
National Wildlife and Fish Refuge
ATTN: CCP Comment
Room 101
51 East Fourth Street
Winona, Minnesota 55987

Dear Mr. Hultman:

I refer to your recent letter requesting review and comment on the U.S. Fish and Wildlife Service's Draft Environmental Impact Statement and Comprehensive Conservation Plan for the Upper Mississippi River National Wildlife and Fish Refuge.

My staff, along with the staff of the St. Paul, Rock Island, and St. Louis Districts, has reviewed the draft document. Our consolidated comments are attached (enclosure 1). If you have any questions regarding these comments, please contact Mrs. Susan Smith of my staff at telephone number (601) 634-5827.

We appreciate the opportunity to participate with the U.S. Fish and Wildlife Service in this process. We look forward to a continued positive relationship as our agencies collaboratively work to improve the ecosystem of the Upper Mississippi River National Wildlife and Fish Refuge.

Sincerely,

Mark L. Marzante
Deputy Director, Programs
Directorate
Engineer in Charge

Enclosure

U.S. Army Corps of Engineers Comment on Draft EIS/CCP

Comments from the
Mississippi Valley Division,
St. Paul District, Rock Island District, and St. Louis District
on the
U.S. Fish and Wildlife Service
Comprehensive Conservation Plan and
Environmental Impact Statement for the
Upper Mississippi River National Wildlife and Fish Refuge,
May 2005

General Comments:

1. The Comprehensive Conservation Plan/Environmental Impact Statement (CCP/EIS) presents a conceptual plan for sound stewardship and adaptive management.

2. This plan also underscores the importance of a continuing partnership between the U.S. Fish and Wildlife Service (USFWS), the Corps of Engineers (COE), and the adjoining states in the exercise of our mandates and responsibilities. Mutual participation and resolution of issues is necessary in the interest of the Upper Mississippi River's resources and values to the nation.

3. Given the four alternatives presented in the CCP/EIS, Alternative D is the best alternative. It provides a reasonable and balanced approach between protecting critical natural resource and refuge values and recreational use by the public.

4. The cooperative agreement is the only document that officially addresses the management relationship between the COE and the USFWS. Within the agreement, it is clear that COE did not grant unilateral authority to the USFWS for management of COE owned lands and the public use that occurs on them. Management jurisdiction was given to the USFWS with reservations. Provided USFWS obtains COE concurrence, the cooperative agreement does not prevent USFWS from implementing any plan or program for the Upper Mississippi River National Wildlife and Fish Refuge System, including restrictions over areas currently under COE authority pursuant to the agreement. We believe concurrence can be obtained on most of the proposals outlined in the preferred alternative D.

2497

5. The recommended alternative in the CCP/EIS includes expansion of closed areas, elimination of permanent duck blinds, management of beach areas, and the establishment of no-wake areas. All are topics that will affect recreational use on lands held in fee title by the COE and incorporated into the cooperative agreement. We believe that public use must be addressed in a cooperative manner with the USFWS, the COE, the state resources agencies, etc. Final decisions on cooperative agreement lands, rather than being made unilaterally by the USFWS, will be made in coordination with the COE in the many forums that exist for such discussion and decision making. Once decisions regarding public use are made cooperatively, then we will support the USFWS in the implementation of the resulting plan.

6. Some of the refuge goals which require the participation and cooperation of the COE, such as boundary marking, pool planning, and drawdowns, are very optimistic given current levels of funding and manpower.

7. All alternatives identified in the CCP/EIS require substantial contributions from other Federal agencies and private groups to achieve each alternative's goals. In addition, Alternatives B, C, and D also require a significant increase in USFWS annual funding for the refuge (i.e., increased rate of land acquisition, new offices and/or maintenance facilities, increased personnel from 37 full-time equivalent (FTE) employees to 54.5 FTE for Alternatives B and C and 56.5 FTE for Alternative D, etc.). Given the current constraints on discretionary spending in the Federal budget, it is not apparent that the USFWS can successfully achieve each alternative's goal if it does not have the personnel needed to coordinate with other agencies, the personnel needed to enforce changed public use regulations, the funds for increased land acquisition, etc. Based on these fiscal concerns, we suggest a prioritized implementation strategy be included which recognizes the potential for funding and manpower constraints.

8. Although the USFWS states that it is committed to the protection of cultural resources, cultural resources management concerns should be articulated much earlier in the document. Consider including the protection of cultural resources as a separate issue within the Landscape category of the Refuge's goals.

9. Throughout the document, the need for bluff land protection and acquisition is cited. Yet an examination of the legislation that established the refuge indicates that lands "which are subject to overflow by such river" should be acquired. Therefore, it is unclear under which authority the USFWS will acquire the bluff land.

10. We request that USFWS use "Placement Site" rather than "Disposal Site" when referring to dredged material placements sites. Also, we noticed that some of the placement sites are identified and some are not. COE maps from the Channel Maintenance Management Plan could be referenced for locations of all sites. (The Rock Island District COE does not have completed Channel Maintenance Management Plans at this time.)

11. The terms "disposal" and "spoil" are used throughout the CCP. Use of the terms "placement site" and "material" is requested to be consistent with current documents and long-time Corps program terminology.

12. Revisions to the CCP/EIS resulting from Corps of Engineers (COE) comments should be reflected in the Summary of the Draft EIS, the CCP/EIS, and the separate Executive Summary document.

Specific Comments:

Page	Paragraph	Comment
10	Section 1.4.3	This section does an excellent job of summarizing the relationship of the COE and USFWS coordination efforts on the river. In general, the CCP makes many references to controlling public use on land within the refuge and on the water for such things as motorless areas, slow/no wake zones, and waterfowl sanctuaries. Many of the historic public uses on both land and water would be impacted by this plan. As a result, we recommend that Section 1.4.3 be expanded to include a summary of a partnership process that would be used to finalize these new policies. This section already acknowledges the congressionally authorized multi-purpose uses of the Upper Mississippi River, but needs to be strengthened concerning the resultant need for intensive interagency coordination in river wide management decisions.
11	Section 1.4.3, paragraph 4, 1st sentence	The referenced sentence reads, "In summary the cooperative agreement grants to the Service, the rights to manage fish and wildlife and their habitat on those lands acquired by the Corps." We believe, "In summary the cooperative agreement, with some reservations, grants to the Service, the rights to manage fish and wildlife and their habitat on those lands acquired by the Corps" is more accurate and therefore should replace the referenced sentence.
11	Section 1.4.3, paragraph 4, 2nd sentence	The sentence, "These lands are considered part of the Refuge and the National Refuge System" should be changed to read, "These lands are managed by the Service as a part of the Refuge and the National Wildlife Refuge System." This revised sentence reflects a more accurate

		statement of the USFWS' role for these lands.
11	Section 1.4.3, paragraph 5, 2nd to last sentence	The COE is not aware of any cases that prohibited placement of dredged material on lands within Wisconsin or Minnesota. However in accordance with the Clean Water Act of 1977, the COE routinely applies for permits from the states for discharge of material.
12	LUAP paragraph	Based on the statement "Both Land Use Allocation Plans remain important references…" we assume that the LUAP's are not superseded by the CCP and remain in effect, with acknowledgement that they need to be updated as stated in Appendix L, Goal 1.
15-16	Section 1.4.3.3	Interagency Reports and Assessments: Add the Navigation Study: *FINAL Integrated Feasibility Report and Programmatic Environmental Impact Statement for the UMR-IWW System Navigation Feasibility Study*, 24 September 2004, US Army Corps of Engineers, Mississippi Valley Division, Vicksburg, MS, 652 pages. Also this reference should be added to the list in Chapter 8.
15-16	Section 1.4.3.3	Interagency Reports and Assessments: Add the Biological Opinion for the Navigation Study: *FINAL BIOLOGICAL OPINION for the Upper Mississippi River-Illinois Waterway System Navigation Feasibility Study*, August 2004, U.S. Fish and Wildlife Service, Rock Island Field Office, Rock Island, IL, Marion Suboffice, Marion, IL, and Twin Cities Field Office, Bloomington, MN, 141 pages. Also this reference should be added to the list in Chapter 8.
17	Section 1.4.4.2	Refuge Goals: Add a goal that would support "Navigation - Under the Cooperative Agreement with the U.S. Army Corps of Engineers, those areas of the cooperatively managed lands to

		allow for operation and maintenance of the 9-foot navigation channel, including but not limited to placement of dredged material and regulating structures.*
18 and 133	Section 1.4.5.1 and Table 1, Objective 1.1	Refuge Boundary: The refuge boundary is an elusive concept unless it is designated on maps and/or posted on the land/water. Surveying and posting the entire Refuge boundary (both COE and FWS fee title) is very ambitious and will be costly. A more attainable goal might be to survey and post 100% of areas where potential for encroachment exists. Funding could be a joint effort. The 1983 (Pools 1-10) and 1986 (Pools 11-14) LUAPs clearly note the refuge boundary, including both water and land. Appendix P mapping does not show a refuge boundary. Since the LUAP is still considered in effect, then perhaps refuge boundary mapping is not necessary in the CCP.
19-23	Sections 1.4.5.1, 1.4.5.2; or 1.4.5.3	Under Landscape, Environmental Health, or Wildlife and Habitat Issues, add a heading and paragraph supporting opportunities to use dredged material to add topographic diversity to restore elevations and soil moisture or drainage conditions supporting floodplain island and/or upland floodplain forest habitats.
20	Section 1.4.5.3	Under Threatened and Endangered Species, identify the other federally listed species which occur in the adjoining areas, although they may not have been confirmed to occur on the refuge (e.g., Indiana bats). Identify those species which have been confirmed to occur in the surrounding counties.
23	Section 1.4.5.4	Management of Waterfowl Sanctuary Areas (Closed Areas): The COE supports allowing the USFWS to manage closed areas and backwater surface

		area within the boundaries of the refuge to insure the integrity of refuge values and purpose, as long as "Navigation Servitude" for main channel utilization is protected for commercial and recreational boat traffic. An ever increasing number of recreational watercraft and watercraft users will ultimately determine the USFWS' success in controlling recreational watercraft access to backwater areas. A reasonable approach is encouraged to assure success.
25	Section 1.4.5.4	Permanent Blinds on Savanna District: The COE concurs that permanent blinds need to be phased out. The phase-in "plan of action" for the Potter's Marsh hunt seems a logical progression of policy to provide more equitable hunting opportunities, as well as to eliminate a source of debris that finds its way onto public lands as a result of current permanent blind policies.
26 and 140	Section 1.4.5.4 and Table 1, Objective 4.9	Fishing tournaments: The COE requires that fishing tournaments have special events permits only when a COE administered recreational facility or boat ramp is impacted. Specifics can be found at http://www.missriver.org under the Special Events Policy section. The COE has no authority to issue permits for fishing tournaments originating from facilities not directly managed by the COE. We view this as an issue to be controlled by other political entities involved in fisheries management and enforcement such as the USFWS or the appropriate state authority. We do believe, however, that the COE and USFWS should cooperate on a coordinated response to fishing tournaments, as well as special

		events such as beach parties. Joint news releases with background and contact information could be made. Events based out of Corps/leased landings and/or on non-refuge project areas should use the same procedures as USFWS and state Departments of Natural Resources to reduce multiple permitting requirements. This is another item that should be coordinated through the partnership agencies.
27-28 and 142	Section 1.4.5.5 and Table 1, Objective 5.1	Beach Use Policy: This is an aggressive and perhaps overly ambitious plan and one that is unenforceable without significant enforcement presence. See http://www.missriver.org , the Special Events Policy section, for the COE's effort to control large group events on dredge material placement sites. That policy was developed as a result of interagency coordination meetings that took place in 1987 and 1988. On COE fee title lands, closing a beach and/or implementing new regulations would require approval of the appropriate COE District Engineer and/or Division Engineer. The cooperative agreement does not out-grant this authority to USFWS. Also, the LUAP is dated concerning recreation low density designated beaches. (See comment above on page 12, LUAP paragraph.) The COE believes that problems associated with beaches should be resolved through an interagency partnership effort that involves all stakeholders and customers.
27-28 and 142	Section 1.4.5.5 and Table 1,	Beach Maintenance Policy: The COE believes that recreational use of beaches should be a secondary consideration to the development and

	Objective 5.1	maintenance of sites for dredge material placement. Recreational use is a secondary outcome with dredge material placement remaining the primary goal. The COE retains the right pursuant to the Navigational Servitude and with appropriate permits to place dredged material on any federal fee title land or private land where placement is above the Ordinary High Water Mark. COE regulations require that recreational beaches "shall be maintained in a physically safe and efficient manner, including maintaining appropriate gradient, beach nourishment, adequate buoys, proper signing and water monitoring". In a riverine environment such as the Mississippi River, where the majority of dredge material placement sites are in remote areas, maintaining sites in a manner required by regulation is not reasonable from either a cost or liability stance. The closer dredge material placement comes to being described as "recreational beach development," the greater is the responsibility and liability for the safety of the public using these sites. The placement sites should not be referred to as recreational beaches as that implies a standard of care that is absent on the river due to river conditions, manpower, and funding. Instituting a fee for beach use may have unintended consequences. Under the recreational use statutes that all states in the refuge have, landowners, including the Federal government, are not liable for injuries resulting from simple negligence on recreational land made

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		available free of charge. Liability only exists for willful or malicious behavior. If a fee is charged, this immunity may disappear. (Recreational use statutes are state law and will vary with the jurisdictions involved.)
27-29	Section 1.4.5.5	Boat ramps, pull-offs, and other access development: The USFWS has what appears to be an aggressive and logical plan for site development and expansion of access opportunities. Opportunities for the USFWS to assume responsibility for a number of recreational access sites currently managed by the COE within the Upper Mississippi River National Wildlife and Fish Refuge may arise. Reduction in future commitment to primitive recreational facilities as a result of foreseen funding issues, as well as a realignment of COE priorities, may require divestiture of COE administered select sites. The USFWS may have an interest in managing and developing these sites as important refuge access points.
28 and 142	Section 1.4.5.5 and Table 1, Objective 5.3	Backwater Areas: The St. Paul District has one Limited Development Area (Pool 8) and the Rock Island has no Limited Development Areas that will be adversely affected by the establishment of the proposed non-motorized backwater areas. However, a travel corridor should be provided as has been done in the other pools. The COE would prefer that the USFWS work in partnership with the COE and the state and local governments in establishing No Wake Zones. After these are collaboratively established, the USFWS and state resource agencies with enforcement roles should manage these non-motorized backwater areas within the boundaries of the refuge to ensure integrity of refuge values and

		purpose.
29	Section 1.4.5.6	Under Administration and Operations Issues, recognize that portions of the refuge are used for commercial navigation in the main channel and recreational navigation in the main channel, side channels, and backwaters. Annual tonnages, and numbers of tows/barges, and the commodities moved are available, as are the number of towing companies, navigation industries, and grain, coal, and other commodity terminals which depend upon continuation of navigation through and over refuge lands/waters.
37 and 134	Objective 2.2 and Table 1, Objective 2.2	Water level management: The COE's primary purpose of navigation must be maintained. Because of this, we have experienced a 2-3 year planning process for water level management (WLM) projects. Drawdowns have a dramatic impact on the channel maintenance program, including the availability of funds and the availability of equipment and storage space in designated placement sites. The USFWS should continue to work with the COE on the COE Channel Maintenance Program to identify long-term plans that facilitate dredging and dredged material placement associated with the pool scale drawdowns. Drawdowns may not be operationally feasible in every pool. Some pools may need additional dredging to implement the drawdown and even with additional dredging may not yield the desired environmental benefits. Interagency work groups have not yet proven that drawdowns are environmentally beneficial and worthwhile in every pool. We need to investigate the opportunities for drawdowns, however, drawdowns should

U.S. Army Corps of Engineers Comment on Draft EIS/CCP

		be implemented as needed ecologically rather than by establishing a standard timeframe.
39, 59, 84, and 109	Goal 3, Objective 3.1, second bullet	While we appreciate the collaborative working relationship between the COE and the USFWS during the planning, design, and implementation of the Environmental Management Program (EMP), this bullet seems to imply that the USFWS will lobby Congress for additional funding for the EMP. Suggest this wording be revised to eliminate this implication.
133	Table 1, Objective 1.4	Research Natural Areas and Special Designations: Concur with CCP strategy to coordinate management plans for Research Natural Areas (RNA) with states and other Federal agencies (including Corps) by 2010 and Ramsar designation by 2008. The Corps looks forward to this coordination, especially for those Corps fee-owned lands within the RNAs and the proposed Ramsar area. Natural areas need to be re-identified. For example, Goose Island area is designated as a natural area in the LUAP, but is programmed to be converted to forest.
133-147	Tables 1 & 2	Alternatives, especially any new Alternative E, need to recognize, support, and facilitate navigation as a national Federal priority on the Upper Mississippi River System. The CCP should include corresponding general and specific Upper Mississippi River Wildlife and Fish Refuge goals and objectives to support the COE and other navigation interests as landowners and neighbors to refuge land.
134	Table 1, Objective 2.3	Invasive Plants: Another suggested strategy would be to continue coordination with the COE regarding efforts to control invasive forest plants on COE fee lands through the COE operations and maintenance

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		program and other potential authorities.
135	Table 1, Objective 3.1	Environmental Pool Plans: We recommend the table of 'Refuge Priority Locations and Actions that Contribute to Implementation of Environmental Pool Plans, 2005-2020' also include goals to complete forest inventory on USFWS fee lands in pools 5, 9 and 10. Also recommend that CCP narrative include a thorough explanation of the partnering aspects of pool plan implementation (i.e., funding source for various implementation tools may actually be the responsibility of a separate agency and subject to budget priority limitations beyond the control of the USFWS). We would also recommend that a strategy be added for the USFWS to seek opportunities to work with the COE Channel Maintenance Program to facilitate implementation of the Environmental Pool Plans.
135	Table 1, Objective 3.2	Guiding Principles for all habitat management programs: While guiding principles may provide consistency among the four USFWS Districts, they will need to be used in conjunction with principles from other agencies when working joint projects. Some flexibility may be needed depending on the project. Although the guidelines are excellent goals, principle #1 is written in a way that seems to limit any possibility for some traditional habitat management options, such as moist soil management and use of water control structures. We suggest clarifying this item.
137	Table 1, Objective 3.9	Forest Management: We commend the Service on their proposal to hire a refuge forester. However, this level of staffing is low in relation to the amount of forested resource on USFWS fee lands. By comparison, the COE

		allocates approximately 4.5 FTE toward forest management on their fee lands within the Upper Mississippi River Wildlife and Fish Refuge. We suggest that additional staff support be considered to more effectively address forest management needs.
138	Table 1, Objective 4.2	Waterfowl hunting, closed areas and sanctuaries: Restricting watercraft from entry into any part of the Mississippi River System would require the concurrence of the appropriate Corps District Engineer and/or Division Engineer and quite possibly the state governments. Proposals such as this should be implemented through a partnership program involving the Corps and state Departments of Natural Resources similar to what has been done with WLM projects. The proposed 32 acre closed area expansion in pool 8 south of Wildcat Park may impact COE shoreline use permit holders. Shoreline access should be considered in all proposed closed areas. Consideration should be given to allowing boats but limiting horse power.
140	Table 1, Objective 4.10	Wildlife Observation and Photography: The CCP includes good strategies for this objective. We encourage seeking partnering opportunities to include COE developed and/or out-granted areas.
141	Table 1, Objective 4.12	Fish Floats: Fish floats have been in existence for many years and are heavily used by the public. Non-compliance issues should be addressed, however, the effort should concentrate on bringing the floats into compliance in lieu of phasing out operations. If a fish float does not, or will not comply, it should be removed and the space offered to another concessionaire that will comply. The floats provide a unique

		fishing opportunity for those without watercraft to access good fishing areas.
144	Table 1, Objective 6.2	Public Access Facilities: Additional access facilities in areas of need are good, especially walk-in access since there are very few of them.
241	Section 3.4.3	Commercial Use of Refuge: Commercial navigation is barely noted as "passes through the Refuge." This statement supports the co-existence of two Congressionally recognized systems - navigation and ecosystems. Recommend that a statement be added to acknowledge that commercial navigation activities such as barge mooring and fleeting occur along the main channel border, and that some of this activity is within the refuge boundary.
Pg 245-247;249; 293	Sections 3.5; 4.2.2; and 6.2	As an important part of the Nation's heritage, the need to preserve the known cultural sites and to identify sites on Federal lands is mandated by Federal preservation laws. The Refuge contains hundreds, if not thousands, of cultural resource sites reflecting approximately 12,000 years of continual human occupation along the Upper Mississippi River. These signatures of the human legacy along the Upper Mississippi Refuge are an integral quality of the Refuge's landscape and their protection should receive equal footing with the USFWS' mandate to protect fish, wildlife and plant resources. Specifically, a variety of the proposed actions (e.g., construction of hiking trails, access areas, observation platforms, new facilities, etc.) detailed in each alternative have the potential to impact a diverse array of cultural resources, such as precontact artifact scatters, burial mounds and villages, historic trading posts, shipwrecks, and standing structures.

		Since the preferred plan and the alternative plans discussed in the report have the potential to impact cultural resources, the EIS and the implementation of the preferred plan would have benefited from USFWS action to execute a Programmatic Memorandum of Agreement, as promulgated by the National Historic Preservation Act, as amended. This would have identified the participating, affected, and executing parties which have an interest in historic properties on the Upper Mississippi River, afforded protection to undocumented historic properties, and facilitated the implementation of the preferred plan as an authorized program.
245	Section 3.5, 1st paragraph	Correction: Paleo age materials (e.g., Quad/Chesrow points) are present within the Refuge (Pool 10). See Kolb and Boszhardt 2004. *A Geomorphological Investigation and Overview of Navigation Pool 10, Upper Mississippi River*. Reports of Investigations No. 456. Mississippi Valley Archaeology Center, La Crosse. Report submitted to the U.S. Army Corps of Engineers, St. Paul District.
245	Section 3.5	The importance of the Upper Mississippi River and its role in the development of Amercianist archaeology should be mentioned. Some of the pioneering antiquarians mapped hundreds of mound sites and prominent archaeologists worked at several sites along the Upper Mississippi River, such as at Stoddard and Effigy Mounds National Monument. This helped to establish some of the baseline cultural chronologies of the Upper Midwest. Ongoing research along the Upper Mississippi River and within the

		Refuge continues to shape the discipline (e.g., the efforts to understand geomorphic processes and investigate deeply buried sites). Some quantification of cultural resources within the Refuge should be included, such as the number of known sites, site types and functions, eligible sites, historic districts, etc. Some of the cultural resource management challenges should be mentioned, such as erosion, deeply buried sites, artifact looting, etc. It should also be noted that many proposed actions may mutually benefit both cultural resources and environmental rehabilitation and wildlife habitat.
255	4.3.3	Alternative A: The last sentence in this section should be revised to read "….maintaining navigation capability through channel dredging, river impoundment, and training structures." Training structures include wing dams, closing dams, etc.
293	Section 6.2	Add COE (St. Paul, Rock Island, and St. Louis Districts) to distribution list.
296	Section 6.3	Add Wisconsin Historical Society to list of State agencies.
311	Appendix A	Consider adding Cultural Resources to the Glossary.
589	Appendix L, Section 8	Partnerships: While the Action sections discuss cooperative projects with the Corps, the Partnership section could be strengthened with a discussion of the need to aggressively pursue improvements to coordination and communication efforts. All parties working in the refuge need to know what is happening around them, learn from each other, and work better together (e.g., EMP,

		Navigation and Environmental Sustainability Program, etc.) to avoid duplication of effort and maximize implementation of projects/actions. The River Resources Forum and River Resources Coordinating Team and sub-committees are good examples of what is "ongoing" coordination. This coordination/work should be spelled out specifically because many people do not realize all the ongoing efforts that exist.
Appendix P		All alternatives: Mapping which shows the Sunfish Lake and Mud Lake EMP projects in lower Pool 11 as proposed should be corrected. Sunfish Lake had been constructed. Mud Lake is under construction at this time.

U.S. Environmental Protection Agency Comment on Draft EIS/CCP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

2479

AUG 30 2005

REPLY TO THE ATTENTION OF:

B-19J

Mr. Don Hultman
Refuge Manager
United States Department of the Interior
Fish and Wildlife Service
Upper Mississippi River National Wildlife and Fish Refuge
51 E. Fourth Street
Room 101
Winona, Minnesota 55987

RE: Comments for Draft Environmental Impact Statement for Upper Mississippi River National Wildlife & Fish Refuge EIS NO. 20050187

Dear Mr. Hultman:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the U. S. Environmental Protection Agency (U.S. EPA), Region 5 has reviewed the Draft Environmental Impact Statement (EIS) and Comprehensive Conservation Plan (CCP) for the Upper Mississippi River National Wildlife and Fish Refuge (Refuge). The Refuge was established by an Act of Congress in 1924 to provide a safe haven and breeding place for migratory birds, fish, and other wildlife. The Refuge consists of 240,000 acres of Mississippi River floodplain along 261 river miles from Wabasha, Minnesota to Rock Island, Illinois. The CCP will help ensure that this Refuge will contribute to fulfilling the overall mission of the Refuge system. This Draft EIS considered four alternatives that would guide the management and administration of the Refuge for the next 15 years. These alternatives consist of: 1.) No Action, 2.) Wildlife Focus, 3.) Public Use Focus, and 4.) Wildlife and Integrated Public Use Focus. Your agency has designated the alternative "Wildlife and Integrated Public Use Focus " as the Preferred Alternative.

Based on our review, we have rated the Draft EIS as "LO". The "LO" indicates that we have a lack of objection and did not identify the need for additional information or environmental issues to be considered. However, we recommend that the Final EIS provide a narrative that explains how your agency will integrate the CCP for the Refuge with the Upper Mississippi River Navigation Ecosystem Sustainability Program, lead by the United States Army Corps of Engineers.

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U.S. Environmental Protection Agency Comment on Draft EIS/CCP

2479

Thank you for the opportunity to review and comment on the Draft EIS and Comprehensive Conservation Plan for the Upper Mississippi River National Wildlife and Fish Refuge. If you have any questions or comments, please contact Al Fenedick of my staff. Al can be reached at 312 886-6872 or by E-mail at Fenedick.al@epa.gov.

Sincerely,

Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Science Ecosystems and Communities

Minnesota Department of Natural Resources Comment on Supplement to the Draft EIS/CCP

Minnesota Department of Natural Resources
500 Lafayette Road • St. Paul, MN • 55155-4037

January 20, 2006

Mr. Don Hultman
Upper Mississippi River NW&FR
Attn: CCP Comment
Room 101
51 East Fourth St
Winona, Minnesota 55987

Dear Mr. Hultman:

The Minnesota Department of Natural Resources would like to reiterate our support for the US Fish and Wildlife Service in developing a comprehensive and diverse plan for management of the Upper Mississippi River National Wildlife and Fish Refuge over the next 15 years. We believe Alternative E, similar to Alternative D, continues to focus on the six fundamental uses of the Refuge and should drive management and use of the system. We believe the issues generated during your initial scoping meetings, and subsequent public input, identified the variety of uses and experiences sought by the public and are reflected in Alternative E.

We continue to strongly support your desire to improve habitat and water quality and your recommendations which included increased rate of land acquisition, bluffland protection, decreased sedimentation, Pool-scale drawdowns, control of invasive plants and animals, increased inventory and monitoring, and threatened and endangered species recovery. Many of our suggested changes (from our August 31, 2005 letter on Alternative D) have been incorporated into the new Alternative E. These actions should be the highest priority of the final plan, and we will continue our strong partnership with the USFWS and other agencies, NGOs, and the public to complete these activities.

We understand the complexity and variety of issues and concerns you are addressing regarding public use. Alternative E, while including fewer limited entry areas than we had recommended in Alternative D, does provide opportunities for a variety of users, including some non-motorized and slow-no wake areas, and provides much needed areas of minimal disturbance.

Providing refuge areas for migrating waterfowl is an important component of our recently released statewide waterfowl management plan. We support the Closed Areas identified in Alternative E and encourage you to monitor those areas for disturbances during the waterfowl season, and if necessary implement further restrictions to minimize disturbances.

We remain concerned about enforcement impacts and the level of USFWS staffing that will be available to enforce the new restrictions. The step-down enforcement plan recommended in Alternative E should address the issues identified in our August 31, 2005 letter and should be developed in conjunction with Minnesota DNR staff before a final Comprehensive Plan is implemented. Specifically, we request information on a schedule, issues to be addressed, and how Minnesota DNR staff will be involved in developing this plan.

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Minnesota Department of Natural Resources Comment on Supplement to the Draft EIS/CCP

January 20, 2006
Page 2

In summary, we appreciate the opportunity to comment on Alternative E and the efforts you have taken to include other partners and the public in the planning process. We strongly support Alternative E, assuming a step-down enforcement plan is developed in conjunction with Minnesota DNR enforcement staff. Please contact me or Tim Schlagenhaft (507-280-5058) of my staff if you have any questions regarding our comments and recommendations.

Sincerely,

Gene Merriam
Commissioner

Attachment

c: John Halverson, Office of Senator Norm Coleman

Wisconsin Department of Natural Resources Comment on Supplement to the Draft EIS/CCP

2987

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Scott Hassett, Secretary

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Madison, Wisconsin 53707-7921
Telephone 608-266-2621
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March 6, 2006

Mr. Don Hultman
Upper Mississippi River NW&FR
51 E. Fourth St. Room 101
Winona, MN 55987

Subject: Alternative E of the Comprehensive Conservation Plan for the Upper Mississippi River National Wildlife and Fish Refuge

Dear Mr. Hultman:

Thank you for the opportunity to comment on Alternative E, the new preferred alternative presented in the Comprehensive Conservation Plan (CCP) for the Upper Mississippi River Wildlife and Fish Refuge. My staff have closely followed development of the plan and attended most of the 30 plus meetings you and your staff conducted on the river. Your agency's efforts to encourage public participation during plan development are commendable. We support Alternative E with the understanding that discussion of issues of concern to the Department, as identified below, will continue until resolution.

HABITAT RESTORATION PROJECTS

We still believe strongly that all habitat restoration projects must include the needs of the whole ecosystem and must include all cost effective measures. Alternative E asserts that components of the habitat restoration projects will be decided on a case by case basis. We had hoped to get more assurance from you on how we would proceed with all cost effective measures. We would like to sit down and establish criteria for making these important decisions, establish reasonable uniformity throughout the districts, and document how these decisions are made. We hope to have 50-years worth of habitat restoration projects on the river, so now is a good time to set the standard for us and those that follow.

ACCESS FOR ENVIRONMENTAL MONTORING AND ENFORCEMENT

I would like to reiterate that staff from WDNR and other agencies must have open access in order to conduct environmental monitoring, enforcement, and other work activities, using whatever means necessary and in any of the special designation areas. We will use prudence when working in these areas but the data collected and the knowledge gained is imperative for making good decisions for the long term sustainability of the resource.

DESIGNATION CHANGES IN THE STATE OF WISCONSIN

The closed area changes and modifications to closed area boundaries are substantially different than those promulgated by WDNR regulations in s. NR 11.032, Wis. Adm. Code. Consequently, WDNR will need to pursue changes to these state regulations through the administrative rule process, which includes public hearings, adoption by the State Natural Resources Board, and subsequent review by the State Legislature. The rules on these closed area boundaries approved by the State Legislature may end up being different

that those proposed in Alternative E. Consequently, WDNR requests that the Service continue to work with WDNR during this process so the Federal regulations on closed area boundaries end up being the same as the state regulations.

In addition, the WDNR does not have the authority to enact or enforce rules on the Mississippi River that regulate the means of navigation, such as no wake, electric motors only, or no airboat regulations. In Wisconsin, that authority is held by local municipalities and implemented by the town, village or city board passing local ordinances that are effective in that local jurisdiction, according to s. 30.77, Wis. Stats.*

ALTERNATIVE E COMPARED TO ALTERNATIVE D

It is apparent from Alternative E that you have seriously considered a large number of the concerns expressed by the public and by public agencies over Alternative D. Your expressed desire to work cooperatively with citizens and public agencies to develop and implement the plan provisions is admirable.

In Alternative D, Wisconsin DNR clearly stated that closed areas must remain open to fishing during the waterfowl season as we believe closing them to fishing would violate the intent of the Wisconsin legislation allowing establishment of the Refuge. In response, Alternative E removed the no fishing restriction in the closed areas and changed the waterfowl closed areas from no entry areas to voluntary avoidance and Slow-No-Wake from October 15 to the end of duck season or to no motor use on areas less than 1000 acres after Oct. 15. This change allows for both navigation and fishing within the closed areas and the entire refuge.

Most of the public and WDNR requested that proposed plan restrictions on navigation be greatly reduced. In response you decreased the number of electric motor/paddle areas from sixteen electric motor areas to six electric motor areas and added eight, less restrictive Slow-No-Wake areas. These reductions and new designations significantly reduce the proposed restrictions on navigation within the refuge.

We urge you to continue to work with WDNR and the public to ensure that the public has reasonable access to navigation, and fishing and hunting in the refuge, pursuant to the intent of the congressional consent legislation and the Wisconsin legislation allowing establishment of the refuge.

We recommended a law enforcement step-down plan be added to the CCP. Alternative E incorporated that recommendation. We appreciate that addition but remain concerned about the timing of this step-down plan. **We believe it is critically important that these law enforcement issues be resolved before significant new refuge regulations are enacted.** Implementing such a significant rule package, without addressing enforcement issues first, will create an enforcement headache not only for the refuge but also for state officers along the Mississippi River. Furthermore, we do not support the addition of more refuge enforcement positions until after the step-down plan is complete. This is necessary to avoid duplication of efforts, to clarify authorities, and to provide the essential information/education infrastructure so that the Refuge can meet the responsibility of responding to citizen calls and complaints of violations in progress, pertaining to the new regulations, outside normal business hours.*

The public and WDNR requested that most additional beach, camping and other public use regulations not be developed without close cooperation with the public and public agencies. You agreed to restart the beach planning process and remove additional recreational use restrictions from the CCP. Your proposal to update the Land Use Allocation Plan will prove valuable in the process of establishing these recreation beaches on the refuge. We are also pleased to read that you included the public proposed glass containers ban on Refuge lands. As stated in our last letter WDNR concurs with the proposed ban and the inclusion

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in Alternative E. There is some concern with how this will be enforced but we would be glad to work with you on that issue.

We also appreciate your inclusion of state listed and special concern species in alternative E and we look forward to management of these valuable species in partnership with your agency.

SPECIFIC COMMENTS FOR ALTERNATIVE E:

We recommend the minimum disturbance level for waterfowl in closed areas should be set at 1000 waterfowl or greater, rather than ½ the waterfowl present. An average of 20 disturbances per week is also more realistic. We concur with you that agency and commercial fishing activities will not be included in the disturbance calculations

We agree that fire and other active management will be needed to maintain existing and created habitat in many cases. These management techniques must also be applied to terrestrial habitat on islands. On another management issue we suggest that you attempt to locate canoe trials within slow no wake areas where possible.

Finally, we continue to support the proposal for land acquisition, from willing sellers, within the Refuge boundaries. These additional lands will provide habitat buffers for resident and migratory species that use the river corridor as well as provide more recreational opportunities for river users.

Thank you again for the opportunity to review and comment on the proposed Comprehensive Conservation Plan for the Upper Miss. Refuge. I appreciate the attention you have paid to most of our previous recommendations and we ask that you work with us during the process of making final changes to Alternative E. We look forward to the completion of the plan and moving forward to work cooperatively on other important river issues.

Sincerely,

Scott Hassett
Secretary

cc: Holly Stoerker, UMRBA, 415 Hamm Building, 408 St. Peters St, St. Paul, MN, 55102
Rick Nelson, USFWS, 4469 48th Ave. CT, Rock Island, IL 61201
Tim Schlagenhaft, MNDNR, 2300 Silver Creek Rd, Rochester, MN, 55906
Mike Griffin, IDNR, 206 Rose Street, Bellevue, IA 52031
Dan Sallee, ILDNR, 2317 East Lincolnway, Suite A, Sterling, IL 61081
Scott Humrickhouse, WDNR, 1300 West Clairemont Ave., Eau Claire, WI 54702-4001
Gretchen Benjamin, WDNR, 3550 Mormon Coulee RD, La Crosse, WI 54601
Patrick Henderson, Office of the Governor, State Capitol 115 E, Madison, WI 53702
Todd Ambs, WDNR, GEF II – AD/5
Tim Andryk, WDNR, GEF II – LS/5
Todd Peterson, WDNR, GEF II – WM/6
Laurie Osterndorf, WDNR, GEF II - AD/5
Tom Hauge, WDNR, GEF II – WM/6
Signe Holtz, WDNR, GEF II – ER/6
Senator Dan Kapanke

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Wisconsin Department of Natural Resources Comment on Supplement to the Draft EIS/CCP

Senator Ron Brown
Senator Dale Schultz
Representative Michael Huebsch
Representative Barb Gronemus
Representative Jennifer Shilling
Representative Lee Nerison
Representative Gabe Loeffelholz

Iowa Department of Natural Resources Comment on the Draft EIS/CCP

3867

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THOMAS J. VILSACK, GOVERNOR
SALLY J. PEDERSON, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
JEFFREY R. VONK, DIRECTOR

February 10, 2006

Mr. Don Hultman, Refuge Manager
Upper Mississippi River NW&FR
51 E. Fourth St., Room 101
Winona, MN 55987

Dear Mr. Hultman:

The following are the Iowa Department of Natural Resources (Department) comments on the *Upper Mississippi River National Wildlife and Fish Refuge Supplement to Draft Environmental Impact Statement and Comprehensive Conservation Plan, Alternative E: Modified Wildlife and Integrated Public Use.*

The Department commends the United States Fish and Wildlife Service (Service) for listening to public, agencies, and other groups comments to the draft Comprehensive Conservation Plan. The language in this Alternative has shown that the Service made substantive changes in attempt to satisfy resource managers and users while meeting the vision and goals for the Upper Mississippi River Wildlife and Fish Refuge.

Iowa Department of Natural Resources staff has read the documents and have these general and specific comments concerning Alternative E.

General Comments:

The Department has jurisdiction over fisheries, navigation, and licensing requirements within the border of Iowa. The Department is concerned about Alternative E language related to the Service's permitting of fishing tournaments, commercial fishing, commercial mussel harvesting and commercial turtle harvesting. These activities are currently being actively managed and coordinated among the Upper Mississippi River states. The Department cannot agree with imposing additional rules and regulations for management of natural resources in which the Department has jurisdiction. We agree with the terms "one stop shopping" and "dovetail with" as described in Alternative E and as a way for the Service to comply with federal requirements without threatening state jurisdiction or causing hardship to user groups. The Department looks forward to working with the Service on elements of the plan that address jurisdictional issues in efforts to reach solutions that benefit the resources and its users.

Several "step down plans" are identified in Alternative E. The Service is encouraged to develop these additional plans in a timely manner, hold public meetings, and establish joint comment periods. This course of action will avoid confusion by the public and reduce staff time in coordinating agency responses.

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Iowa Department of Natural Resources Comment on Draft EIS/CCP

The Service should include references to the Comprehensive State Wildlife Plans recently completed by all the states along the Refuge. The plan formulated for Iowa contains scientifically based information on the status of fish and wildlife species within its borders. It was formed by experts from throughout the Midwest including numerous members of the U.S. Fish and Wildlife Service. The Upper Mississippi Refuge and its staff will be a major partner in implementing the ambitious goals of this plan.

There is several additional public use areas identified in Alternative E. The Department feels access areas are limited in the refuge. The Service is requested to develop public use areas that provide easy access and are also available for multiple recreational uses. For example, the hiking trail identified in the Pool 9 map known as Kain Switch does not have a parking lot identified with it. For canoe trails, hiking trails or other public use areas, the Service is requested to consider landings, parking lots and other infrastructure needs to enhance these areas. The Department also believes all canoe landings should be available during ice-over conditions for access by ATV's to ice fishing areas. Wherever possible the Department requests the Service to increase shoreline-angling access to provide for quality fishing opportunities. Department staff looks forward in assisting the Service in implementing its public use goals.

Specific Comments:

3.1 Wildlife and Habitat. Under strategies, the Service should add that Refuge budget shall include special funding for operation and maintenance of habitat projects.

4.1 General Hunting. The Department recommends the Service remove the No Hunting Zone in Pool 11 identified as Goetz Island No Hunting Zone.

4.2 Waterfowl Hunting Closed Areas. The Department believes that the third paragraph, on Page 22, which begins with, *"Finally, the policy on evaluating...."* should be removed from the document. This subject is already covered in objective ***3.2.4 Guiding Principals for Management Program***.

4.10 Wildlife Observation and Photography. The Service is encouraged to consult the States on all planned Environmental Management Program (EMP), Habitat Rehabilitation and Enhancement Projects (HREP's) currently proposed to make sure that implementation of auto tour routes, canoe trails, hiking trails, and observation towers areas are compatible with restoration project objectives. A good Iowa example is the Turkey River HREP. The slough associated with this project is proposed to be dredged. At the mouth at the Turkey River, it is suggested that the auto tour route be located near the railroad tracks. The route should begin at the Turkey River and end at the slough; each end should feature a shoreline fishing area. A wildlife viewing platform should also be placed along the tour route. With these amenities in place all aspects of the EMP project could be showcased.

Iowa Department of Natural Resources Comment on Draft EIS/CCP

February 10, 2006
Page 3 of 3

5.2 Electric Motor Areas. The Department requests that the Electric Motor Area identified as Guttenberg Ponds Area be deleted from the Alternative E plan. This area is not normally accessible to motorboats but does provide backwater-fishing opportunities during high flow periods. Deleting this proposed action will not cause conflict between powered boaters and canoers, kayakers, and paddle boaters.

Thank you for the opportunity to comment on the Comprehensive Conservation Plan, Alternative E proposal.

Sincerely;

Jeffrey R. Vonk, Director
Department of Natural Resources

U.S. Army Corps of Engineers Comment on Draft EIS/CCP

3012

DEPARTMENT OF THE ARMY
MISSISSIPPI VALLEY DIVISION, CORPS OF ENGINEERS
P.O. BOX 80
VICKSBURG, MISSISSIPPI 39181-0080

REPLY TO
ATTENTION OF:

March 7, 2006

Mr. Don Hultman
Upper Mississippi River
National Wildlife and Fish Refuge
ATTN: CCP Comment
51 East Fourth Street, Room 101
Winona, Minnesota 55987

Dear Mr. Hultman:

I refer to the U.S. Fish and Wildlife Service (FWS) News Releases dated December 5, 2005, and January 3, 2006, regarding the public review and comment period for the new preferred alternative (Alternative E) for the draft Comprehensive Conservation Plan (CCP) and Environmental Impact Statement for the Upper Mississippi River National Wildlife and Fish Refuge.

My staff and the staffs of the St. Paul, Rock Island, and St. Louis Districts have reviewed the draft document and offer the following comments.

a. We believe the FWS did an excellent job addressing our previous comments dated September 6, 2005.

b. We concur with the plan with the understanding that interagency partnership activities will continue as required by the existing Cooperative Agreement and as stated in the Draft CCP.

c. Once finalized and approved, the CCP will require many step-down plans that will involve coordination with other agencies. We feel the FWS has stressed this sufficiently in the plan, and we look forward to participation in these step-down plans. Implementation of the CCP will also require some Corps of Engineers actions, such as updating Land Use Allocation Plans, Shoreline Management Plans, and Forest Management Plans. Coordination will also be required on the Historic Properties Management Plan. Work on these plans should begin immediately after approval of the CCP.

We appreciate the willingness of the FWS staff to provide forums for communication and discussion throughout this process. We believe your communications were timely and were indicative of your acknowledgement of our close partnership with you in this region. We look forward to a continued positive relationship as

our agencies collaboratively work to improve the ecosystem of the Upper Mississippi River National Wildlife and Fish Refuge.

If you have any questions regarding these comments, please contact Mrs. Susan Smith of my staff at (601) 634-5827.

Sincerely,

Robert Crear
Brigadier General, U.S. Army
Division Engineer

U.S. Environmental Protection Agency Comment on Supplement to the Draft EIS/CCP

2945

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

MAR 01 2006

REPLY TO THE ATTENTION OF:

B-19J

Mr. Don Hultman
Refuge Manager
United States Department of the Interior
Fish and Wildlife Service
Upper Mississippi River National Wildlife and Fish Refuge
51 E. Fourth Street
Room 101
Winona, Minnesota 55987

RE: Comments for Draft Environmental Impact Statement for Upper Mississippi River National Wildlife & Fish Refuge EIS NO. 20050516

Dear Mr. Hultman:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the U. S. Environmental Protection Agency (U.S. EPA), Region 5 has reviewed the Supplement to the Draft Environmental Impact Statement (EIS) and Comprehensive Conservation Plan (CCP) for the Upper Mississippi River National Wildlife and Fish Refuge (Refuge). The Refuge consists of 240,000 acres of Mississippi River floodplain along 261 river miles from Wabasha, Minnesota to Rock Island, Illinois. The CCP will help ensure that this Refuge will contribute to fulfilling the overall mission of the Refuge system. The purpose of the supplement to the Draft EIS is to identify the new preferred alternative for the draft CCP. Your agency used input from comments received on the draft EIS. This input was used to make several changes to alternative E, which now is the new preferred alternative.

Based on our review, we have rated the supplement to the Draft EIS as "LO". The "LO" indicates that we have a lack of objection and did not identify the need for additional information or environmental issues to be considered. We still recommend that the Final EIS provide a narrative that explains how your agency will integrate the CCP for the Refuge with the Upper Mississippi River Navigation Ecosystem Sustainability Program, led by the United States Army Corps of Engineers.

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U.S. Environmental Protection Agency Comment on Draft EIS/CCP

Thank you for the opportunity to review and comment on the draft supplement to the Draft EIS and Comprehensive Conservation Plan for the Upper Mississippi River National Wildlife and Fish Refuge. If you have any questions or comments, please contact Al Fenedick of my staff. Al can be reached at 312 886-6872 or by E-mail at Fenedick.al@epa.gov.

Sincerely,

Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Science Ecosystems and Communities

Representative Mark Green Comment on the Draft EIS/CCP

MARK GREEN
8TH DISTRICT, WISCONSIN

ASSISTANT MAJORITY WHIP

COMMITTEE ON THE JUDICIARY

COMMITTEE ON
INTERNATIONAL RELATIONS

CONGRESS OF THE UNITED STATES
HOUSE OF REPRESENTATIVES

August 8, 2005

Matthew Hogan
Acting Director
U.S. Fish and Wildlife Service
1849 C St., NW
Washington, D.C. 20240

Dear Acting Director Hogan:

I want to begin by complementing you on the U.S. Fish & Wildlife Service's (Service) decision to abandon the "preferred alternative" for the Comprehensive Plan and Environmental Impact Statement for the Upper Mississippi River National Wildlife and Fish Refuge. This plan is seriously flawed and desperately in need of improvement.

Frankly, I am not surprised the listening sessions on the plan resulted in the need for the Service to go back to the drawing board. The Mississippi River is one of our nation's premier recreational destinations and economic engines. It is a shining example of a successful multiple-use management strategy at work. Yet, the proposal developed by the Service pushes people away from this premier destination.

Each year, hundreds of thousands of people take advantage of the river's recreational splendor while working closely to ensure the wildlife species remain abundant and plentiful. Unfortunately, the Service's proposal restricts hunting, restrics fishing, restricts camping and restricts motorboat access – all while increasing fees. This is simply unacceptable.

While significantly restricting access to the refuge is sure to have an untold social impact, the economic impact will also be great. Many businesses will be forced to downsize or go out of business. Jobs will be lost. This simply cannot be allowed to happen.

The Service should select Alternative A as its new "preferred alternative." Hunting and fishing on the river have never been better and that water quality continues to improve. I simply do not see the need to move away from the current and successful management plan.

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Representative Mark Green Comment on the Draft EIS/CCP

Finally, I believe that those who use the river and whose livelihood depends on the river should have greatest voice in the management of the river. As you can imagine, in my capacity as an elected official, I have heard from a great number of folks in Wisconsin who were greatly concerned with restrictions in the current alternative. In fact, thousands have signed petitions in support of Alternative A.

I certainly hope the Service will listen closely to the comments it received during the listening session and from others who live and work along the river to make the necessary changes. I would expect a similarly strong response should the new "preferred alternative" include any of the restrictions contained in the original "preferred alternative."

I appreciate you taking the time to consider my thoughts. Please do not hesitate to contact me if you have any questions.

Best Regards,

Mark Green
Member of Congress

MAG:dr

Wisconsin Legislature Comment on the Draft EIS/CCP

Received 9/1/05

2469

WISCONSIN LEGISLATURE

P.O. BOX 8952 • MADISON, WI 53708

August 29, 2005

U.S. Fish & Wildlife Service
Upper Mississippi River National Wildlife and Fish Refuge
CCP Comment: Don Hultman, Manager
51 East 4th Street
Room 101
Winona, MN 55987

Dear Mr. Hultman:

Please accept these documents as our public comments on the Comprehensive Conservation Plan for the Upper Mississippi National Fish and Wildlife Refuge. We are also state-lawmakers who represent Wisconsin portions of the refuge and, because federal enabling legislation required consent by state law before acquiring this land, we believe it is essential that we continue to be involved through the planning process.

We are opposed to Alternative D, which was initially offered as the preferred plan, because it usurps state authority on sovereign waters and unnecessarily eliminates treasured wildlife and non-wildlife based recreational opportunities and economic activity.

In 1925 our legislature consented to creation of the refuge under the conditions that we maintained the ability to preserve navigation in all waters and that the right to regulate fish and game would be a matter of state sovereignty. Additionally, we hold the right of the public to hunt and fish as a part of the right of navigation. We view new restrictions on the use of motors, areas closed to navigation, and new regulations as contrary to the agreement in our statutes and in federal law.

In our August 24, 2005 Legislative Council Memo, which is attached, we discuss these issues in detail. Again, we do not believe that the State of Wisconsin has the legal authority to abrogate our legal trust in the state's waters.

Clearly, the legal title to fish is Wisconsin's and, considering that our DNR is developing its own tournament fishing regulations, new federal regulations would be redundant and possibly illegal.

Our offices have heard from thousands of our constituents. Nearly every single comment has been opposed to Alternative D and supportive of maintaining the current wildlife and non-wildlife related recreational opportunities.

Wisconsin Legislature Comment on the Draft EIS/CCP

In order for your agency to be good neighbors and to preserve public support for having this refuge in our back yard, join us in advocating for maximum recreational opportunities and continuing to manage the river as a multi-purpose resource. That is not at odds with the goals of the refuge because we do not believe new restrictions will conserve fish and wildlife. From the life's work of Wisconsin's own Aldo Leopold, we know that healthy fish and wildlife habitat is the key to having good fish and wildlife populations and that is where the service should focus its efforts. We strongly believe that increasing refuge closed areas will do nothing to improve fish and wildlife populations over all. Likewise, hunter spacing, shell possession limits, and managed hunts are ultimately not wildlife conservation tools, just ways to manage people.

People who spend time on the river understand that the river has many friends. We co-exist with commercial and industrial uses and cooperate with other recreational users. Article 9 of Wisconsin's Constitution requires it. The effect of recreational activities is inconsequential compared to the combined forces of everything that happens on the land throughout the Mississippi River Valley. The good that comes from having so many people who love the river outweighs any benefit that could conceivably come from alienating them as your preferred alternative does. If you take away our connection to the land, you will lose public support for having federally owned land in our area.

Again, we oppose Alternative D and any plan which restricts access to recreational activities and navigation because they usurp state authority on sovereign water and unnecessarily eliminate recreational opportunities and economic activity. We support the current level of public use of this spectacular resource. Thank you for the work that you and your staff will be doing to make sure our outdoor recreation heritage is preserved on waters of the mighty Mississippi.

Sincerely,

Dale Schultz
Senate Majority Leader
17th Senate District

Mike Huebsch
Majority Leader
94th Assembly District

Jennifer Shilling
State Representative
95th Assembly District

Barbara Gronemus
State Representative
91st Assembly District

Gabe Loeffelholz
State Representative
49th Assembly District

Lee Nerison
State Representative
96th Assembly Distict

Dan Kapanke
State Senator
32nd Senate District

Ron Brown
State Senator
31st Senate District

2469

Wisconsin Legislature Comment on the Draft EIS/CCP

Copies to: President George W. Bush, Vice President Richard Cheney, Senator Russel Feingold, Senator Herb Kohl, Representative Ron Kind, USF&WS Regional Director Robyn Thorson

Enclosure: August 24, 2005 Wisconsin Legislative Council Memo

Wisconsin Legislature Comment on the Draft EIS/CCP

WISCONSIN LEGISLATIVE COUNCIL

Terry C. Anderson, Director
Laura D. Rose, Deputy Director

TO: SENATORS RONALD BROWN, DAN KAPANKE, AND DALE SCHULTZ, AND REPRESENTATIVES BARBARA GRONEMUS, MICHAEL HUEBSCH, GABE LOEFFELHOLZ, LEE NERISON, AND JENNIFER SHILLING

FROM: Mark C. Patronsky, Senior Staff Attorney

RE: Wisconsin Sovereignty and Jurisdiction Over Waters of the Upper Mississippi River National Wildlife and Fish Refuge

DATE: August 24, 2005

You have asked me to prepare a memorandum that provides background information and an analysis of the issue of Wisconsin sovereignty and jurisdiction over waters of the Mississippi River which are also part of the Upper Mississippi River National Wildlife and Fish Refuge. This issue is of current concern because the U.S. Fish and Wildlife Service, which manages the refuge, is in the process of planning regulatory policy for the refuge that will apply for the next 15-year period.

This memorandum addresses that part of the Comprehensive Conservation Plan for the refuge, dated May 2005, that sets forth proposed regulations in Alternative D. Alternative D is the alternative that was originally selected as the preferred alternative by the U.S. Fish and Wildlife Service. In particular, this alternative calls for banning the use of motorized watercraft in certain areas of the refuge from October 1 to the end of the regular state duck season.

There is not an express prohibition in federal law that precludes the U.S. Fish and Wildlife Service from banning the use of motorized watercraft within the refuge. However, there are a number of provisions in federal and state law that raise fundamental questions about the authority of the U.S. Fish and Wildlife Service to adopt and enforce regulations that prohibit motorized watercraft in portions of the Mississippi River, and its sloughs and tributaries.

Although it is difficult to answer this question definitively, the issues discussed in this memorandum would provide a substantial basis for a legal challenge to the regulations, if the regulations were to be implemented. It should be noted that the issues discussed in this memorandum are all legal issues. Unlike the factual issues, and decisions within the discretionary authority of the agency, legal issues are addressed and resolved by the court without deference to the decisions of the agency.

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Acceptance of the Upper Mississippi River Fish and Wildlife Refuge With State-Imposed Conditions

The federal enabling legislation for the refuge requires the U.S. government to obtain the consent of the states before purchasing land for the refuge. The refuge was authorized by Congress in the Upper Mississippi River Wildlife and Fish Refuge Act (June 7, 1924); 68th Congress, ch. 346; 16 U.S.C. ss. 721 to 731. The Refuge Act expressly required the U.S. government to obtain the consent by law of Wisconsin before acquiring land for the refuge. [16 U.S.C. s. 724.]

Wisconsin did consent to establishment of the refuge in s. 1.035, Stats., which was adopted by Laws of 1925, Ch. 170, and took effect on May 23, 1925. The plain meaning of the federal enabling legislation is that if the consent of the states is required, the states may either withhold or condition that consent. The statute includes a number of conditions on the state's approval of the refuge, including the following:

- Any conditions or reservations imposed by Illinois, Iowa, and Minnesota are also adopted by Wisconsin.
- Acquisition of land by the U.S. government must be approved by the Governor on advice of the Department of Natural Resources.
- Wisconsin retains legal title to fish for the purpose of regulating the use and conservation of the fish.
- The state retains jurisdiction over civil and criminal process.

For the purposes of the legislator's request for information, one of the conditions in s. 1.035 (2), Stats., is most significant. This provides as follows:

> 1.035 **(2)** The consent hereby given is upon the condition that … the navigable waters leading into the Mississippi and the carrying places between the same, and the navigable lakes, sloughs and ponds within or adjoining such areas, shall remain common highways for navigation and portaging, and the use thereof, as well to the inhabitants of this state as to the citizens of the United States, shall not be denied.

These conditions have apparently been accepted by the U.S. government in establishment of the refuge. This statutory restriction, which mirrors the Wisconsin Constitution (art. IX, s. 1, discussed later in this memorandum) states, as clearly as possible, that restrictions may not be imposed on navigation in any of the navigable waters leading into the Mississippi.

The Public Trust in Navigable Waters in Wisconsin

At the time of statehood, the State of Wisconsin received title to the navigable lakes and streams. The state's interest in the navigable waters is established and protected in the Wisconsin Constitution, art. IX, s. 1, which provides as follows:

> **Jurisdiction on rivers and lakes; navigable waters. Section 1.** The state shall have concurrent jurisdiction on all rivers and lakes bordering on this

2 469

> state so far as such rivers or lakes shall form a common boundary to the state and any other state or territory now or hereafter to be formed, and bounded by the same; and the river Mississippi and the navigable waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways and forever free, as well to the inhabitants of the state as to the citizens of the United States, without any tax, impost or duty

This provision from the Wisconsin Constitution is the foundation for most of the Wisconsin law regarding navigable waters. In Wisconsin, the navigable waters are held in trust by the state for the public. The Legislature is the trustee of the public trust in navigable waters, responsible for protecting them for the benefit of the public, and the Legislature is without power to abrogate this trust. The condition described above in s. 1.035 (2), Stats., is a good example of how the Legislature protects these rights of navigation for the citizens of Wisconsin. In fact, consent by the Wisconsin Legislature to creation of the refuge without the conditions in s. 1.035 (2), Stats., would not appear to constitute valid consent.

Northwest Ordinance

Public rights in navigable waters are protected by not only the state, through its constitution and statutes, but also by federal law, through the northwest ordinance.

The historical source of Wisconsin's public trust in navigable waters is the northwest ordinance of 1787. The purpose of the northwest ordinance was to admit new states to the union on an equal footing with the original 13 states. The northwest ordinance included a provision regarding the navigable waters in art. IV, which provides in part: "…the navigable waters leading into the Mississippi and St. Lawrence and the carrying places between the same, shall be common highways and forever free, as well as to the inhabitants of the said territory, as to the citizens of the United States, and those of any other states that may be admitted into the confederacy, without any tax, impost, or duty therefore…." This language was adopted with only slight changes as part of the Wisconsin Constitution in 1848.

The U.S. Supreme Court has discussed the continued viability of the northwest ordinance.

> To the extent that it pertained to internal affairs, the Ordinance of 1787—notwithstanding its contractual form—was no more than a regulation of territory belonging to the United States, and was superseded by the admission of the State of Illinois into the Union "on an equal footing with the original states in all respects whatever" [citing cases]. But, so far as it established public rights of highway in navigable waters capable of bearing commerce from State to State, it did not regulate internal affairs alone, and was no more capable of repeal by one of the States than any other regulation of interstate commerce enacted by the Congress; being analogous in this respect to legislation enacted under the exclusive power of Congress to regulate commerce with the Indian tribes.

> The Court went on to say that this view was not inconsistent with previous decisions on the question:
>
> Those cases simply hold, in effect, that a State formed out of a part of the Northwest Territory has the same power to regulate navigable waters within its borders that is possessed by other States of the Union; that is to say, until Congress intervenes, the power of the State, locally exerted, is plenary; nevertheless, where the navigation serves commerce among the states or with foreign nations, Congress has the supreme power when it chooses to act, and is not prevented, by anything the States may have done, from assuming entire control in the matter. [*Economy Light & Power Co. v. United States*, 256, U.S. 113, 121 (1921).]

The northwest ordinance has been incorporated into the Wisconsin Constitution, and subsequent Wisconsin common law as created by the Wisconsin Supreme Court has expanded the public trust in navigable waters to include recreational uses.

Federal Case Law

It does not appear that there is a federal case that is directly on point regarding the issue of whether the U.S. Fish and Wildlife Service may restrict navigation in the refuge. However, this issue was discussed as part of a 1928 federal district court case from the Western District of Wisconsin. *United States v. 2,271.29 acres more or less, of land in La Crosse, Trempealeau, Vernon, and Grant Counties, Wis., et al.*, 31 F. 2d 617. This case was a challenge to the condemnation of land for the refuge, and did not involve condemnation or regulation of navigable waters.

However, the issue of use of the navigable waters was of sufficient importance that it was part of the challenge to the condemnation. One of the grounds for challenging the federal legislation that created the refuge was that "the state holds and controls navigable waters in trust for its people, and may not delegate such trust to another sovereignty…" (p. 620). The court disposed of this issue on the grounds that the condemnation did not involve navigable waters. However, the court acknowledged that this was a "question of unlawful abdication by the state of its obligation of people in that regard." The court further recognized that the right to regulate fish and game is a matter of state sovereignty. The court reviewed the conditions of Wisconsin's consent to creation of the refuge under s. 1.035, Stats. The court cited a number of Wisconsin Supreme Court cases that show how carefully the court has protected the right of the public to hunt and fish, and the court further noted that the Wisconsin court cases further hold that the right to hunt and fish is a part of the right of navigation. (p. 621.) Although this case did not involve directly the issue of navigable waters, the court recognized that the consent given by the state could include the provisions of Wisconsin law that create and protect the public trust in navigable waters.

MCP:jal:tlu:rv

2469

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Senator Norm Coleman Comment on the Supplement to the Draft EIS/CCP

30 of 8

NORM COLEMAN
MINNESOTA

COMMITTEE ON
GOVERNMENTAL AFFAIRS
CHAIRMAN
PERMANENT SUBCOMMITTEE ON INVESTIGATIONS

COMMITTEE ON
FOREIGN RELATIONS
CHAIRMAN
SUBCOMMITTEE ON
WESTERN HEMISPHERE, PEACE CORPS, AND NARCOTICS AFFAIRS

COMMITTEE ON
AGRICULTURE, NUTRITION, AND FORESTRY

COMMITTEE ON
SMALL BUSINESS AND ENTREPRENEURSHIP

United States Senate

WASHINGTON, DC 20510–2307

http://coleman.senate.gov

9 March 2006

Don Hultman
Refuge Manager, Upper Mississippi River NW&FR
Attn: CCP Comment, Room 101
51 East Fourth Street
Winona, MN 55987

Dear Don,

Please accept my commendations for your work in developing, presenting, listening, modifying and ultimately deciding upon an updated comprehensive plan for the Upper Mississippi Refuge. Managing natural resources is a challenge under any condition. Managing the most widely visited refuge in the system makes this challenge all the more complex.

You have shown great patience and diligence throughout your public hearing tour and I appreciate your efforts.

As for your preferred Alternative E, I would like to add my thoughts as you prepare to make a decision. Two aspects of the plan concern me:

1 – Hunting Access. I am concerned that hunting opportunities for Minnesota hunters may be unfairly eliminated. While the overall acreage open to public hunting may remain stable or grow in some areas of the refuge, I am concerned that the closure of areas like Big Lake near Wabasha unfairly penalizes Minnesota waterfowlers. I encourage you to pay particular attention to providing replacement hunting opportunities of comparable quality near where you propose closing existing hunting areas.

2 – Proposed Restriction to Specific Watercraft/Motor Use. I am concerned about the various proposals to restrict areas of the refuge to particular types of watercraft. While I feel it is reasonable to regulate how equipment is used, I do not favor banning use by a specific type of watercraft or propulsion type.

I understand the mission to protect habitat and I believe efforts to reduce erosion are laudable. I also am aware of safety concerns brought on by any interaction between users of different class watercraft. However, I believe that no wake zones, no wake areas or seasonal restrictions should merit consideration as a means to minimize boater conflict, protect habitat and sufficiently assist in preventing riverbank erosion prior to banning particular watercraft from areas of the river.

I hope my thoughts are helpful as you undergo final deliberation of this Comprehensive Plan.

Thank you for your service to the Upper Mississippi and the citizens who make the river an integral part of their lives.

Best Regards,

Norm Coleman

US Senator Norm Coleman

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Representative Ron Kind Comment on Supplement to the Draft EIS/CCP

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BUDGET COMMITTEE

EDUCATION AND THE WORKFORCE COMMITTEE

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SUBCOMMITTEE ON ENERGY AND MINERAL RESOURCES

March 13th, 2006

Mr. H. Dale Hall
Director
U.S. Fish and Wildlife Service
1849 C Street, N.W.
Washington, D.C. 20240

Mr. Bill Hartwig
Chief, National Wildlife Refuge System
U.S. Fish and Wildlife Service
1849 C Street, NW
Washington, DC 20240

Mr. Don Hultman
Refuge Manager
Upper Mississippi River National Wildlife and Fish Refuge
51 East Fourth Street, Room 101
Winona, MN 55987

Subject: Alternative E of the Comprehensive Conservation Plan for the Upper Mississippi River National Wildlife and Fish Refuge

Dear Gentlemen:

Thank you for the opportunity to express my comments regarding Alternative E of the Comprehensive Conservation Plan (CCP) for the Upper Mississippi River National Wildlife and Fish Refuge.

As you know, unlike other federal and state legislative officials who commented on your work prior to the close of the public comment period, I and my staff have taken a balanced approach, attending and speaking at various public meetings and conducting numerous meetings ourselves in an effort to develop a consensus CCP that addresses the Refuge's short-term and long-term needs and maintains the essential public-private partnerships in managing this important resource.

By listening and considering more than two thousand comments and holding various public listening sessions, your agency should be commended for your openness to public opinion and willingness to adjust the plan in light of public input. As reflected by the public comments in this issue, the people of this region recognize the Refuge's economic, recreational and cultural importance.

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Representative Ron Kind Comment on Supplement to the Draft EIS/CCP

Personally, as someone who has grown up near the Refuge and enjoyed the many wonders of the Mississippi River, I am proud to call myself a "river rat." I understand how important a healthy river system is, not only to our region's economy but also to our quality of life. As a boy, I would spend countless hours a day exploring the Mississippi or the vast stretch of Refuge territory. In the years since, I have had the great pleasure of raising two river rats of my own, taking them out as often as possible to enjoy everything from boating and swimming to hunting and fishing.

Recognizing that a healthy river system is important, not only to our region's economy, but to our quality of life, I have worked consistently to promote land conservation and strengthen river habitat in the refuge. In fact, those individuals who have criticized the CCP's efforts in not addressing sedimentation are encouraged to join my efforts in reforming federal agriculture conservation policy. As founder and co-chair of the bipartisan Upper Mississippi River Basin Congressional Task Force, I have fought hard for full funding of the award-winning Environmental Management Program that has become a model of interagency and interstate cooperation. I also authored legislation that aims to reduce excessive nutrients and sedimentation in the Upper Mississippi and cosponsored a bill to fight harmful invasive species.

While I commend your agency efforts in developing Alternative E, it is my hope that any final CCP will take the following into consideration:

Strengthening Efforts in Reducing Sedimentation, Enhancing Habitat Restoration and Combating Invasive Species – With the Refuge limited by its boundaries, additional efforts need to be undertaken to implement policies that reduce nutrients and sediment flows from adjacent lands. Basin-wide efforts to restore habitat and fight invasive species must also be developed.

Enhancing Public-Private Partnerships – Due to Refuge's immense size and scope, it is important to preserve and build upon the strong partnerships that have been established on this Refuge. Any successful CCP plan must have broad community support to ensure Refuge protection and future viability.

Working with appropriate Wisconsin agencies in developing regulations – Because the USFWS shares Refuge management responsibilities with state of Wisconsin, it is important that future management decisions are harmonized and accepted by both parties. Due to the historically large federal budget deficit, the USFWS requires cooperation with state and local authorities as well as private entities in managing this resource.

Maintaining Access for all Users – With the passage of the National Wildlife Refuge System Improvement Act of 1997, Congress recognized that the Refuge must be accessible for all users, including *hunting, fishing, wildlife observation, photography, environmental education and interpretation, boating and canoeing*. While your agency should be complimented for its efforts in ensuring access for all active and passive Refuge users, any future plan must coordinate with state law.

Voluntary Compliance – To ensure adoption of the final CCP, FWS must recognize existing state laws regarding the regulation of various means of navigation such as slow, no-wake areas, electric motor areas and closed areas. Since these proposed changes have caused alarm by some state officials, I strongly encourage your department to adopt "voluntary compliance" methods in place of the more restrictive slow, no-wake areas, electric motors areas and closed areas concept and then monitor the impact at these areas on other users and wildlife.

Representative Ron Kind Comment on Supplement to the Draft EIS/CCP

Thank you, again, for your efforts during this process. The Upper Mississippi River National Wildlife and Fish Refuge is a multi-use, large resource. It is clear that many individuals and groups care passionately about its management. It is equally clear that no final plan can be all things to all people so we all must recognize that it has to balance the needs of the various users as well as wildlife.

I commend your agency for your open and inclusive approach throughout the development of your plans and look forward to working with you as we move forward on developing a final plan as well as future Mississippi River and Refuge issues.

Sincerely,

Ron Kind

Ron Kind
Member of Congress

Cc:
The Honorable Jim Doyle, Governor
The Honorable Peg Lautenschlager, Attorney General, Department of Justice
Scott Hassett, Secretary Wisconsin Department of Natural Resources
State Representative Jennifer Shilling
State Representative Lee Nerison
State Representative Mike Huebsch
State Representative Barbara Gronemus
State Representative Gabe Loeffelholz
State Representative Kitty Rhoades
State Senator Dan Kapanke
State Senator Dale Schultz
State Senator Robert Jauch
State Senator Ron Brown
State Senator Sheila Harsdorf
Steve Doyle, La Crosse County Board Chair
Mark Johnsrud, Mayor City of La Crosse

Representative Mark Green Comment on Supplement to Draft EIS/CCP

03/06/2006 09:35 FAX 002

MARK GREEN
8TH DISTRICT, WISCONSIN

ASSISTANT MAJORITY WHIP

COMMITTEE ON THE JUDICIARY

COMMITTEE ON INTERNATIONAL RELATIONS

CONGRESS OF THE UNITED STATES
HOUSE OF REPRESENTATIVES

March 6, 2006

Mr. H. Dale Hall
Director
U.S. Fish and Wildlife Service
1849 C St., NW
Washington, D.C. 20240

Dear Director Hall:

I am writing to make you aware of my opposition to Alternative E of the Comprehensive Conservation Plan for the Upper Mississippi River National Wildlife and Fish Refuge. I appreciate your timely consideration of my request.

As you know from our previous correspondence about the refuge, I believe the U.S. Fish and Wildlife Service (USFWS) should abandon Alternative E and instead adopt Alternative A. I have heard from an overwhelming number of folks in Wisconsin who are opposed to the hunting and navigation restrictions contained in Alternative E.

The Mississippi River is one of our nation's premier recreational destinations and economic engines. It is a shining example of a successful multiple-use management strategy at work. I simply do not see the need to move away from a strategy that has a proven track record and enjoys strong support throughout the region.

I certainly hope the USFWS will listen closely to the comments it received during the listening sessions and from others who live and work along the river. As you know, I am greatly concerned that adoption of Alternative E will have social and economic consequences for communities on the river. This cannot be allowed to happen. That is why the USFWS should drop its support for Alternative E and instead adopt Alternative A.

Again, I want to thank you for taking the time to consider my request. I look forward to hearing back from you.

Best Regards,

Mark Green
Member of Congress

MAG:dr

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Wisconsin Legislature Comment on the Supplement to the Draft EIS/CCP

2944

WISCONSIN LEGISLATURE

P.O. BOX 8952 • MADISON, WI 53708

March 1, 2006

U.S. Fish & Wildlife Service
Upper Mississippi River National Wildlife and Fish Refuge
CCP Comment: Don Hultman, Manager
51 East 4th Street
Room 101
Winona, MN 55987

Dear Mr. Hultman:

Please accept these documents as our public comments on the Comprehensive Conservation Plan for the Upper Mississippi River National Fish and Wildlife Refuge. As state-lawmakers who represent Wisconsin portions of the refuge and, because federal enabling legislation required consent by state law before acquiring this land, we believe it is essential that we continue to be involved through the planning process.

We are still generally opposed to Alternative E because it usurps state authority on sovereign waters and unnecessarily eliminates treasured wildlife and non-wildlife based recreational opportunities and economic activity.

In 1925 our legislature consented to creation of the refuge under the conditions that we maintained the ability to preserve navigation in all waters and that the right to regulate fish and game would be a matter of state sovereignty. Additionally, we hold the right of the public to hunt and fish as a part of the right of navigation. As we explained in earlier comments, we view restrictions on the use of motors, areas closed to navigation, and new regulations as contrary to the agreement in our statutes and in federal law.

In our January 13, 2006 Legislative Council Memo, which is attached, we discuss these issues in detail. Again, we do not believe that the State of Wisconsin has the legal authority to abrogate our legal trust in the state's waters.

Our offices have heard from thousands of our constituents, more than 3,000 in writing alone, county boards, chambers of commerce, and hunting groups. Nearly every comment has been opposed to new restrictions and supportive of maintaining the current wildlife and non-wildlife related recreational opportunities.

Our constituents have not expressed a demand for non-motorized canoe areas. In fact, we are told just the opposite. Local government and DNR Law Enforcement may not be ready to take on the additional search and rescue efforts that will be needed if gasoline

motors are prohibited in certain areas. This is an experience that Wisconsin had in the Lower Wisconsin State Riverway.

Many people have told us that their access will be reduced by the prohibition of gasoline powered motors. Activities like trapping or hunting will be difficult for many people who are not physically able to canoe for great distances in severe weather.

We are concerned that your estimate of the acres of closed areas is misleading. For instance, the youth hunting area on Goose Island eliminates nearly all of the hunting that currently happens there. This is a favored area to hunt because people who do not have boats or other means can access this area on foot. Other areas are only open for portions of the season, but you count them as open. Open water areas, where hunting would not be allowed, are counted as open to hunting. Our constituents believe that the overall loss of hunting areas is not acceptable.

Your choice of closed areas and the precise location of boundaries remain controversial up and down Wisconsin waters of the refuge. You are proposing changes over such a broad area that you will not be able to reach agreement with user groups. Any changes should be made over time and on a pool-by-pool basis.

It is critical that you maintain the maximum amount of acres that can possibly be open to deer hunting. Besides providing an important recreational opportunity with economic benefits, this is essential for managing the herd so that disease transmission and environmental impacts are minimized.

We are very concerned about the economic impact that Plan E will have on our area. Our DNR reports that, as recently as 1988, 52% of all use of Pool 5A, for instance, was still directly related to fishing, hunting, or trapping. Other types of uses such as wildlife watching have certainly grown since then, but this growth has occurred in concert with continued use by groups like hunters. Individual businesses and chambers of commerce have told us that they cannot afford to lose one of these groups of customers. The importance of hunting and trapping to our economy is highlighted by the fact that Wisconsin has ranked as high as fourth nationwide in the number of jobs supported by the economic activity of hunters (Vander Zouwen, 1998).

We are concerned that proposed pet restrictions will eliminate people's ability to swim their dogs. Our constituents appreciate the current easy access to water and the types of dogs that are prevalent in our area need practice in the water. Plan E underestimates the value of this to local people.

We are concerned that not enough emphasis is placed on invasive species management and protection.

Page 3, March 1, 2006
Don Hultman, Manager

Our constituents have expressed concern that there is not enough access to shoreline and handicapped fishing. You should work with the Corp of Engineers to improve access at locks and dams.

Many of the items contained in this plan require cooperation with the Wisconsin DNR and legislature because the regulations will need to be incorporated into our rules before there can be realistic enforcement. There will be significant resistance to many of the features of this plan and, at this point, we do not think they can be adopted by the state.

We want to reiterate our request that, in order for your agency to be good neighbors and to preserve public support for having this refuge in our back yard, you join us in advocating for maximum recreational opportunities and continuing to manage the river as a multi-purpose resource. That is not at odds with the goals of the refuge because we do not believe new restrictions will conserve fish and wildlife. From the life's work of Wisconsin's own Aldo Leopold, we know that healthy fish and wildlife habitat is the key to having good fish and wildlife populations and that is where the service should focus its efforts. We strongly believe that increasing refuge closed areas will do nothing to improve fish and wildlife populations over all.

People who spend time on the river understand that the river has many friends. We co-exist with commercial and industrial uses and cooperate with other recreational users. Article 9 of Wisconsin's Constitution requires it. The effect of recreational activities is inconsequential compared to the combined forces of everything that happens on the land throughout the Mississippi River Valley. The good that comes from having so many people who love the river outweighs any benefit that could conceivably come from alienating them as your preferred alternative still does. If you take away our connection to the land, you will lose public support for having federally owned land in our area.

Again, we oppose Alternative E and any plan which restricts access to recreational activities and navigation because they usurp state authority on sovereign water and unnecessarily eliminate recreational opportunities and economic activity. We support the current level of public use of this spectacular resource. Thank you again for the work that we are asking you and your staff to do so that our outdoor recreation heritage is preserved on waters of the mighty Mississippi.

Wisconsin Legislature Comment on Supplement to Draft EIS/CCP

Sincerely,

Dale Schultz
Senate Majority Leader
17th Senate District

Mike Huebsch
Majority Leader
94th Assembly District

Jennifer Shilling
State Representative
95th Assembly District

Barbara Gronemus
State Representative
91st Assembly District

Gabe Loeffelholz
State Representative
49th Assembly District

Lee Nerison
State Representative
96th Assembly Distict

Dan Kapanke
State Senator
32nd Senate District

Ron Brown
State Senator
31st Senate District

Copies to: President George W. Bush, Vice President Richard Cheney, Senator Russell Feingold, Senator Herb Kohl, Representative Ron Kind, USF&WS Regional Director Robyn Thorson

Enclosure: January 13, 2006 Wisconsin Legislative Council Memo

Wisconsin Attorney General Comment on Supplement to the Draft EIS/CCP

STATE OF WISCONSIN
DEPARTMENT OF JUSTICE

/EGGY A. LAUTENSCHLAGER
ATTORNEY GENERAL

Daniel P. Bach
Deputy Attorney General

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Madison, WI 53707-7857
www.doj.state.wi.us

March 6, 2006

Mr. Don Hultman, Refuge Manager
Upper Mississipppi River National Wildlife and Fish Refuge
51 East Fourth St., Room 101
Winona, MN 55987

Re: Comments on Alternative E of the Comprehensive Conservation Plan for the Upper Mississippi River National Wildlife and Fish Refuge

Dear Mr. Hultman:

I have been asked by various citizens of the state to examine Alternative E, the new Fish and Wildlife Service preferred alternative presented in the Comprehensive Conservation Plan (CCP) for the Upper Mississippi River National Wildlife and Fish Refuge, to ensure that it complies with the state's obligations to its citizens under the Wisconsin Constitution. This letter constitutes concerns of the Attorney General of the State of Wisconsin regarding Alternative E. I appreciate the opportunity to comment on these proposed changes and emphasize that I share with you many common goals in protecting citizens, fish, and wildlife in the national refuge system.

The State of Wisconsin is obligated to protect the state's navigable waters for its citizens under the public trust doctrine, which emanates from art. IX, § 1 of the Wisconsin Constitution. That article provides in relevant part that "the river Mississippi and the navigable waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways and forever free . . . ".

The Upper Mississippi River National Wildlife and Fish Refuge was created by an act of Congress in 1924 that authorized the federal government to acquire land for the refuge, provided that the affected states of Minnesota, Wisconsin, Iowa, and Illinois gave their consent before land acquisition could take place. See 16 U.S.C. §§ 721 to 731. Wisconsin gave its consent in 1925, provided that several conditions are met. For example, Wis. Stat. § 1.035(2) & (3) state in part:

> (2) The consent hereby given is upon the condition that . . . the navigable waters leading into the Mississippi and the carrying places between the same, and the navigable lakes, sloughs and ponds within or adjoining such areas, shall remain common highways for navigation and portaging, and the use thereof, as

> well to the inhabitants of this state as to the citizens of the United States, shall not be denied.
>
> (3) The legal title to and the custody and protection of the fish in the navigable waters leading into the Mississippi River and in the navigable lakes, sloughs and ponds within or adjoining such areas in this state, is vested in the state, for the purpose of regulating the enjoyment, use, disposition and conservation thereof.

I wish to impress upon you that the plan adopted by the Fish & Wildlife Service must assiduously abide by the reservation of all rights by the State of Wisconsin under Wis. Stat. § 1.035 and must not intrude into areas of regulation that were reserved for the State of Wisconsin at the time the Upper Mississippi National Fish and Wildlife Refuge was created. The proposed federal regulation of fish and fishing within the refuge must not conflict with this law, which demonstrates that the right to regulate these activities is vested in the State. I suggest that the U.S. Fish and Wildlife Service recognize that regulation of fishing, boating, hunting, and other state regulated activities within the Upper Mississippi National Refuge be done in the closest consultation possible with the State of Wisconsin.

Wis. Stat. § 1.035(2) is based on the constitutional provision found in Article IX, § 1 of the Wisconsin Constitution that is quoted above. Accordingly, any restrictions on navigation in the Refuge must comport with this provision. The Wisconsin Supreme Court has found that this constitutional provision, known as the Public Trust Doctrine, protects an array of public rights including, in addition to commercial navigation, a variety of purely recreational and nonpecuniary uses including boating, swimming, fishing, hunting, recreation, and scenic beauty. *R.W. Docks & Slips v. State*, 2001 WI 73, 244 Wis. 2d 497, ¶19, 628 N.W.2d 781; *Gillen v. City of Neenah*, 219 Wis. 2d 806, 820, 580 N.W.2d 628 (1998); *Hixon v. Public Service Comm.*, 32 Wis. 2d 608, 619, 146 N.W.2d 577 (1966); *Muench v. Public Service Comm.*, 261 Wis. 492, 507-08, 511-12, 53 N.W.2d 514, 55 N.W.2d 40 (1952).

While an assortment of public rights in navigable waters are required to be protected, their exercise can conflict with each other. The State must balance the exercise of these public rights as part of its affirmative duty to deliver the most benefit for public use. Thus, no public right is absolute. Wisconsin Courts have held that all of the competing public rights under the Public Trust Doctrine must be balanced with each other:

> The principle established by the [Wisconsin Supreme Court] cases is that no single public interest in the use of navigable waters, though afforded the protection of the public trust doctrine, is absolute. Some public uses must yield if other public uses are to exist at all. The uses must be balanced and accommodated on a case by case basis. The principle has been reasserted in many decisions of the supreme court."

State v. Village of Lake Delton, 93 Wis. 2d 78, 96.

No single public use may be destroyed or greatly impaired. In *State v. Public Service Comm.*, 275 Wis. 112, 118, 81 N.W.2d 71 (1957), the court stated the kinds of factors that must be considered to determine whether the balance of public rights and interests has been sufficiently struck. They include whether public bodies will control the use of the area; whether the area will be devoted to public purposes and open to the public; whether the diminution of water area available to the public will be small when compared with the whole of the water body; whether no one of the public uses of the waterway will be destroyed or greatly impaired; and whether the disappointment of those members of the public who may desire to exercise particular public rights in the area is negligible when compared with the greater convenience to be afforded those members of the public who use the area.

Accordingly, any restrictions on navigation that may be imposed under Alternative E must be reasonable restrictions that are balanced with other public rights that are protected under the Public Trust Doctrine.

I understand that there are many competing public uses in the Upper Mississippi River National Wildlife and Fish Refuge. I know that you have conducted numerous open houses in communities near the Refuge in order to give the public the opportunity to ask questions and provide comments on the CCP as a whole and on the various alternatives. In response to comments from the public, you made changes to the previously preferred Alternative D in order to forge Alternative E. This process accords with the directive found at 16 U.S.C. § 668dd(a)(4)M that there shall be "effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the States in which the units of the [National Wildlife Refuge] System are located."

In response to many comments from the public and from agencies in the affected states, you decreased both the number and the size of areas that are open only to boats powered by electric motors or paddles. You also changed closed areas from "no fishing" during waterfowl season to voluntary avoidance on all areas and no use of motors on small closed areas, and moved the start date of these restrictions from October 1 to October 15 to allow greater access. I am pleased that you have responded to the concerns of the public in these respects. As you work on finalizing the CCP, I urge you to continue to ensure that the public has reasonable access to navigation and to hunting and fishing in the Refuge.

I also share the concerns of many Wisconsin citizens that the CCP has an undue focus on controlling human uses of the Refuge, to the exclusion of dealing with resource conservation and protection issues such as non-point source pollution and sedimentation, invasive species, and habitat loss. While these issues are addressed in the CCP, they constitute a small part of the plan. As you work to finalize the CCP, I urge you to be certain to address in more detail these

Wisconsin Attorney General Comment on Supplement to Draft EIS/CCP

Mr. Don Hultman
Page 4

crucial issues. These issues should be carefully balanced along with any restrictions on human use of the Refuge, so that any such restrictions are reasonable and are not imposed to the exclusion of other key factors that affect the conservation of resources in the Refuge.

Thank you for your consideration of these comments.

Very truly yours,

Peggy A. Lautenschlager
Attorney General

PAG:mrb:lkw

c: Representative Gabe Loeffelholz
Representative Kitty Rhoades
Representative Mark Pettis
Representative Frank Boyle
Representative Mary Hubler
Representative Barbara Gronemus
Representative Michael D. Huebsch
Representative Jennifer Shilling
Representative Duwayne Johnsrud
RepresentativeAndy Lamb
Representative Lee Nerison
Senator Sheila E. Harsdorf
Senator Robert Jauch
Senator Ron Brown
Senator Daniel Kapanke
Senator Dale Schultz
U.S. Senator Herbert H. Kohl
U.S. Senator Russell D. Feingold
U.S. Representative Paul Ryan
U.S. Representative Tammy Baldwin
U.S. Representative Ron Kind
U.S. Representative Gwendolynne S. Moore
U.S. Representative F. James Sensenbrenner, Jr.
U.S. Representative Thomas E. Petri
U.S. Representative David R. Obey
U.S. Representative Mark A. Green

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Appendix A: Glossary

Appendix A: Glossary of Terms

Alternative	A set of objectives and strategies needed to achieve refuge goals and the desired future condition.
Biological Diversity	The variety of life forms and its processes, including the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur.
Closed Area	Defined in Alternatives A, B, and C as: an area closed to all migratory bird hunting. Other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons. Defined in Alternative D the same as above except no fishing and no motorized watercraft are allowed October 1 to the end of the respective state regular duck hunting season.
Compatible Use	A wildlife-dependent recreational use, or any other use on a refuge that will not materially interfere with or detract from the fulfillment of the mission of the Service or the purposes of the refuge.
Comprehensive Conservation Plan	A document that describes the desired future conditions of the refuge, and specifies management actions to achieve refuge goals and the mission of the National Wildlife Refuge System.
Cultural Resources:	"Those parts of the physical environment -- natural and built -- that have cultural value to some kind of sociocultural group ... [and] those non-material human social institutions...."(King, 1988) Cultural resources include historic sites, archeological sites and associated artifacts, sacred sites, traditional cultural properties, cultural items (human remains, funerary objects, sacred objects, and objects of cultural patrimony) (McManamon, 1997), and buildings and structures.
Drawdowns	The process of temporarily lowering water levels of Pools during the summer months to stimulate the growth of aquatic plants in the lower to middle portions of the pools.
Ecosystem	A dynamic and interrelated complex of plant and animal communities and their associated non-living environment.

Ecosystem Management	Management of an ecosystem that includes all ecological, social and economic components that make up the whole of the system.
Electric Motor Areas	These areas are closed year round to all motorized vehicles and watercraft except watercraft powered by electric motors or non-motorized means. A 5 mile per hour speed limit applies to electric powered craft.
Endangered Species	Any species of plant or animal defined through the Endangered Species Act as being in danger of extinction throughout all or a significant portion of its range, and published in the Federal Register.
Environmental Impact Statement	A systematic analysis to determine if proposed actions would result in a significant effect on the quality of the environment.
Environmental Management Program	This program is funded and administered by the U.S. Army Corps of Engineers to construct habitat rehabilitation and enhancement projects and to conduct long-term resource monitoring of biological and physical features of the Upper Mississippi River System
Environmental Pool Plans	These plans identify a desired future habitat condition within Pools 2-22 toward which agencies and other river interests can strive. They are endorsed by the River Resources Forum and River Resources Coordinating Committee, (U.S. Army Corp of Engineers, St. Paul and Rock Island District, respectively), whose members include public and private organizations, and whose charters are based on a balanced approach to river resource management.
Extirpation	The local extinction of a species that is no longer found in a locality or country, but exists elsewhere in the world.
Fiscal Year	Federal Government budget year beginning October 1 and ending September 31.
Goals	Descriptive statements of desired future conditions.
Interjurisdictional Fish	Fish that occur in waters under the jurisdiction of one or more states, for which there is an interstate fishery management plan or which migrates between the waters under the jurisdiction of two or more states.
Issue	Any unsettled matter that requires a management decision. For example, a resource management problem, concern, a threat to natural resources, a conflict in uses, or in the presence of an undesirable resource condition.

National Wildlife Refuge System All lands, waters, and interests therein administered by the U.S. Fish and Wildlife Service as wildlife refuges, wildlife ranges, wildlife management areas, waterfowl production areas, and other areas for the protection and conservation of fish, wildlife and plant resources.

Objectives Actions to be accomplished to achieve a desired outcome.

Open Water Hunting Open water means any water beyond a natural growth of vegetation that offers whole or partial concealment to the hunter. In Wisconsin, open water hunting is allowed by state regulations only in the Grant County portion of the Refuge, where hunters my use boats/blinds so long as they are securely anchored. Minnesota does not allow open water hunting on the Mississippi River. Iowa and Illinois permit open water hunting. A traditional hunting method uses low-profile scull, or lay-out boats in open water.

Pool The area of water impounded behind (upstream) a dam.

Preferred Alternative The Service's selected alternative identified in the Draft Comprehensive Conservation Plan.

Project Leader Refuge manager or District Manager.

Sanctuary This term applies to a Refuge area where no entry is allowed. In waterfowl sanctuaries, no entry is allowed between October 1 and the end of the regular state duck hunting season.

Scoping A process for determining the scope of issues to be addressed by a comprehensive conservation plan and for identifying the significant issues. Involved in the scoping process are federal, state and local agencies; private organizations; and individuals.

Slow, No-wake Zones These zones require boats to travel no more than five (5) miles per hour to reduce the size of wakes to protect shorelines from eroding and/or to minimize safety hazards posed by heavy traffic and blind spots in narrow channels.

Species A distinctive kind of plant or animal having distinguishable characteristics, and that can interbreed and produce young. A category of biological classification.

Strategies A general approach or specific actions to achieve objectives.

Threatened Species Those plant or animal species likely to become endangered species throughout all of or a significant portion of their range within the foreseeable future. A plant or animal identified and defined in accordance with the 1973 Endangered Species Act and published in the Federal Register.

Vegetation Plants in general, or the sum total of the plant life in an area.

Vegetation Type	A category of land based on potential or existing dominant plant species of a particular area.
Water Level Management	Management that involves a temporary increase or decrease in water levels for the benefit of fish and wildlife habitat.
Watershed	The entire land area that collects and drains water into a stream or stream system.
Wetland	Areas such as lakes, marshes, and streams that are inundated by surface or ground water for a long enough period of time each year to support, and that do support under natural conditions, plants and animals that require saturated or seasonally saturated soils.
Wildlife-dependent Recreational Use	A use on a refuge that involves hunting, fishing, wildlife observation, wildlife photography, environmental education, or interpretation, as identified in the National Wildlife Refuge System Improvement Act of 1997.

Appendix B: Initialisms and Acronyms

Appendix B: Initialisms and Acronyms

ABC – American Bird Conservancy
ARMI – Amphibian Research and Monitoring Initiative
ARPA – Archeological Resource Protection Act
CAP – Contaminant Assessment Program
CCP – Comprehensive Conservation Plan
CFR – Code of Federal Regulations
COE – Corps of Engineers
CRP – Conservation Reserve Program
DNR – Department of Natural Resources
EIS – Environmental Impact Statement
EMP – Environmental Management Program
ESA – Endangered Species Act
FDS – Fayette-Dubuque-Stonyland
FSA – Farm Services Agency
FONSI – Finding Of No Significant Impact
FTE – Full Time Equivalent
FWCA – Fish and Wildlife Coordination Act
FWS – US Fish and Wildlife Service
GIS – Geographic Information System
GP – General Plan (lands)
GREAT – Great River Environmental Action Team
HNA – Habitat Needs Assessment
HQ – Headquarters
HREP – Habitat Rehabilitation and Enhancement Project
IADNR – Iowa Department of Natural Resources
ILDNR – Illinois Department of Natural Resources
L/D – Lock and Dam
LE – Law Enforcement
LTRMP – Long Term Resource Monitoring Program
MDNR – Minnesota Department of Natural Resources
MMS – Maintenance Management System
MRCC – Mississippi River Citizens Committee
NAWMP – North American Waterfowl Management Plan
NEPA – National Environmental Policy Act
NRCS – Natural Resources Conservation Service
NWR – National Wildlife Refuge
NWRS – National Wildlife Refuge System
PFW – Partners for Fish and Wildlife
PIF – Partners in Flight
RCP – Resource Conservation Priorities
RM – River Mile
RONS – Refuge Operating Needs System
ROS – Refuge Operations Specialist
RPM – Root–prune Method

SUP – Special Use Permit
UMR – Upper Mississippi River (mainstem river from the confluence with Ohio River at Cairo, IL, to St. Paul, MN)
UMRB – Upper Mississippi River Basin
UMRCC – Upper Mississippi River Conservation Committee
UMRS – Upper Mississippi River System (UMR and navigable tributaries, including the Illinois River, but excluding the Missouri River)
USACE – US Army Corps of Engineers
USC – United States Code
USDA – United States Department of Agriculture
USEPA – United States Environmental Protection Agency
USFWS – United States Fish and Wildlife Service
USGS – United States Geological Survey
VWAA – Voluntary Waterfowl Avoidance Area
WDNR – Wisconsin Department of Natural Resources
WMA – Wildlife Management Area
µg/g – parts per million

Appendix C: Legislation Establishing the Upper Mississippi River Refuge

[PUBLIC—No. 268—68TH CONGRESS.]

[H. R. 4088.]

An Act To establish the Upper Mississippi River Wild Life and Fish Refuge.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as "The Upper Mississippi River Wild Life and Fish Refuge Act."

SEC. 2. The Secretary of Agriculture is authorized and directed to acquire by purchase, gift, or lease, such areas of land, or of land and water, situated between Rock Island, Illinois, and Wabasha, Minnesota, on either side of or upon islands in the Mississippi River which are subject to overflow by such river and which are not used for agricultural purposes, as he determines suitable for the purposes of this Act.

SEC. 3. Any such area, when acquired in accordance with the provisions of this Act, shall become a part of the Upper Mississippi River Wild Life and Fish Refuge (hereinafter in this Act referred to as the "refuge"). The refuge shall be established and maintained (a) as a refuge and breeding place for migratory birds included in the terms of the convention between the United States and Great Britain for the protection of migratory birds, concluded August 16, 1916, and (b) to such extent as the Secretary of Agriculture may by regulations prescribe, as a refuge and breeding place for other wild birds, game animals, fur-bearing animals, and for the conservation of wild flowers and aquatic plants, and (c) to such extent as the Secretary of Commerce may by regulations prescribe as a refuge and breeding place for fish and other aquatic animal life.

SEC. 4. (a) No such area shall be acquired by the Secretary of Agriculture until the legislature of each State in which is situated any part of the areas to be acquired under this Act has consented to the acquisition of such part by the United States for the purposes of this Act, and, except in the case of a lease, no payment shall be made by the United States for any such area until title thereto is satisfactory to the Attorney General and is vested in the United States.

(b) The existence of a right of way, easement, or other reservation or exception in respect of such area shall not be a bar to its acquisition (1) if the Secretary of Agriculture determines that any such reservation or exception will in no manner interfere with the use of the area for the purposes of this Act, or (2) if in the deed or other conveyance it is stipulated that any reservation or exception in respect of such area, in favor of the person from whom the United States receives title, shall be subject to regulations prescribed under authority of this Act.

SEC. 5. Except where it is specifically provided otherwise, the Secretary of Agriculture and the Secretary of Commerce shall jointly

prescribe such regulations, exercise such functions, and perform such duties as may be necessary to carry out the purposes of this Act.

SEC. 6. No person shall, except in accordance with regulations prescribed by the Secretary of Agriculture in respect of wild birds, game animals, fur-bearing animals, wild flowers, and aquatic plants, or by the Secretary of Commerce in respect of fish and other aquatic-animal life—

(a) Enter the refuge for any purpose; or

(b) Disturb, injure, kill, or remove, or attempt to disturb, injure, kill, or remove any wild bird, game animal, fur-bearing animal, fish or other aquatic-animal life on the refuge; or

(c) Remove from the refuge, or injure or destroy thereon any flower, plant, tree, or other natural growth, or the nest or egg of any wild bird; or

(d) Injure or destroy any notice, sign board, fence, building, or other property of the United States thereon.

SEC. 7. Commercial fishing may be conducted in the waters of this refuge under regulation by the Secretary of Commerce.

SEC. 8. (a) Any employee of the Department of Agriculture authorized by the Secretary of Agriculture to enforce the provisions of this Act, and any employee of the Department of Commerce so authorized by the Secretary of Commerce (1) shall have power, without warrant, to arrest any person committing in the presence of such employee a violation of this Act or of any regulation made pursuant to this Act, and to take such person immediately for examination or trial before an officer or court of competent jurisdiction, (2) shall have power to execute any warrant or other process issued by an officer or court of competent jurisdiction to enforce the provisions of this Act or regulations made pursuant thereto,. and (3) shall have authority, with a search warrant issued by an officer or court of competent jurisdiction to make a search in accordance with the terms of such warrant. Any judge of a court established under the laws of the United States, or any United States commissioner may, within his respective jurisdiction, upon proper oath or affirmation showing probable cause, issue warrants in all such cases.

(b) All birds, animals, fish, or parts thereof captured, injured, or killed, and all flowers, plants, trees, and other natural growths, and nests and eggs of birds removed, and all implements or paraphernalia, including guns, fishing equipment, and boats used or attempted to be used contrary to the provisions of this Act or any regulations made pursuant thereto, shall, when found by such employee or by any marshal or deputy marshal, be summarily seized by him and placed in the custody of such persons as the Secretary of Agriculture and the Secretary of Commerce may jointly by regulation prescribe.

(c) A report of the seizure shall be made to the United States attorney for the judicial district in which the seizure is made, for forfeiture either (1) upon conviction of the offender under section 11, or (2) by proceedings by libel in rem. Such libel proceedings shall conform as near as may be to civil suits in admiralty, except that either party may demand trial by jury upon any issue of fact when the value in controversy exceeds $20. In case of a jury trial the verdict of the jury shall have the same effect as the finding of the court upon the facts. Libel proceedings shall be at the suit and in the name of the United States. If such forfeiture proceedings

are not instituted within a reasonable time, the United States attorney shall give notice thereof, and the custodian shall thereupon release the articles seized.

SEC. 9. (a) The Secretary of Agriculture and the Secretary of Commerce are authorized to make such expenditures for construction, equipment, maintenance, repairs, and improvements, including expenditures for personal services at the seat of government and elsewhere, as may be necessary to execute the functions imposed upon them by this Act and as may be provided for by Congress from time to time.

(b) For such expenditures there is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, the sum of $50,000, to be available until expended, $25,000 of such sum to be available for expenditure by the Secretary of Agriculture and $25,000 by the Secretary of Commerce.

SEC. 10. There is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, and to be available until expended, the sum of $1,500,000, or so much thereof as may be necessary for the acquisition of any areas authorized by this Act to be acquired for such refuge and for all necessary expense incident to the acquisition of such areas; but no money shall be available for the acquisition of any area until the Secretary of Agriculture has ascertained that all of the areas to be acquired under this Act will be acquired within the amounts appropriated or authorized to be appropriated therefor and at an average price not in excess of $5 per acre, and not in excess of the average selling price, during the years 1921, 1922, and 1923, of comparable lands within the vicinity of such areas.

SEC. 11. Any person who shall violate or fail to comply with any provision of or any regulation made pursuant to this Act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not more than $500 or be imprisoned not more than six months, or both.

SEC. 12. As used in this Act the term "person" includes an individual, partnership, association, or corporation.

SEC. 13. Nothing in this Act shall be construed as exempting any portion of the Mississippi River from the provisions of Federal laws for the improvement, preservation, and protection of navigable waters, nor as authorizing any interference with the operations of the War Department in carrying out any project now or hereafter adopted for the improvement of said river.

Approved, June 7, 1924.

[PUBLIC RESOLUTION—NO. 70—68TH CONGRESS]

[S. J. Res. 179]

Joint Resolution To amend section 10 of the Act entitled "An Act to establish the upper Mississippi River wild life and fish refuge."

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That section 10 of the Act entitled "An Act to establish the upper Mississippi River wild life and fish refuge," approved June 7, 1924 (Forty-third Statutes at Large, page 650), be, and the same hereby is, amended by striking out that part of said section which reads: "but no money shall be available for the acquisition of any area until the Secretary of Agriculture has ascertained that all of the areas to be acquired under this Act will be acquired within the amounts appropriated or authorized to be appropriated therefor and at an average price not in excess of $5 per acre, and not in excess of the average selling price, during the years 1921, 1922, and 1923, of comparable lands within the vicinity of such areas," and by substituting in lieu thereof the following: "*Provided*, That the Secretary of Agriculture shall not pay for any land or land and water a price which when added to the price of land or land and water theretofore purchased, shall exceed an average cost of $5 per acre."

Approved, March 4, 1925.

Appendix D: Applicable Laws and Executive Orders

Appendix D: Applicable Laws and Executive Orders

Rivers and Harbor Act (1899) (33 U.S.C. 403): Section 10 of this Act requires the authorization by the U.S. Army Corps of Engineers prior to any work in, on, over, or under a navigable water of the United States.

Antiquities Act (1906): Authorizes the scientific investigation of antiquities on federal land and provides penalties for unauthorized removal of objects taken or collected without a permit.

Migratory Bird Treaty Act (1918): Designates the protection of migratory birds as a federal responsibility. This Act enables the setting of seasons, and other regulations including the closing of areas, federal or non-federal, to the hunting of migratory birds.

Migratory Bird Conservation Act (1929): Establishes procedures for acquisition by purchase, rental, or gift of areas approved by the Migratory Bird Conservation Commission.

Fish and Wildlife Coordination Act (1934), as amended (1958): Requires that the Fish and Wildlife Service and State fish and wildlife agencies be consulted whenever water is to be impounded, diverted or modified under a federal permit or license. The Service and State agency recommend measures to prevent the loss of biological resources, or to mitigate or compensate for the damage. The project proponent must take biological resource values into account and adopt justifiable protection measures to obtain maximum overall project benefits. A 1958 amendment added provisions to recognize the vital contribution of wildlife resources to the Nation and to require equal consideration and coordination of wildlife conservation with other water resources development programs. It also authorized the Secretary of Interior to provide public fishing areas and accept donations of lands and funds.

Migratory Bird Hunting and Conservation Stamp Act (1934): Authorized the opening of part of a refuge to waterfowl hunting.

Historic Sites, Buildings and Antiquities Act (1935) as amended: Declares it a national policy to preserve historic sites and objects of national significance, including those located on refuges. Provides procedures for designation, acquisition, administration, and protection of such sites.

Refuge Revenue Sharing Act (1935) as amended: Requires revenue sharing provisions to all fee-title ownerships that are administered solely or primarily by the Secretary through the Service.

Transfer of Certain Real Property for Wildlife Conservation Purposes Act (1948): Provides that upon a determination by the Administrator of the General Services Administration, real property no longer needed by a federal agency can be transferred without reimbursement to the Secretary of Interior if the land has particular value for migratory birds, or to a State agency for other wildlife conservation purposes.

Federal Records Act (1950): Directs preservation of evidence of the government's organization, functions, policies, decisions, operations, and activities, as well as basic historical and other information.

Fish and Wildlife Act (1956): Established a comprehensive national fish and wildlife policy and broadened the authority for acquisition and development of refuges.

Refuge Recreation Act (1962): Allows the use of refuges for recreation when such uses are compatible with the refuge's primary purposes and when sufficient funds are available to manage the uses.

Wilderness Act (1964) as amended: Directed the Secretary of Interior, within 10 years, to review every roadless area of 5,000 or more acres and every roadless island (regardless of size) within National Wildlife Refuge and National Park Systems and to recommend to the President the suitability of each such area or island for inclusion in the National Wilderness Preservation System, with final decisions made by Congress. The Secretary of Agriculture was directed to study and recommend suitable areas in the National Forest System.

Land and Water Conservation Fund Act (1965): Uses the receipts from the sale of surplus federal land, outer continental shelf oil and gas sales, and other sources for land acquisition under several authorities.

National Wildlife Refuge System Administration Act (1966): (16 USC 668dd-668ee) Provides for administration, management, and planning for National Wildlife Refuges.

National Historic Preservation Act (1966) as amended: Establishes as policy that the federal government is to provide leadership in the preservation of the nation's prehistoric and historic resources.

Architectural Barriers Act (1968): Requires federally owned, leased, or funded buildings and facilities to be accessible to persons with disabilities.

National Environmental Policy Act (1969): Requires the disclosure of the environmental impacts of any major federal action significantly affecting the quality of the human environment.

Uniform Relocation and Assistance and Real Property Acquisition Policies Act (1970) as amended: Provides for uniform and equitable treatment of persons who sell their homes, businesses, or farms to the Service. The Act requires that any purchase offer be no less than the fair market value of the property.

Endangered Species Act (1973): Requires all federal agencies to carry out programs for the conservation of endangered and threatened species.

Rehabilitation Act (1973): Requires programmatic accessibility in addition to physical accessibility for all facilities and programs funded by the federal government to ensure that anybody can participate in any program.

Archaeological and Historic Preservation Act (1974): Directs the preservation of historic and archaeological data in federal construction projects.

Clean Water Act (1977): Requires consultation with the Corps of Engineers (404 permits) for major wetland modifications.

Surface Mining Control and Reclamation Act (1977) as amended (Public Law 95- 87) (SMCRA): Regulates surface mining activities and reclamation of coal-mined lands. Further regulates the coal industry by designating certain areas as unsuitable for coal mining operations.

Executive Order 11988, Floodplain Management (1977): Each federal agency shall provide leadership and take action to reduce the risk of flood loss and minimize the impact of floods on human safety, and preserve the natural and beneficial values served by the floodplains.

Executive Order 11990, Protection of Wetlands (1977): Order directs federal agencies to (1) minimize destruction, loss, or degradation of wetlands and (2) preserve and enhance the natural and beneficial values of wetlands when a practical alternative exists.

American Indian Religious Freedom Act (1978): Directs agencies to consult with native traditional religious leaders to determine appropriate policy changes necessary to protect and preserve Native American religious cultural rights and practices.

Fish and Wildlife Improvement Act (1978): Improves the administration of fish and wildlife programs and amends several earlier laws including the Refuge Recreation Act, the National Wildlife Refuge System Administration Act, and the Fish and Wildlife Act of 1956. It authorizes the Secretary to accept gifts and bequests of real and personal property on behalf of the United States. It also authorizes the use of volunteers on Service projects and appropriations to carry out a volunteer program.

Archaeological Resources Protection Act (1979) as amended: Protects materials of archaeological interest from unauthorized removal or destruction and requires federal managers to develop plans and schedules to locate archaeological resources.

Fish and Wildlife Conservation Act of 1980 (16 USC 661-667e) as amended: Requires the Fish and Wildlife Service to monitor non-game bird species, identify species of management concern, and implement conservation measures to preclude the need for listing under the Endangered Species Act.

Federal Farmland Protection Policy Act (1981) as amended: Minimizes the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses.

Consolidated Farm and Rural Development Act (1961) , amended January 23, 2004: provides loans for soil and water conservation and protection, water treatment and many other agricultural related activities.

U.S. Fish and Wildlife Service Region 3, Regional Director Bulletin (1983): Changes spelling from wild life to “wildlife” in Refuge name.

Emergency Wetlands Resources Act (1986): Promotes the conservation of migratory waterfowl and offsets or prevents the serious loss of wetlands by the acquisition of wetlands and other essential habitats.

Federal Noxious Weed Act (1990): Requires the use of integrated management systems to control or contain undesirable plant species, and an interdisciplinary approach with the cooperation of other federal and state agencies.

Native American Graves Protection and Repatriation Act (1990): Requires federal agencies and museums to inventory, determine ownership of, and repatriate cultural items under their control or possession.

Americans With Disabilities Act (1992): Prohibits discrimination in public accommodations and services.

Executive Order 12898, Environmental Justice for Minority Populations (1994): Establishes environmental justice as a federal government priority and directs all federal agencies to make environmental

justice part of their mission. Environmental justice calls for fair distribution of environmental hazards.

Executive Order 12962, Recreational Fisheries (1995): Federal agencies shall, to the extent permitted by law and where practicable, and in cooperation with States and Tribes, improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities.

Executive Order 12996 Management and General Public Use of the National Wildlife Refuge System (1996): Defines the mission, purpose, and priority public uses of the National Wildlife Refuge System. It also presents four principles to guide management of the System.

Executive Order 13006, Locating Federal Facilities On Historic Properties In Our Nation's Central Cities (1996): strengthen our Nation's cities by encouraging the location of federal facilities in our central cities.

Executive Order 13007 Indian Sacred Sites (1996): Directs federal land management agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, avoid adversely affecting the physical integrity of such sacred sites, and where appropriate, maintain the confidentiality of sacred sites.

National Wildlife Refuge System Improvement Act (1997) PL 105-57: This Act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966. Defines the National Wildlife Refuge System and authorizes the Secretary to permit any use of a refuge provided such use is compatible with the major purposes for which the refuge was established. The Refuge Improvement Act clearly defines a unifying mission for the Refuge System; establishes the legitimacy and appropriateness of the six priority public uses (hunting, fishing, wildlife observation and photography, or environmental education and interpretation); establishes a formal process for determining compatibility; established the responsibilities of the Secretary of Interior for managing and protecting the System; and requires a Comprehensive Conservation Plan for each refuge by the year 2012.

Migratory Bird Treaty Reform Act (1998): Public law 105-312 amends the first section and section 2 of the Upper Mississippi River Wild Life and Fish Refuge Act (16 U.S.C. 721,722) by striking ``Upper Mississippi River Wild Life and Fish Refuge" each place it appears and inserting ``Upper Mississippi River National Wildlife and Fish Refuge".

National Wildlife Refuge System Volunteer and Community Partnership Enhancement Act (1998): Amends the Fish and Wildlife Act of 1956 to promote volunteer programs and community partnerships for the benefit of national wildlife refuges, and for other purposes.

Executive Order 13112 Invasive Species (1999): directs federal agencies to prevent the introduction of invasive species, control populations of such species, monitor invasive species populations, provide for restoration of native species and habitat conditions in ecosystems that have been invaded, conduct research, promote public education on invasive species and the means to address them, and consult with the Invasive Species Council.

Secretarial Order 3226, Evaluating Climate Change Impacts in Management Planning, 2000: Directs each Department of Interior bureau to consider and analyze potential climate change impacts when undertaking long-range planning efforts or multi-year management plans.

Director's Order Number 132 (January 18, 2001): National Wildlife Refuge System Mission, Goals and Purposes. This reiterates the mission of the Refuge System and how it relates to the mission of the Fish and Wildlife Service. Order also provides guidance on the use of goals and purposes in the administration and management of the system.

Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, 2001: Instructs Federal agencies to conserve migratory birds by several means, including the incorporation of strategies and recommendation found in Partners in Flight Bird Conservation Plans, the North American Waterfowl Plan, the North American Waterbird Plan, and the United States Shorebird Conservation Plan, into agency management plan and guidance documents.

Appendix E: Compatibility Determinations

Appendix E: Compatibility Determinations

In accordance with the Refuge Improvement Act of 1997, no uses for which the Service has authority to regulate may be allowed on a unit of Refuge System unless it is determined to be compatible. A compatible use is a use that, in the sound professional judgment of the refuge manager, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the national wildlife refuge. Managers must complete a written compatibility determination for each use, or collection of like-uses, that is signed by the manager and the Regional Chief of Refuges in the respective Service region.

Draft compatibility determinations were included in the Draft EIS/CCP to allow public review and comment. Compatibility determinations based on Alternative E, the preferred alternative in the Final EIS/CCP, are available on the planning website at http://www.fws.gov/midwest/planning/uppermiss.

Final compatibility determinations will be signed following release of the Record of Decision and will be available for viewing at Refuge headquarters or Refuge District offices. Below is a list of compatibility determinations, list of future uses which will require a case-by-case compatibility determination, and a list of uses which are generally prohibited and therefore not subject to compatibility.

Compatibility Determinations

Archeological investigations and surveys
Beach-related uses (swimming, sunbathing, picnicking, and other)
Boating with motor-driven watercraft, snowmobiling
Camping
Canoeing, kayaking, and sailing
Commercial fishing (including mussel and turtle harvest)
Dog exercising and training
Environmental education
Farming
Fishing, recreational
Fishing floats, commercial
Fishing tournaments
Fruits of the soil harvest
Grazing
Guided fishing
Guided hunting
Guided wildlife observation
Haying
Hunting, migratory bird
Hunting, big game, upland game, furbearer
Interpretation, wildlife observation, and photography
Research
Sediment removal

Special events, non-Refuge sponsored
Temporary work outside of existing rights-of-way
Trapping of furbearers
Tree harvest

Case-by-case Compatibility Determinations

Commercial filming
Military exercises
New or expanded rights-of-way
Mosquito and other pest control (e.g. gypsy moth)
Predator control by others
Research by 3rd parties, not related to refuge management information needs

Generally Prohibited Uses – no compatibility determination required

Commercial boat moorage
Houseboat moorage
Business, commercial or industrial
Civilian aircraft landing
Tally ho fox hunting
Sand and gravel extraction
Off road vehicle use
Snowmobiling (Except on ice over navigable waters)
Horseback riding
Field trials
Mountain biking
Beekeeping
Wild rice harvest
Rock hounding

Appendix F: Cooperative Agreement with Corps of Engineers

AMENDED
COOPERATIVE AGREEMENT
Between the
Department of the Army, Corps of Engineers
and the
Department of the Interior, U.S. Fish and Wildlife Service

This amendment made and entered into this _____ day of _____, 2001, between the Department of the Army through the Corps of Engineers, hereinafter referred to as the Corps, and the Department of the Interior through the U.S. Fish and Wildlife Service, hereinafter referred to as the Service, amends the Cooperative Agreement between the parties dated February 14, 1963;

WHEREAS the United States through the Corps, has acquired certain lands in fee for the improvement of navigation in the Upper Mississippi River to provide a 9-foot channel from the Missouri River to Minneapolis, and portions of the Illinois River, hereinafter referred to as the Navigation Project, and

WHEREAS, pursuant to Section 3 of the Fish and Wildlife Coordination Act (48 Stat. 401 as amended by 60 Stat. 1080 and 72 Stat. 563; 16 U.S.C. 661 et seq.), lands shall be made available to the Service, consistent with navigation as the primary purpose of the Project, for the conservation, maintenance, and management of fish and wildlife and its habitat. There have been General Plans formulated for the use of lands and waters of the Navigation Project for fish/wildlife conservation and management and the same have been approved by the Secretary of the Army, the Secretary of the Interior, and the heads of the State agencies exercising administration over fish and wildlife resources within the States of Illinois, Iowa, Minnesota, Missouri, and Wisconsin. Certain segments of the land subject to this Amended Agreement, as indicated in the General Plan, may be allocated to the States of Illinois, Iowa, Missouri, Minnesota, and Wisconsin for conservation management through subsequent agreements between the Service and those states, and

WHEREAS the Corps cannot abrogate its stewardship role for the conservation, maintenance, and management of fish and wildlife and its associated habitats as required by subsequent legislation such as, but not limited to the National Environmental Policy Act, Comprehensive Environmental Response, Compensation and Liability Act, the Forest Cover Act, the Historic Preservation Act, and as directed by Agency policy, guidance and regulations for the Corps' stewardship role for the conservation, maintenance, and management of these natural resources, and

WHEREAS the Corps and the Service shall continue to foster and maintain partnerships through specific regional working groups for addressing Navigation project issues that impact the conservation, maintenance and management of fish/wildlife resources specific to the lands addressed by the Amended Agreement.

Now therefore, in accordance with the aforesaid Section 3 of the Fish and Wildlife Coordination Act and the aforesaid General Plans, the Corps and Service hereby amend the Cooperative Agreement of February 14, 1963.

The Corps pursuant to the language of the third paragraph of the first page of this amendment hereby makes available to the Service the land and water areas of the Navigation Project substantially as identified on the exhibits attached to the General Plans referred to above, and by reference made a part hereof, for the conservation, maintenance, and management of fish/wildlife resources thereof, and its habitat thereon, in connection with the national migratory bird management and other fish/wildlife species programs in accordance with said General Plans. The Service shall manage these lands consistent with the National Wildlife Refuge System. This Amendment to the Cooperative Agreement of February 14, 1963 shall be subject to the provisions and conditions of the said General Plans and to the following additional conditions:

Paragraph 1 of the Cooperative Agreement is amended to read:

1. The Corps reserves all rights in and to the lands above described, which are not herein specifically granted, including, but not limited to, the operation and maintenance of the Navigation Project for its primary purpose of navigation. The Corps agrees that in fulfilling this primary purpose and other stewardship roles, as required by law and defined within Corps policies and regulations, that operation and maintenance activities will be carried out in accordance with current approved documents such as Master Plans, Operational Management Plans and Channel Maintenance Plans, and any future agency directive or legal requirement specific to the continued operation and maintenance of the Navigation Project.

Paragraph 2 of the Cooperative Agreement is amended to read:

2. The use and occupation of the said premises shall be without cost or expense to the Corps, under the general supervision of the Division Engineer, U.S. Army Division, Mississippi Valley Division, Vicksburg, Mississippi, herein after referred to as the "Division Engineer," and subject also to such rules and regulations in the interest of navigation and flood control as the Corps may from time to time prescribe.

Paragraph 3 of the Cooperative Agreement is amended to read:

3. Any damage to the property above described which results as an incident to the exercise of the privileges herein granted, shall be promptly corrected by the Service to the satisfaction of the Division Engineer. The Service will post appropriate project boundary lines, while the Corps will provide survey data, to the extent that it is available, for this purpose. The Service shall also take appropriate action to prevent and resolve minor trespass or unauthorized use of said property. The Service shall immediately report instances of unauthorized land use or serious trespass to the appropriate Corps Project Office. The Corps and Service shall coordinate enforcement efforts or legal actions taken against those responsible.

Paragraph 4 of the Cooperative Agreement is amended to read:

4. The exercise of the privileges granted shall in no way interfere with navigation and shall be subject at all times, without approval of the Service, to the occupation and use by the public for specific and related Navigation Project purposes and by the Corps for navigation, flood control, and all other Navigation Project related purposes, including, but not limited to, change in water surface elevations, dredging and placement of dredged material there from, and construction of training works, bank protection, and navigation aids.

Paragraph 5 of the Cooperative Agreement is deleted.

Paragraph 6 of the Cooperative Agreement is deleted.

Paragraph 7 of the Cooperative Agreement is amended to read:

7. It is understood that the privileges hereby granted do not preclude the necessity of obtaining from the Corps permits for work and structures in, under or over navigable waters as may be required under the provisions of Section 404 of the Clean Water Act of 1977, or Section 10 of the Rivers and Harbors Act of 1899, as amended.

Paragraph 8 of the Cooperative Agreement is amended to read:

8. No significant additions to or alterations of the premises, such as buildings, bridges, pump stations, roads, etc., shall be made by the Service without prior written consent of the appropriate District Engineer unless included in the Refuge Comprehensive Conservation Plan approved by the agencies.

Paragraph 9 of the Cooperative Agreement is amended to read:

9. In accordance with the aforesaid General Plans, authority to administer the lands and waters covered by this agreement may be delegated to the heads of the State agencies exercising administration over the wildlife resources of the aforesaid

States by cooperative agreements entered into pursuant to the provisions of Sections 1 and 4 of the said Fish and Wildlife Coordination Act. Copies of each such agreement, revisions, or amendments shall be furnished to the Division and District Engineers, respectively, promptly upon execution.

Paragraph 10 of the Cooperative Agreement is amended to read:

10. In development of lands described for public and agency use, as identified on the exhibits attached to the general plans referenced above, the Corps may in accordance with approved management plans and other appropriate agency documents, develop public use facilities or issue leases, licenses, and easements for the same purpose, issue special use licenses authorizing non-exclusive private uses which do not interfere with public use of areas involved, maintain and construct access roads, and issue outgrants. As appropriate, these actions will be coordinated with the Service and appropriate States to insure agency involvement and input into the Corps processes for implementation of these actions. During the development and implementation of these actions, the Service and States will be given the opportunity to provide recommendations regarding perceived impacts of the actions on the lands and waters defined by this amended agreement. The instruments provided for in this condition shall be issued only by the Corps and shall contain appropriate provisions prescribed by the Service regarding fish/wildlife management, including the continuing rights of the Service to post and patrol to enforce hunting regulations; however, the Service shall not have the right to deny access to or use of planned and developed, Corps-managed public use areas. Any planned developments for public and agency use shall address appropriate provisions prescribed by the Service regarding fish/wildlife management

Paragraph 11 of the Cooperative Agreement is deleted.

Paragraph 12 of the Cooperative Agreement is deleted.

Paragraph 13 of the Cooperative Agreement is amended to read:

13. The use of all agricultural treatments on lands covered hereunder shall be in compliance with laws, rules, and regulations administered by the Department of Agriculture and applicable to this type of land; provided that no part of the foregoing shall be construed as prohibiting the use of sharecrop agreements. All agricultural crops accruing to the Service or the pertinent States shall be used exclusively for wildlife, or wildlife habitat management purposes on the described lands, and for no other purpose. In the event that all the yield thus made available for wildlife or habitat management is not used for that purpose, the Service or the States shall, in order to avoid waste, sell for cash the remainder thereof in such a manner as to protect the public interest. Pursuant to Section 4 of the Act of Congress approved 22 December 1944, as amended (76 Stat. 1195; 16 U.S.C. 460d), all proceeds from the disposal of surplus production may be used by the Service or States in the development, conservation, management, and utilization of such lands; provided, that any balance of proceeds, not so utilized shall be paid to the Division Engineer at five-year intervals. In connection therewith, the Service shall establish and maintain adequate accounts and render statement of receipts and expenditures to the Division and District Engineers in an annual report that will be furnished not later than 30 calendar days prior to the scheduled annual meeting.

Paragraph 14 of the Cooperative Agreement is amended to read:

14. The Service shall administer and maintain the premises made available for wildlife conservation and management in accordance with current approved management plans for both agencies. An annual coordination meeting shall be organized by the Service each year on or before April 1 with each of the three Corps Districts (St. Louis, Rock Island, and St. Paul) and the states managing General Plan lands subject to this Agreement (Illinois, Iowa, and Missouri). The contents of the meeting shall include information specific to any changes and activities during the previous calendar year and information concerning proposed future projects. Issues covered shall include, but not be limited to, those management issues listed below:

(a) Boundary Management problems, including actions to address trespass or unauthorized uses;

(b) Report of completed construction and improvements, including project costs;

(c) Report of planned future construction, as approved in existing management plans;

(d) Report of conceived changes in management strategy;

(e) Cropland acreage utilized; amount of crop that was deemed excess to wildlife management needs including amount of receipts for sale of such crops; and amount and nature of expenditures derived from surplus crop funds;

(f) The Service liaison for the Agreement will consolidate a concise written annual report from the material presented at the meeting for submission to the Corps;

Paragraph 15 of the Cooperative Agreement is amended to read:

15. This agreement may be suspended or revoked at the discretion of the Department of the Army in case of national emergency or disaster declared by the President of the United States. In the event that problems are identified in compliance with any of the terms and conditions of this agreement, the following dispute resolution procedures will be followed:

(a) Service Refuge Managers and Corps District Operations Managers will meet to discuss the pertinent issue and seek resolution;

(b) In the event that informal efforts to resolve the issue at the field level are not successful, the appropriate Service Assistant Regional Director will meet with the appropriate District Engineer to seek written resolution; and

(c) Finally, if the matter remains unresolved, it will be referred to the Division Engineer whose decision will be final.

Paragraph 16 of the Cooperative Agreement is amended to read:

16. This agreement may be relinquished by the Service at any time by giving to the Division Engineer at least one-year's notice in writing.

Paragraph 17 of the Cooperative Agreement is amended to read:

17. If this agreement is relinquished or revoked as provided above, the Service shall vacate the premises, remove all property of the Service there from, and subject to the availability of funds, restore the premises to a condition satisfactory to the Division Engineer, ordinary wear and tear and damages beyond the control of the Service excepted, within such time as the Secretary of the Army may designate.

Paragraph 18 of the Cooperative Agreement is deleted.

The following paragraph is added to the Cooperative Agreement :

19. The Corps retains responsibility to provide protection of forest or other vegetative cover on reservoir areas, including navigation projects, in compliance with P.L. 86-717, the Forest Cover Act, and to establish and maintain other conservation measures on these areas. Corps management programs are to promote future resources and to increase the value of such areas for conservation, recreation, and other beneficial uses, provided that management is compatible with other uses of the project. The development of plans or other natural resource management activities will be coordinated with the Service for input and review of impacts of proposed actions on wildlife management use of the project. The Service will identify forest habitat goals and objectives in Refuge Comprehensive Conservation Plans to provide guidance to the Corps in this partnership effort. Revenue from sale of any timber in conjunction with the Forest Cover Act Program shall be credited to the Corps.

The following paragraph is added to the Cooperative Agreement :

20. The Corps retains the right to use and/or improve existing roads as a means of ingress and egress to and from the Mississippi River and to any areas that the Corps administers.

5 Jul 01
(Date)

By EDWIN J. ARNOLD, JR.
Brigadier General, U. S. Army
Division Engineer
Mississippi Valley Division

7/31/01
(Date)

By WILLIAM F. HARTWIG
Marvin E. Moriarty
Acting Regional Director for
Regional Director, Region 3
U.S. Fish And Wildlife Service
Department of the Interior

Appendix G: Land Acquisition Maps

Appendix G: Land Acquisition Maps

The following maps show potential land protection or conservation areas by river navigation pools within the Refuge. Existing Refuge lands include lands acquired by the Service and lands acquired by the Corps of Engineers but managed as part of the Refuge through a cooperative agreement between the Fish and Wildlife Service and the Corps of Engineers. Many of these acquired lands have been submerged since the 1930s when a series of constructed locks and dams raised water levels to improve navigation. Thus, the Refuge generally includes areas shown in green (lands) and areas shown in blue (water) on the maps.

These acquired lands, combined with lands within the Approved Expansion Boundary in the 1987 Master Plan, the Halfway Creek Preliminary Project Proposal, and the Lost Mound Unit Memorandum of Agreement (former Savanna Army Depot), encompass the entire authorized Refuge. All numbered tracts on the maps are thus within the approved boundary of the Refuge.

All tracts are coded A, B, C, or D to denote their relative resource value. This classification system was developed in the 1987 Master Plan for the Refuge, and is still a useful comparison and prioritization tool. The classification system is included below.

RESOURCE CLASSIFICATION A: High value fish and wildlife habitat which is unique and irreplaceable on a national basis or in the ecoregion.

- Known or very probable federal endangered species habitat. Includes bald eagle and Peregrine Falcon nesting sites and Higgins' eye pearly mussel beds.
- Essential habitat for state endangered species.
- Water bird nesting colonies and one-quarter-mile buffer area from the closest nesting tree; includes herons, egrets, cormorants, and terns.
- Essential production habitat or concentration areas for Regional Resource Plan (RRP) National Species of Special Emphasis (NSSE) where the Upper Mississippi River plays a special role in supporting these species. Species include: Wood Duck, Mallard, Ring-necked Duck, Canvasback, Tundra Swan, Osprey, Peregrine Falcon, and Bald Eagle.
- Tail water areas with high fisheries and raptor feeding values.
- Main channel border; side channels and river lakes/ponds with known crucial values for fish spawning, rearing, and wintering; and diverse mussel habitat.

RESOURCE CLASSIFICATION B: Valuable fish and wildlife habitat which is relatively scarce or becoming scarce on a national basis or in the ecoregion.

- Prime waterfowl habitat (criteria include but are not limited to dispersed habitats for RRP species such as Wood Duck, Mallard, Ring-necked Duck, and Canada Goose.)
- Primary habitat for remaining RRP NSSE species: Northern Pintail, American Black Duck, Redhead, Greater White-fronted Goose, Snow Goose, Trumpeter Swan, Greater Sandhill Crane, American Woodcock, Least Tern, Mourning Dove, and Golden Eagle.

- # Primary habitat for at least three of five major wildlife groups (fish, waterfowl, furbearers, raptors, water/shore birds) using the river.
- # Areas which state threatened or endangered species are known to occur.
- # Wing dams and other important fisheries habitat; includes most main channel border areas, side channels, river lakes/ponds, and sloughs.

RESOURCE CLASSIFICATION C: Medium value habitat, usually altered.

- # Primary habitat for one or two of the five major wildlife groups (includes most of the main river channel, agricultural lands, revegetated spoil sites, and upland forest).
- # Utility corridors (transmission lines, pipelines).

RESOURCE CLASSIFICATION D: Low value habitat, developed.

- # Developed areas including roads, bridges, railroad tracks, residential areas, airports, commercial/industrial areas, barge fleeting and terminal sites, power plants, etc. These areas will be designated based on review and concurrence from the Upper Mississippi River Refuge District Managers and Service Ecological Services staff.
- # Water areas with low fisheries value.

Note:

- # The scarcity and relative importance of some habitat types generally increase in downstream portions of the refuge. This factor was considered in the habitat classification exercise, and some units in the lower pools may have been placed in higher classification categories based on importance to the local ecological system rather than overall biological productivity.

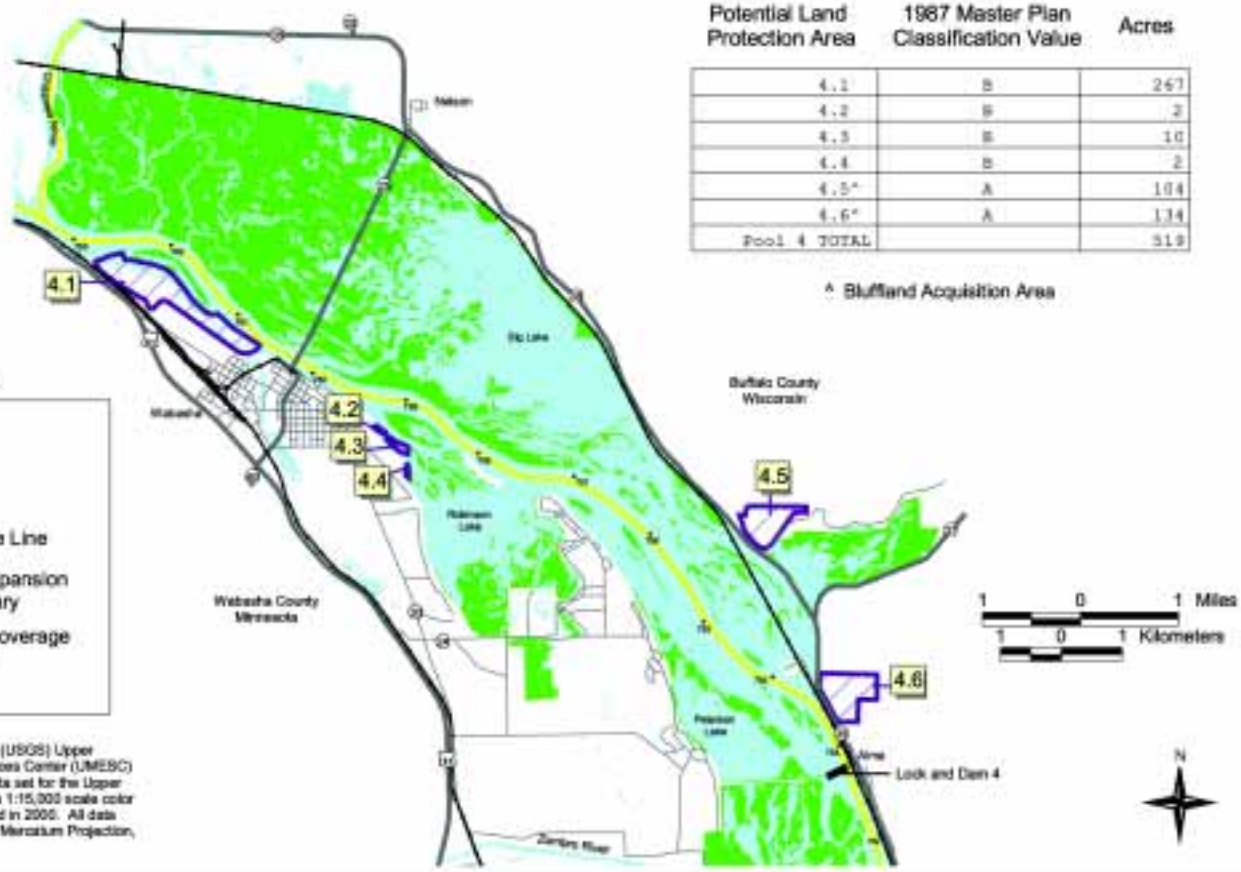
- # Habitat evaluations are based on the current status of the resource. Proposals for enhancement, commitments for GREAT-designated disposal sites, and other projects planned for the future were not factors in the determination of resource classifications.

Potential Land Protection* Areas, Pool 4,
within the Authorized Refuge Boundary, Upper Mississippi River National Wildlife and Fish Refuge.

* Conservation options may include: fee title and conservation easement acquisitions (willing sellers only), and cooperative efforts with state and non-governmental organizations.

Potential Land Protection Area	1987 Master Plan Classification Value	Acres
4.1	B	267
4.2	B	2
4.3	B	10
4.4	B	2
4.5*	A	104
4.6*	A	134
Pool 4 TOTAL		519

* Bluffland Acquisition Area



Legend

- River mile
- Roads
- Railroad
- County-State Line
- Approved Expansion Boundary

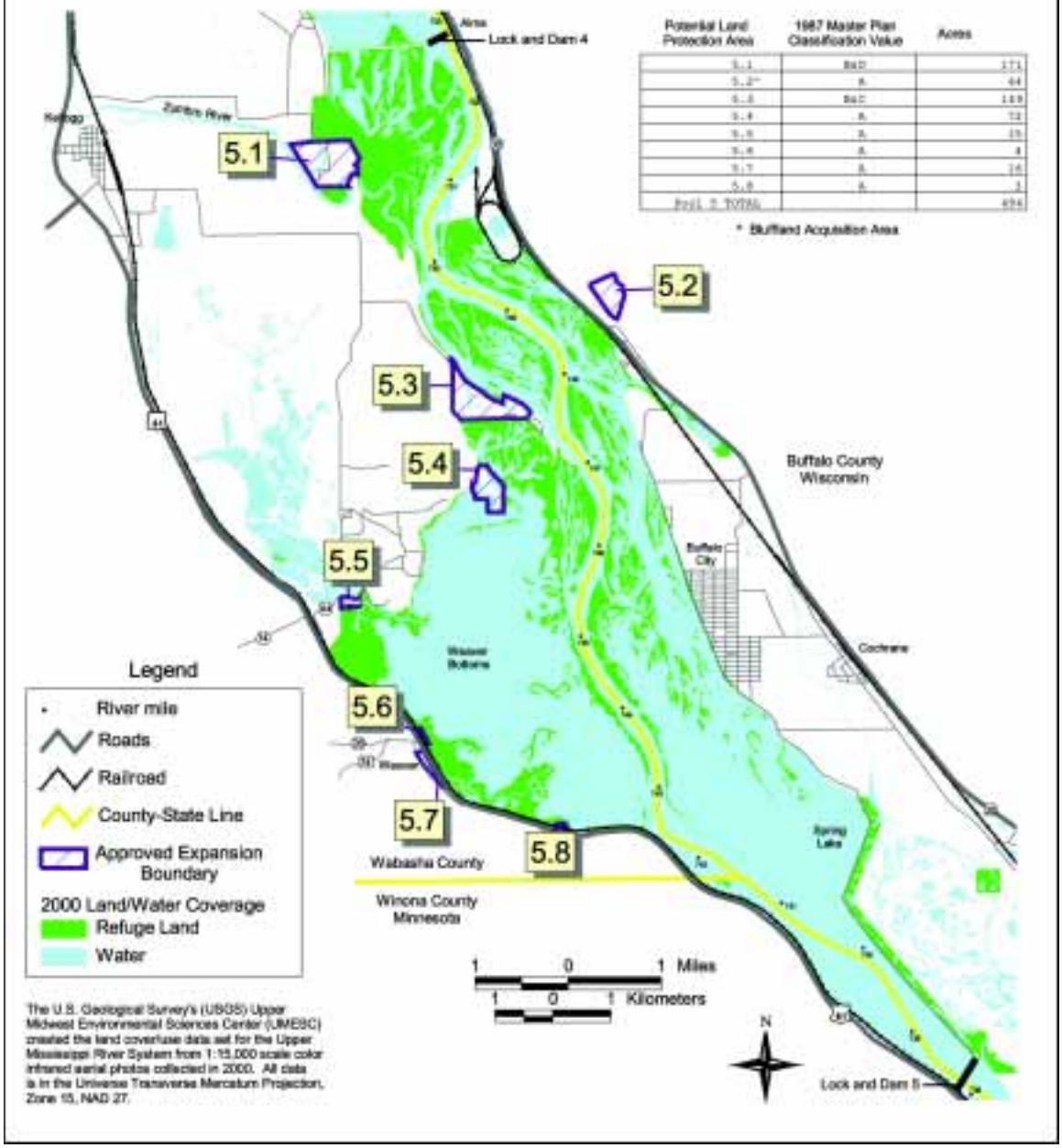
2000 Land/Water Coverage

- Refuge Land
- Water

The U.S. Geological Survey's (USGS) Upper Midwest Environmental Sciences Center (UMESC) created the land cover/use data set for the Upper Mississippi River System from 1:15,000 scale color infrared aerial photos collected in 2000. All data is in the Universe Transverse Mercatorm Projection, Zone 15, NAD 27.

Potential Land Protection* Areas, Pool 5,
within the Authorized Refuge Boundary, Upper Mississippi River National Wildlife and Fish Refuge.

* Conservation options may include: fee title and conservation easement acquisitions (willing sellers only), and cooperative efforts with state and non-governmental organizations.



Potential Land Protection Area	1987 Master Plan Classification Value	Acres
5.1	BAD	171
5.2*	A	44
5.3	BAC	169
5.4	A	72
5.5	A	15
5.6	A	4
5.7	A	16
5.8	A	1
Pool 5 TOTAL		494

* Bluffland Acquisition Area

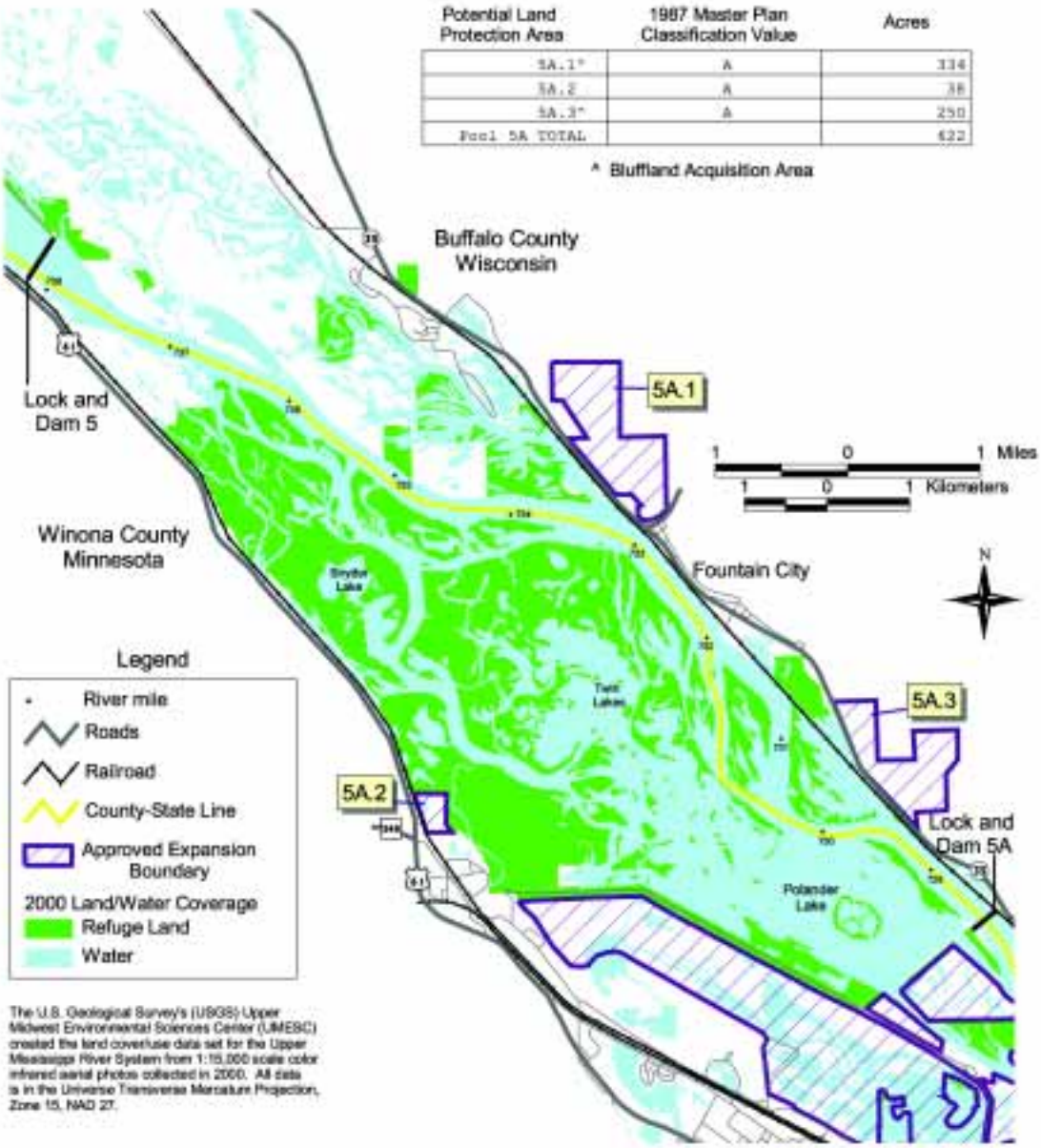
Potential Land Protection* Areas, Pool 5A,

within the Authorized Refuge Boundary, Upper Mississippi River National Wildlife and Fish Refuge.

* Conservation options may include: fee title and conservation easement acquisitions (willing sellers only), and cooperative efforts with state and non-governmental organizations.

Potential Land Protection Area	1987 Master Plan Classification Value	Acres
5A.1*	A	334
5A.2	A	38
5A.3*	A	250
Pool 5A TOTAL		622

* Bluffland Acquisition Area

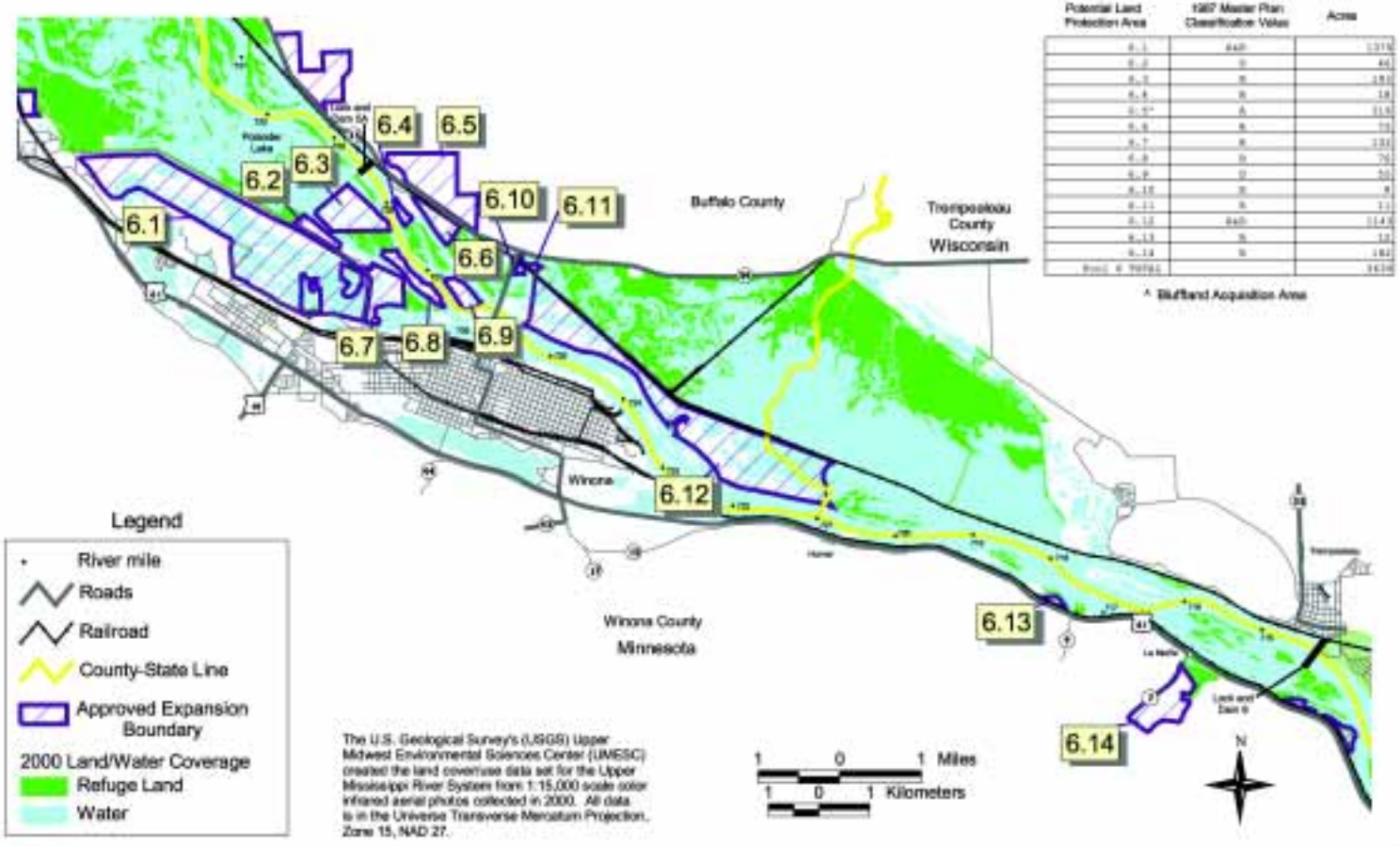


The U.S. Geological Survey's (USGS) Upper Midwest Environmental Sciences Center (UMESC) created the land coverluse data set for the Upper Mississippi River System from 1:15,000 scale color infrared aerial photos collected in 2000. All data is in the Universe Transverse Mercatum Projection, Zone 15, NAD 27.

Potential Land Protection* Areas, Pool 6,

within the Authorized Refuge Boundary,
Upper Mississippi River National Wildlife and Fish Refuge.

* Conservation options may include: fee title and conservation easement acquisitions (willing sellers only), and cooperative efforts with state and non-governmental organizations.



Potential Land Protection Area	1987 Master Plan Classification Value	Acres
6.1	[illegible]	[illegible]
6.2	[illegible]	[illegible]
6.3	[illegible]	[illegible]
6.4	[illegible]	[illegible]
6.5*	A	[illegible]
6.6	[illegible]	[illegible]
6.7	[illegible]	[illegible]
6.8	[illegible]	[illegible]
6.9	[illegible]	[illegible]
6.10	[illegible]	[illegible]
6.11	[illegible]	[illegible]
6.12	[illegible]	[illegible]
6.13	[illegible]	[illegible]
6.14	[illegible]	[illegible]
Pool 6 Totals		[illegible]

* Bluffland Acquisition Area

Potential Land Protection* Areas, Pool 7,

within the Authorized Refuge Boundary, Upper Mississippi River National Wildlife and Fish Refuge.

* Conservation options may include: fee title and conservation easement acquisitions (willing sellers only), and cooperative efforts with state and non-governmental organizations.

Potential Land Protection Area	1987 Master Plan Classification Value	Acres
7.1	B	8
7.2	B	2
7.3	C	48
7.4	BAD	1449
7.5	A	49
7.6	A	43
7.7	A	126
7.8	C	745
7.9	A	7
Pool 7 TOTAL		2475

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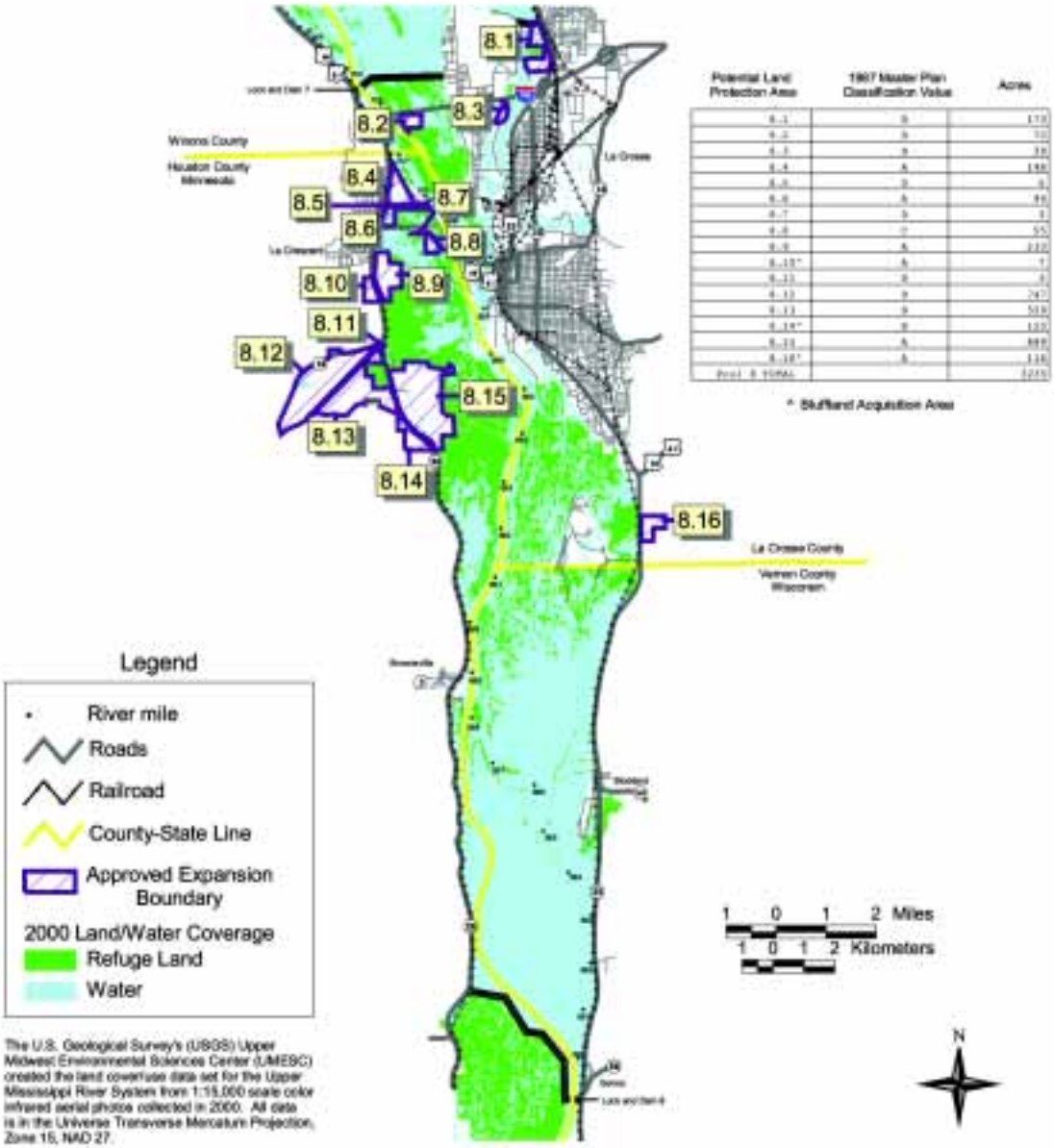
Potential Land Protection* Areas, Pool 8,

within the Authorized Refuge Boundary, Upper Mississippi River National Wildlife and Fish Refuge.

* Conservation options may include: fee title and conservation easement acquisitions (willing sellers only), and cooperative efforts with state and non-governmental organizations.



Potential Land Protection Area	1997 Master Plan Classification Value	Acres
8-1	5	170
8-2	5	10
8-3	5	35
8-4	5	195
8-5	5	5
8-6	5	85
8-7	5	3
8-8	5	55
8-9	5	232
8-10*	5	1
8-11	5	3
8-12	5	747
8-13	5	518
8-14*	5	122
8-15	5	869
8-16*	5	116
Pool 8 TOTAL		3215

* Bluffland Acquisition Area

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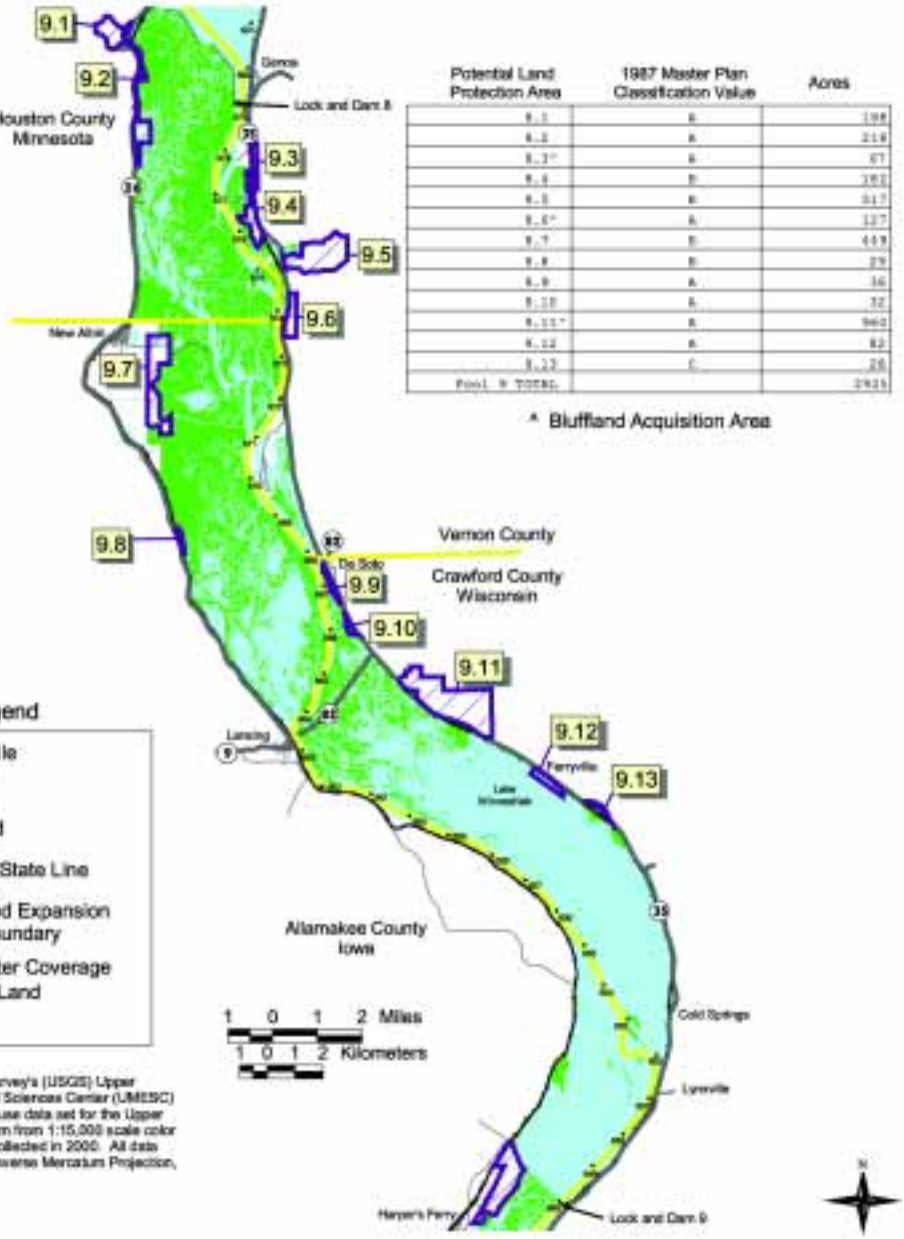
Potential Land Protection* Areas, Pool 9,
within the Authorized Refuge Boundary, Upper Mississippi River National Wildlife and Fish Refuge.

* Conservation options may include: fee title and conservation easement acquisitions (willing sellers only), and cooperative efforts with state and non-governmental organizations.



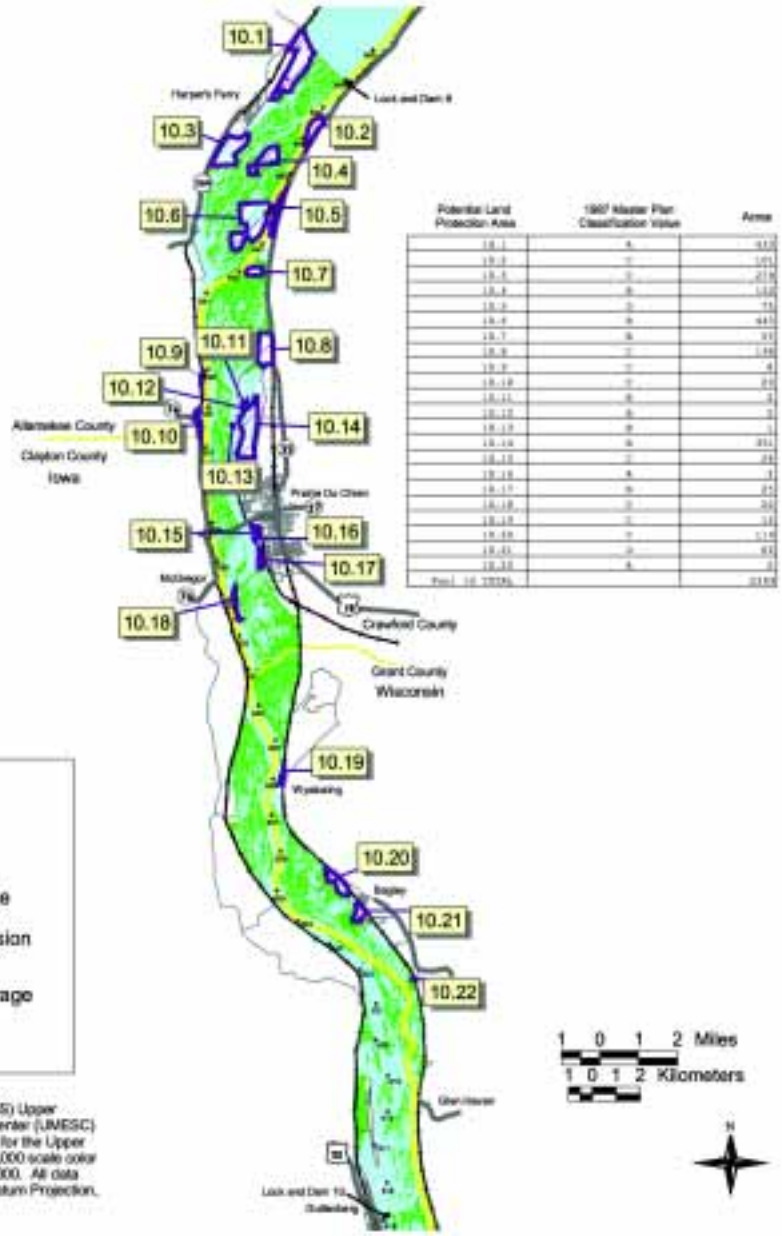
Potential Land Protection Area	1987 Master Plan Classification Value	Acres
9.1	A	198
9.2	A	218
9.3*	A	67
9.4	B	181
9.5	A	317
9.6*	A	127
9.7	B	449
9.8	B	29
9.9	A	36
9.10	A	32
9.11*	A	960
9.12	A	82
9.13	C	26
Pool 9 TOTAL		2625

* Bluffland Acquisition Area

Potential Land Protection* Areas, Pool 10,

within the Authorized Refuge Boundary, Upper Mississippi River National Wildlife and Fish Refuge.

* Conservation options may include: fee title and conservation easement acquisitions (willing sellers only), and cooperative efforts with state and non-governmental organizations.



Legend

- River mile
- Roads
- Railroad
- County-State Line
- Approved Expansion Boundary

2000 Land/Water Coverage

- Refuge Land
- Water

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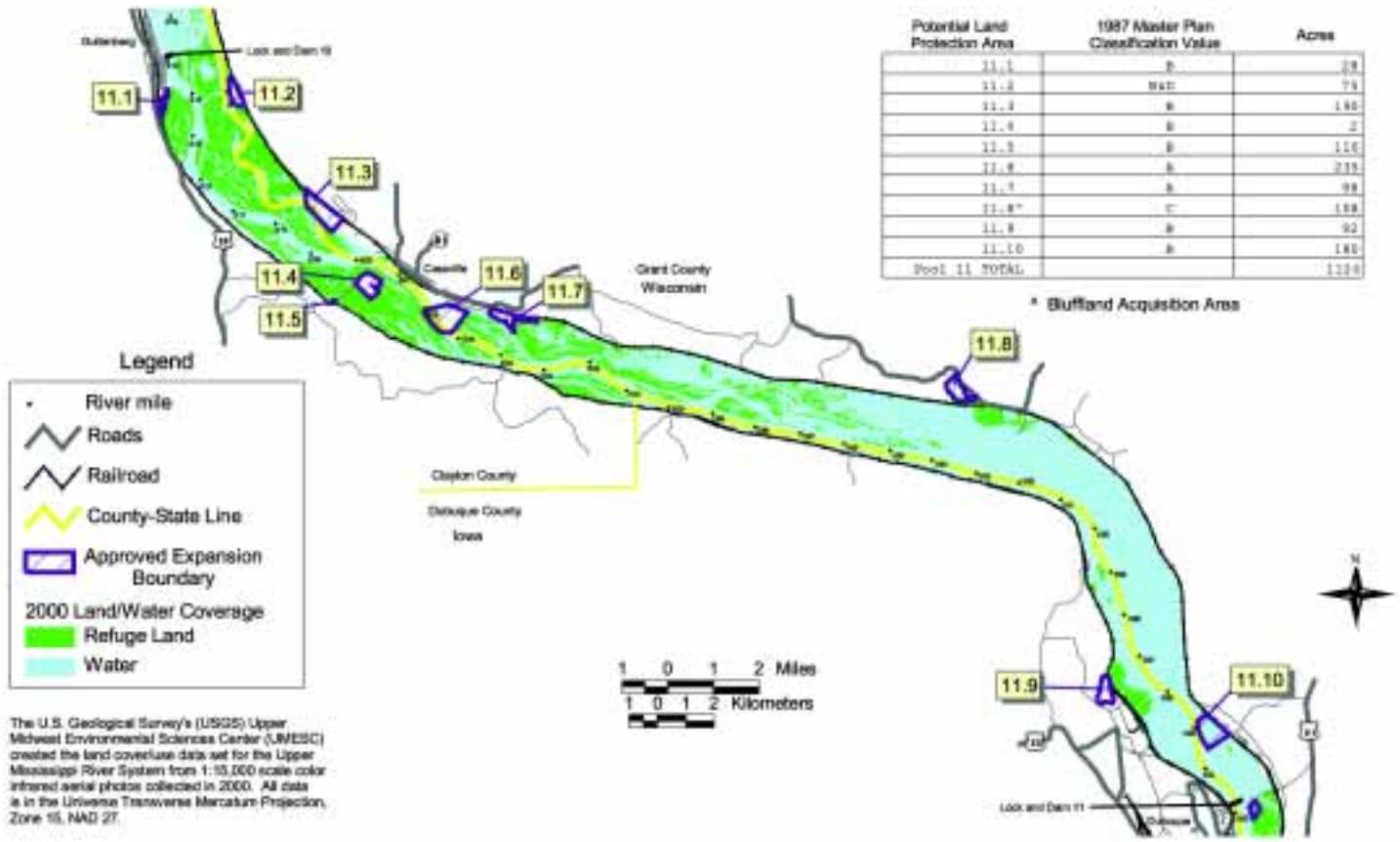
Potential Land Protection* Areas, Pool 11,

within the Authorized Refuge Boundary, Upper Mississippi River National Wildlife and Fish Refuge.

* Conservation options may include: fee title and conservation easement acquisitions (willing sellers only), and cooperative efforts with state and non-governmental organizations.



Potential Land Protection Area	1987 Master Plan Classification Value	Acres
11.1	B	29
11.2	N&C	75
11.3	B	140
11.4	B	2
11.5	B	110
11.6	B	235
11.7	B	98
11.8*	C	108
11.9	B	92
11.10	B	180
Pool 11 TOTAL		1120

* Bluffland Acquisition Area

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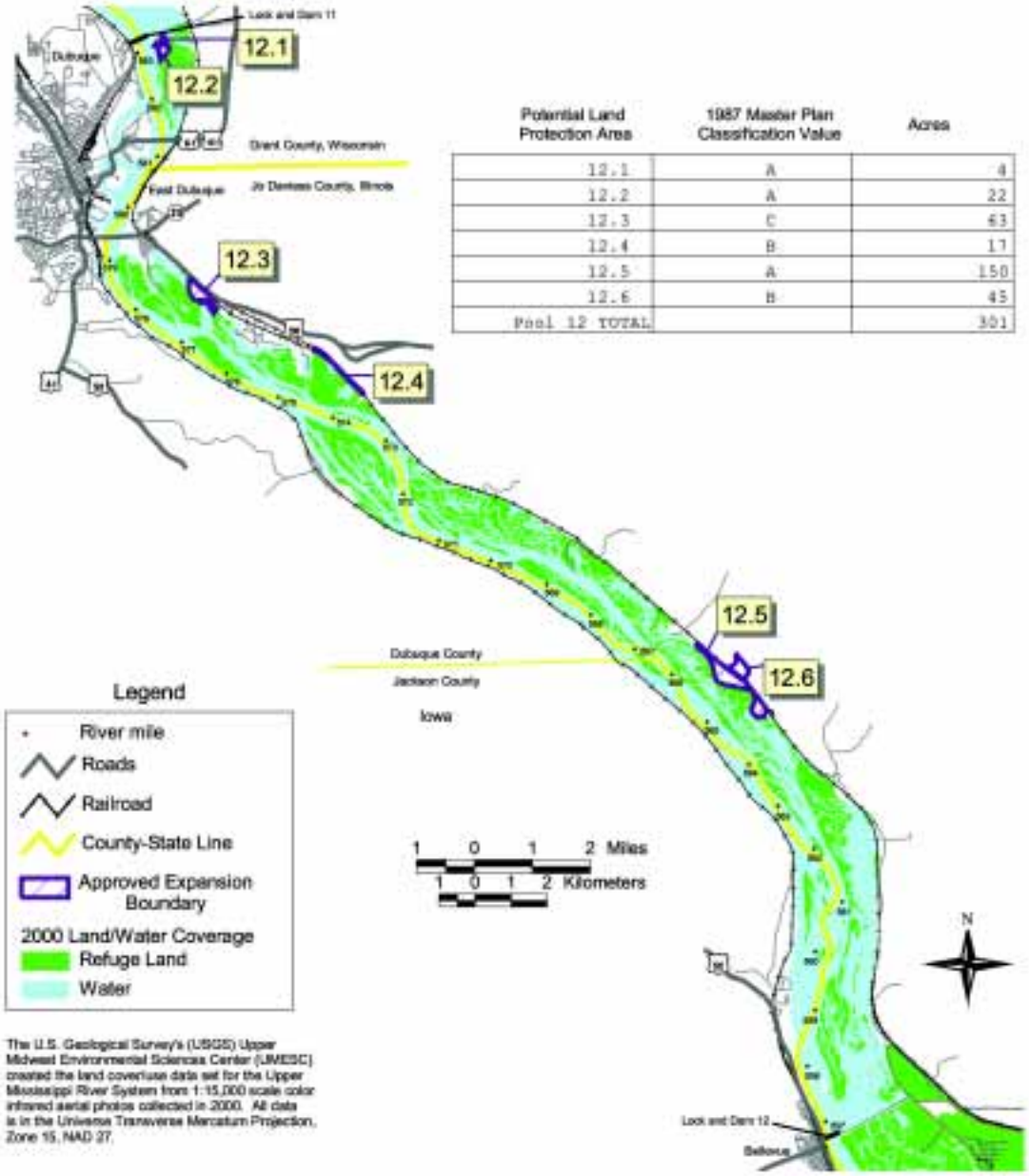
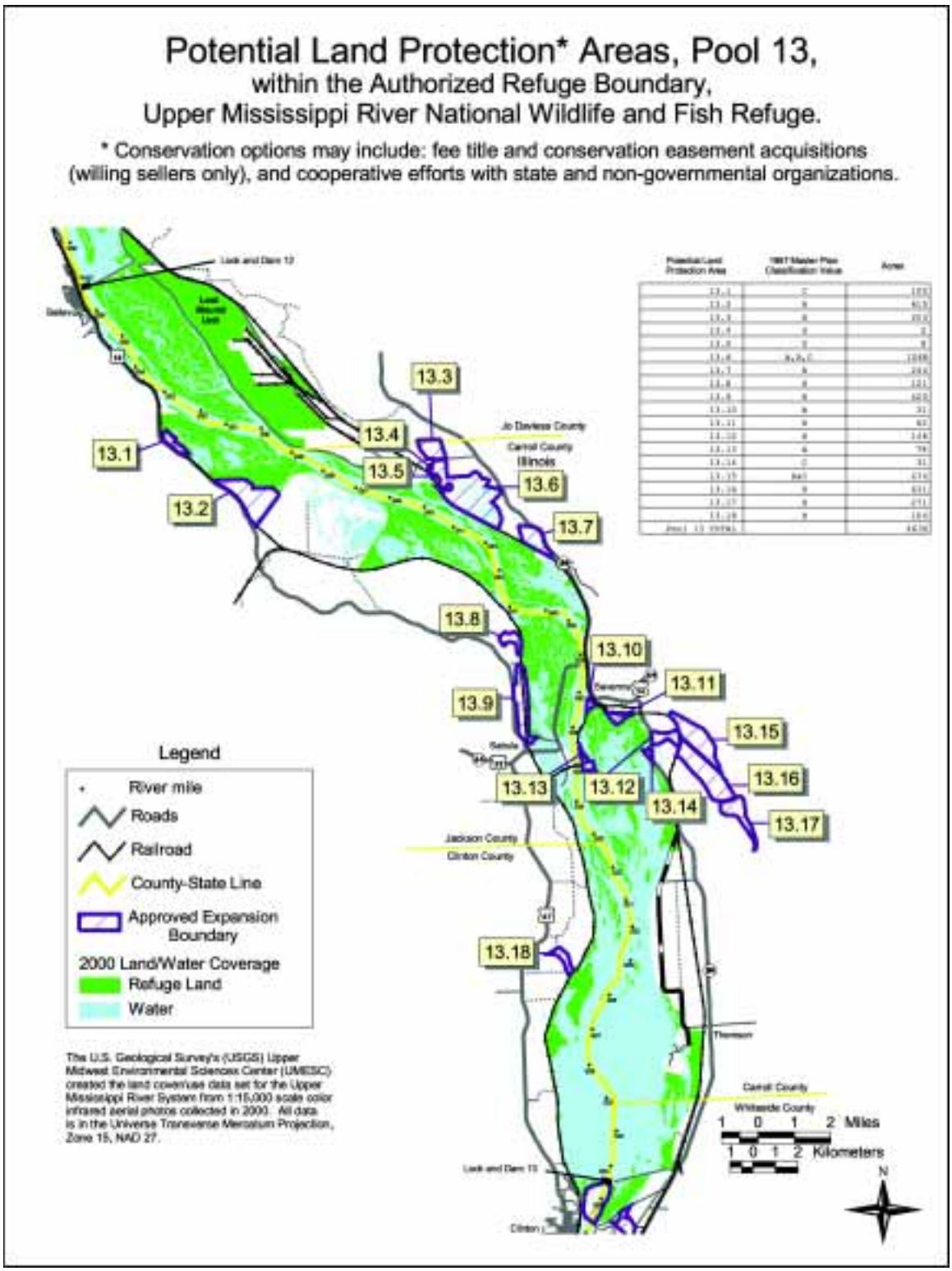
Potential Land Protection* Areas, Pool 12,
within the Authorized Refuge Boundary, Upper Mississippi River National Wildlife and Fish Refuge.

* Conservation options may include: fee title and conservation easement acquisitions (willing sellers only), and cooperative efforts with state and non-governmental organizations.



Potential Land Protection Area	1987 Master Plan Classification Value	Acres
12.1	A	4
12.2	A	22
12.3	C	63
12.4	B	17
12.5	A	150
12.6	B	45
Pool 12 TOTAL		301


Potential Land Protection* Areas, Pool 13,
within the Authorized Refuge Boundary,
Upper Mississippi River National Wildlife and Fish Refuge.
* Conservation options may include: fee title and conservation easement acquisitions (willing sellers only), and cooperative efforts with state and non-governmental organizations.
Lock and Dam 12
Jo Daviess County
Carroll County
Illinois
Jackson County
Clinton County
Whiteside County
Thomson
Clinton
13.1
13.2
13.3
13.4
13.5
13.6
13.7
13.8
13.9
13.10
13.11
13.12
13.13
13.14
13.15
13.16
13.17
13.18
Legend
River mile
Roads
Railroad
County-State Line
Approved Expansion Boundary
2000 Land/Water Coverage
Refuge Land
Water
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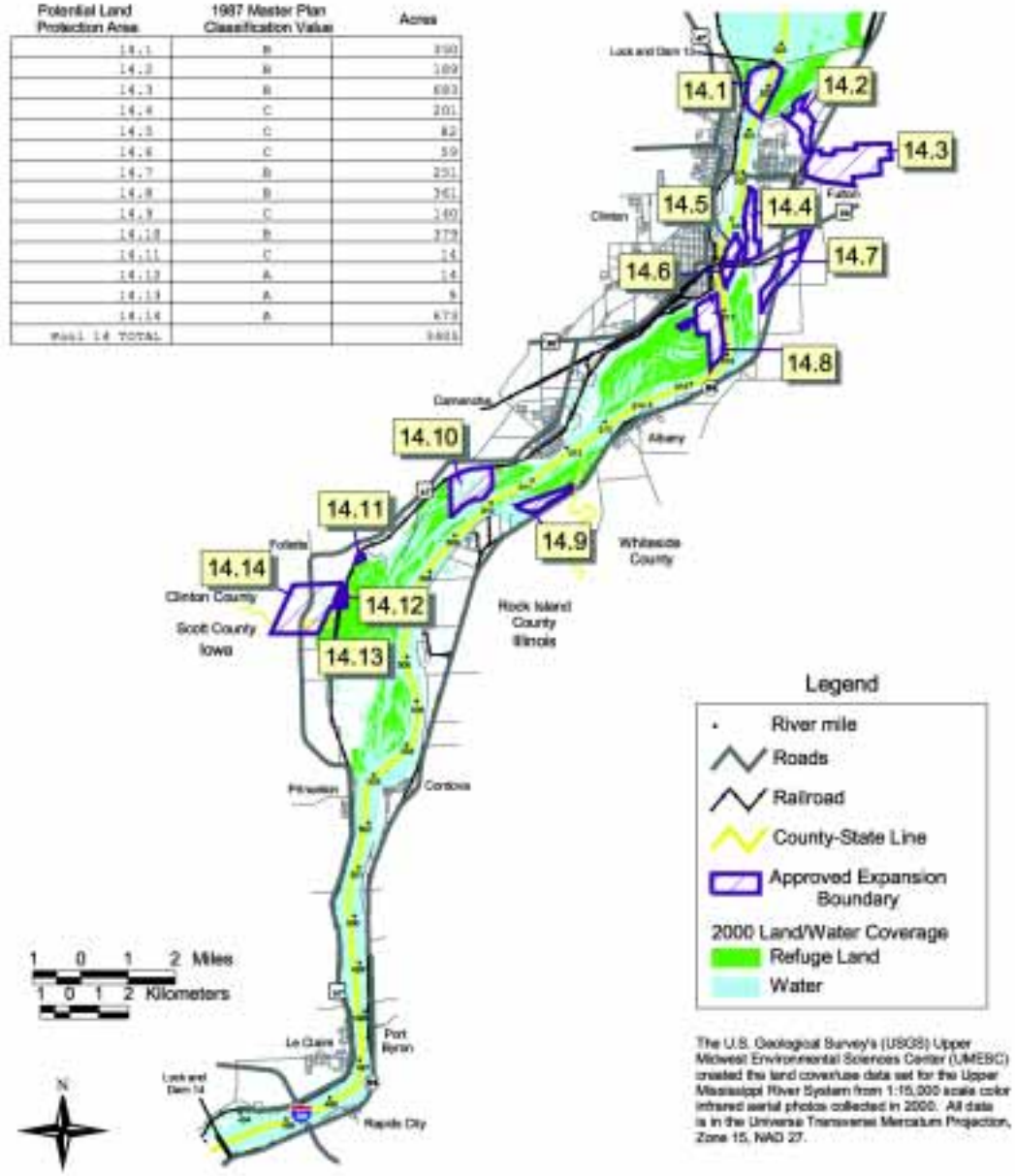
1 0 1 2 Miles
1 0 1 2 Kilometers
N

Potential Land Protection* Areas, Pool 14,
within the Authorized Refuge Boundary, Upper Mississippi River National Wildlife and Fish Refuge.

* Conservation options may include: fee title and conservation easement acquisitions (willing sellers only), and cooperative efforts with state and non-governmental organizations.

Potential Land Protection Area	1987 Master Plan Classification Value	Acres
14.1	B	390
14.2	B	189
14.3	B	693
14.4	C	201
14.5	C	82
14.6	C	59
14.7	B	251
14.8	B	361
14.9	C	140
14.10	B	279
14.11	C	14
14.12	A	14
14.13	A	9
14.14	A	679
Pool 14 TOTAL		3401



The U.S. Geological Survey's (USGS) Upper Midwest Environmental Sciences Center (UMESC) created the land cover/use data set for the Upper Mississippi River System from 1:15,000 scale color infrared aerial photos collected in 2000. All data is in the Universal Transverse Mercatum Projection, Zone 15, NAD 27.

Appendix H: Project Features Tables

This appendix includes the following Project Features tables:

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Table 1: Access Locations

			Existing FWS Landing	Existing Non-FWS Landings	Proposed				
Pool	**Feature**	**State**	**Alt. A**		**Alt. B**	**Alt. C**	**Alt. D**	**Alt.. E**	**River Mile**
4	Beef Slough	WI	x		x	x	x	x	761.0
4	Pontoon Slough	WI	x		x	x	x	x	760.5
4	Indian Slough	WI	x		x	x	x	x	760.3
4	Buffalo River	WI	x		x	x	x	x	755.5
4	Peterson Lake	MN	x		x	x	x	x	754.0
4	Other Access Points			9					
5	Halfmoon	MN	x		x	x	x	x	747.5
5	Halfmoon Canoe Access	MN	x		x	x	x	x	747.5
5	Weaver	MN	x		x	x	x	x	744.0
5	Other Access Points			10					
5A	Verchota	MN	x		x	x	x	x	730.5
5A	McNally	MN	x		x	x	x	x	729.0
5A	Other Access Points			9					
6	Mertes Slough	WI	x		x	x	x	x	727.0
6	Other Access Points			13					
6	Trout Creek (non-motorized)	MN				x			715.0
7	Round Lake	WI	x		x	x	x	x	713.3
7	Long Lake	WI	x		x	x	x	x	713.1
7	Other Access Points			21					
8	Lower I-90	MN	x		x	x	x	x	701.7
8	Lawrence Lake Walk-down	MN				x	x	x	692.0
8	Lawrence Lake, South Walk-down	MN						x	691.3
8	Stoddard Walk-in Overpass	WI				x	x	x	687.9
8	Stoddard Walk-down	WI				x	x	x	687.3
8	Other Access Points			35					
9	Reno Canoe Launch (Improvement, coop with Corps of Engineers)	MN				x	x	x	681.0
9	Visgers Landing	MN	x		x	x	x	x	675.8
9	New Albin	IA	x		x	x	x	x	673.2
9	Upper Iowa River Canoe Launch	IA				x			671.5
9	Conway Lake Canoe Launch	IA				x	x	x	666.0

Table 1: Access Locations (Continued)

			Existing FWS Landing	Existing Non-FWS Landings	Proposed				
Pool	**Feature**	**State**	**Alt. A**		**Alt. B**	**Alt. C**	**Alt. D**	**Alt.. E**	**River Mile**
9	Winneshiek Slough	WI	x		x	x	x	x	665.5
9	Big Slough	WI	x		x	x	x	x	663.4
9	Cold Springs	WI	x		x	x	x	x	653.5
9	Other Access Points			18					
10	Ambrough Slough	WI	x		x	x	x	x	639.3
10	Wyalusing Park	WI	x		x	x	x	x	629.8
10	Bagley Bottoms	WI	x		x	x	x	x	624.8
10	Other Access Points			37					
11	Bertom Lake	WI	x		x	x	x	x	601.7
11	Lynn Hollow	WI	x		x	x	x	x	596.7
11	Other Access Points			17					
12	No FWS Access Points								
12	Other Access Points			10					
13	Lost Mound Boat Ramp	IL				x	x	x	552.0
13	Pleasant Creek Parking Lot & Access Road *	IA				x	x	x	549.0
13	Esmay Slough*	IA	x		x	x	x	x	536.0
13	Frog Pond *	IL				x	x	x	535.4
13	Sloane Marsh Parking Lot*	IL				x	x	x	532.0
13	Michelson's Landing Parking*	IL				x	x	x	524.0
13	Michelson's Landing	IL	x		x	x	x	x	524.0
13	Other Access Points			17					
14	No FWS Access Points								
14	Other Access Points			26					
	Canoe Landing / Launch		1	1	0	4**	2**	2**	
	Total Walk-in		0	0	0	3	3	4	
	Total Boat Ramp		25	221	25	26	26	26	
	Total Parking Lot Improvements		0	0	0	5	5	5	
*Parking lot improvements only. **Includes proposed cooperative improvements to Reno Canoe Access (Corps of Engineers).									

Table 2: Administrataive No Hunting Zones

Pool	Feature	State	Existing or Proposed	Alt. A Acres	Alt. B Acres	Alt. C Acres	Alt. D Acres	Alt E Acres	Up-River Mile	Down-River Mile	Comments
4-6	None										No "Admin. No Hunting" zones on Pools 4-6
7	Upper Halfway Creek Marsh	WI	E	141	141	141	141	141	708.0	707.5	No hunting for public safety/ wildlife observ.
8	Hunter's Point	WI	E	82	82	82	82	82	691.2	690.4	No hunting for public safety.
9	Reno Bottoms Trail	MN	P			263			681.4	680.4	No hunting for public safety/ wildlife observ.
9	Dairyland Trail	WI	P			233	233		677.8	676.8	No hunting for public safety/ wildlife observ.
9	Kain Switch Trail	IA	P			809	809		670.8	668.8	No hunting for public safety/ wildlife observ.
9	Blackhawk Trail	WI	P			150			669.8	668.8	No hunting for public safety/ wildlife observ.
9	Rush Creek Delta Trail	WI	P			193			661.0	659.8	No hunting for public safety/ wildlife observ.
10	Sturgeon Slough	WI	P		66	66	66	66	635.2	634.8	No hunting/ trapping for public safety/wildlife observ.
11	Goetz Island Trail	IA	P			242	242	32	614.4	613.2	No hunting for public safety/ wildlife observ.
11	Turkey River Delta Trail	IA	P			307	307		607.9	606.8	No hunting for public safety/ wildlife observ.
11	John Deere Marsh Trail	IA	P			141			586.3	585.8	No hunting for public safety/ wildlife observ.
13	Crooked Slough Backwater	IL	E	2467	2467	2467	2467	2467	557.0	552.8	Was Sav. Army depot; contaminated; no entry
13	Crooked Slough Proper	IL	P		192		192	192	557.0	552.8	No hunting to avoid potential user conflicts

Table 2: Administrataive No Hunting Zones (Continued)

Pool	Feature	State	Existing or Proposed	Alt. A Acres	Alt. B Acres	Alt. C Acres	Alt. D Acres	Alt E Acres	Up-River Mile	Down-River Mile	Comments
13	Mesquaki Lake/Great River Trail	IL	E	193	193	193	193	193	536.8	535.8	No hunting 3/1-9/30, and also no hunting year 'round within 150 yds. of Great River Tr. for public safety and to eliminate potential conflicts w/ hunters/ bikers
13	Frog Pond	IL	E	64	64	64	64	64	535.8	535.3	No hunting for public safety/ wildlife observ.
13	Ingersoll Learning Center	IL	E	41	41	41	41	41	533.0	532.5	No hunting for public safety/ wildlife observ.
13	Thomson Prairie/Great River Trail	IL	E	76	76	76	76	76	527.5	525.0	No hunting for public safety/ wildlife observ.
13	Buffer - Potter's Marsh Managed Hunt Area	IL	E	491	491	491	491	491	526.0	522.5	Extends 400 yds. W. of Potter's Marsh Managed Hunt Area to eliminate potential conflicts between duck blind hunters/other hunters
	Total		Units	8	10	17	14	11			
			Acres	3,555	3,813	5,959	5,404	3,845			
*	Administrative No Hunting Zones are closed to hunting for reasons of public health and safety, and to reduce user group conflicts. They are not intended to augment the waterfowl closed area system on the Refuge.										

Table 3: Auto Tour Routes

			Existing	Proposed						
Pool	**Feature**	**State**	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**	**Up-River Mile**	**Down-river Mile**	**Miles of Trail**
9	Red Oak Road*	IA			x	x	x	653.0	649.0	7.0
11	Turkey River Delta**	IA			x	x	x	607.5	607.0	1.5
13	Lost Mound	IL	x	x	x	x	x	549.0	546.5	2.5
	Total Miles		**2.5**	**2.5**	**11.0**	**11.0**	**11.0**			
	Total Units		**1**	**1**	**3**	**3**	**3**			

*Wildlife drive and bike trail in cooperation with County.

**Hiking and auto tour route

Table 4: Biking Trails

Pool	Feature	State	Existing	Proposed				Up River Mile	Down River Mile	Miles of Trail	Comments
			Alt. A	Alt. B	Alt. C	Alt. D	Alt. E				
5A	Prairie Island Bike/ Hike Lane	MN			x			732.0	728.5	2.9	Bike and Hike Trail
6	Great River State Bike Trail	WI					x	n/a	n/a	n/a	Access Point Only (River mile 725.6)
7	Great River Bike Trail / Black River / Halfway Creek	WI	x	x	x	x	x	712.0	706.0	6.0	Bike Trail
8	Wagon Wheel	MN			x	x	x	699.6	698.3	2.1	Bike Trail
9	Red Oak Road	IA			x	x	x	653.0	649.0	7.0	Bike trail with wildlife drive; in cooperation with County
13	Spring Lake	IL			x	x	x	534.5	532.5	2.0	Proposed additions to hiking/ biking trail
13	Great River Bike Trail / Spring Lake	IL	x	x	x	x	x	534.5	532.5	2.0	Bike Trail
13	Great River Bike Trail/ Thomson Prairie	IL	x	x	x	x	x	527.0	525.0	2.0	Bike Trail
	Total Miles		10.0	10.0	17.0	14.1	21.1				
	Total Units		3	3	6	5	6				

Table 5: Canoe Trails

Pool	Feature	State	Existing	Proposed				Up River Mile	Down River Mile	Miles of Trail
			Alt. A	Alt. B	Alt. C	Alt. D	Alt..E			
4	Nelson Dike	WI			x	x	x	760.6	759.5	4.6
5	Finger Lakes	MN			x	x	x	752.2	751.3	4.7
5	Halfmoon Lake	MN			x	x	x	747.4	745.3	5.3
5A	Straight Slough	MN	x	x	x	x	x	736.0	730.5	11.2
7	Long Lake	WI	x	x	x	x	x	713.0	711.0	4.4
8	Goose Island	WI	x	x	x	x	x	692.8	690.0	7.1
9	Reno Bottoms	MN			x	x	x	681.0	673.0	11.0
9	Upper Iowa River	IA			x			672.0	663.7	12.2
9	Big Slough	IA			x			670.9	668.7	6.0
10	Harper's Slough	IA			x			647.9	642.6	13.7
10	Ambrough Slough Canoe Area; 1,853 acres, open to all boats	WI			x	x	x	642.0	638.7	n/a
10	Wyalusing Park	WI/IA	x	x	x	x	x	631.0	627.0	9.4
10	Johnson Slough (Canoe and motorboat route)	IA			x	x	x	629.9	625.1	9.7
11	Turkey River	IA			x			608.8	607.7	5.0
11	Mud Lake	IA			x	x	x	589.2	587.8	3.2
12	Hire's Lake	IL			x	x		572.2	569.3	7.1
12	Ferry Landing	IL			x	x	x	567.0	564.4	5.5
12	Blanding Landing	IL			x	x	x	559.6	558.2	3.8
13	Brown's Lake	IA			x	x		545.9	541.7	7.4
13	Miller's Hollow	IL			x	x	x	542.6	540.0	5.4
13	Keller's Island	IA			x	x	x	538.5	535.8	6.7
13	Gomer's Lake	IA			x	x	x	528.0	526.8	3.5
13	Potter's Marsh	IL			x	x	x	524.9	523.0	7.5
14	Cattail Slough	IL			x			517.7	516.0	4.1
14	Rock Creek	IA			x	x	x	508.0	506.8	4.1
14	Steamboat Slough (formerly named Cordova)	IA			x	x	x	506.0	503.2	5.3
	Total Miles		32.1	32.1	167.9	126.9	120.6			
	Total Units		4	4	26	21	19			

Table 6: Closed Areas and Sanctuaries*, Alternative A-E

Pool	Name	State	Alt. A Acres / Status Existing Features		Alt. B Acres / Status		Alt. C Acres / Status		Alt. D Acres / Status		Alt. E Acres / Status		Comments for Alt. E
4	Nelson-Trevino	WI	3,773	Closed Area	3,773	Sanctuary	3,773	Closed Area	None		0	Closed Area; drop in 2009	Remains in effect until the 2009 waterfowl hunting season, then dropped.
4	Big Lake	WI	None		3,249	Sanctuary	None		3,249	Closed Area; no fishing, no motors	2,461	Closed area; VA	Drop Buffalo Slough portion proposed in Alt. E Draft. Has travel corridor. Will not take effect until the 2009 waterfowl hunting season. Voluntary Avoidance (VA)
4	Rieck's Lake/ Buffalo River	WI	Part of Peterson Lake		496	Sanctuary	Part of Peterson Lake		496	Closed Area; no fishing, no motors	608	Closed area; no motors, VA	This boundary configuration will not take effect until the 2009 waterfowl hunting season; no motors, VA

Table 6: Closed Areas and Sanctuaries*, Alternative A-E (Continued)

Pool	Name	State	Alt. A Acres / Status Existing Features		Alt. B Acres / Status		Alt. C Acres / Status		Alt. D Acres / Status		Alt. E Acres / Status		Comments for Alt. E
4	Peterson Lake	MN-WI	3,111	Closed Area	None		3,111	Closed Area	None		677	Closed area; no motors, VA	This boundary configuration will not take effect until the 2009 waterfowl hunting season; has travel corridor; no motors, VA; Rieck's Lake and Buffalo Slough were part of this area under Alt. A.
5	Weaver Bottoms / Lost Island	MN-WI	3,139	Closed Area	3,780	Sanctuary	3,139	Closed Area	3,508	Closed Area; no fishing, no motors	3,508	Closed area; VA	Drop boundary correction proposed in Alt. E Draft that added 185 acres on WI side; has travel corridor; VA
5	Spring Lake	WI	None		243	Sanctuary	None		243	Closed Area; no fishing, no motors	243	Closed area; no motors, VA	No motors; VA
5A	Fountain City Bay	WI	None		24	Sanctuary	None		None		24	Closed area; no motors, VA	Site will be a closed area if land exchange with WDNR does not occur. Inadvertently left out in Alt. E draft. No motors;VA

Table 6: Closed Areas and Sanctuaries*, Alternative A-E (Continued)

Pool	Name	State	Alt. A Acres / Status Existing Features		Alt. B Acres / Status		Alt. C Acres / Status		Alt. D Acres / Status		Alt. E Acres / Status		Comments for Alt. E
5A	Polander Lake	MN-WI	1,589	Closed Area	1,910	Sanctuary	1,589	Closed Area	1,910	Closed Area; no fishing, no motors	1,907	Closed area; VA	Has travel corridor; VA
6	Trempealeau NWR	WI	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Part of existing closed area system; special regulations; 5520 acres
7	Lake Onalaska	WI	7,348	Closed Area	7,880	Closed Area	7,103	Closed Area	7,400	Closed Area	7,369	Traditional closed area	Adjust boundaries at Proudfoot Slough and “Old Channel” area. Has existing VA of 3,356 acres. No change from current regulations.
8	Goose Is. No Hunt Zone	WI	876	No Hunt Zone / Closed Area	1,210	Sanctuary	1,210	No Hunt Zone / Closed Area	1,210	Closed Area; no fishing, no motors	986	No hunt zone / closed area; no motors, VA	Part of existing closed area system; has 110 acre expansion; no motors and VA; drop special hunt area proposed in Alt. E Draft.
8	Wisconsin Islands	MN-WI	6,510	Closed Area	6,513	Sanctuary	6,483	Closed Area	6,483	Closed Area; no fishing, no motors	6,510	Closed area; VA	VA; adds slow, no wake zone in travel corridor on Raft Channel

Table 6: Closed Areas and Sanctuaries*, Alternative A-E (Continued)

Pool	Name	State	Alt. A Acres / Status Existing Features		Alt. B Acres / Status		Alt. C Acres / Status		Alt. D Acres / Status		Alt. E Acres / Status		Comments for Alt. E
9	Pool Slough	MN-IA	1,112	Closed Area	2,559	Sanctuary	1,112	Closed Area	1,112	Sanctuary	1,112	Sanctuary	Designated sanctuary in Alt E Draft and Final; is adjacent to state (IA) sanctuary
9	Harpers Slough	IA-WI	5,209	Closed Area	5,209	Sanctuary	5,209	Closed Area	5,209	Closed Area; no fishing, no motors	5,209	Closed area; VA	VA
10	Sturgeon Slough	WI	none		none		none		none		340	Closed area; no motors, VA	This is the upper portion of McGregor Lake area (see below); no motors; VA
	McGregor Lake	WI	none		none		none		none		0	n/a	First proposed Alt. E Draft (852 acres); Dropped in Alt. E Final
10	WI River Delta	WI	None		1,545	Sanctuary	None		1,545	Closed Area; no fishing, no motors	0	n/a	Changed to special hunt area (1,376 acres); see Appendix H, Table 17
10	Bagley Bottoms	WI	None		627	Sanctuary	None		None		none		
10	12-Mile Island	IA	540	Closed Area	540	Sanctuary	540	Closed Area	540	Closed Area; no fishing, no motors	540	Closed area ; no motors, VA	Pool 10 portion; no motors, VA

Table 6: Closed Areas and Sanctuaries*, Alternative A-E (Continued)

Pool	Name	State	Alt. A Acres / Status Existing Features		Alt. B Acres / Status		Alt. C Acres / Status		Alt. D Acres / Status		Alt. E Acres / Status		Comments for Alt. E
11	Guttenberg Ponds	IA	None		None		None		502	Sanctuary	252	Sanctuary	Sanctuary located within 12-mile Island closed area
11	12-Mile Island	IA	1,396	Closed Area	1,396	Sanctuary	1,396	Closed Area	894	Closed Area; no fishing, no motors	1,145	Closed area; VA	Pool 11 portion of closed area; adds Swift Slough travel corridor; VA
11	Hay Meadow Lake	WI	None		None		None		841	Closed Area; no fishing, no motors	none		
11	Bertom-McCartney	WI	2,415	Closed Area	2,385	Sanctuary	2,415	Closed Area	None		2,384	Traditional closed area	Does not include Bertom Island, a no entry area year round; no change from current regulations (no motor restriction or VA in this closed area).
11	John Deere Marsh	IA	None		512	Sanctuary	None		512	Closed Area; no fishing, no motors	439	Closed area; no motors, VA	Includes travel corridor; no motors, VA
12	Nine-Mile Island	IA	None		567	Sanctuary	None		None		none		

Table 6: Closed Areas and Sanctuaries*, Alternative A-E (Continued)

Pool	Name	State	Alt. A Acres / Status Existing Features		Alt. B Acres / Status		Alt. C Acres / Status		Alt. D Acres / Status		Alt. E Acres / Status		Comments for Alt. E
12	Kehough Slough	IL	None		343	Sanctuary	None		343	Closed Area; no fishing, no motors	343	Closed area; no motors, VA	No motors, VA
12	Wise Lake	IL	None		1,081	Sanctuary	None		None		none		
12	Lower Pool 12	IL	None		478	Sanctuary	None		None		none		
13	Pleasant Creek	IA	2,603	Closed Area	2,603	Sanctuary	2,603	Closed Area	2,067	Closed Area; no fishing, no motors	2,067	Closed area; VA	VA
13	Brown's Lake	IA	None		2,362	Sanctuary	None		None		none		
13	Spring Lake	IL	3,686	Sanctuary	3,686	Sanctuary	3,686	Sanctuary	3,686	Sanctuary	3,686	Sanctuary	Only Existing Sanctuary in Refuge; remains sanctuary
13	Elk River	IA	1,237	Closed Area	1,237	Sanctuary	1,237	Closed Area	1,237	Closed Area; no fishing, no motors	1,237	Closed area; VA	VA
13	Lower Pool 13	IA	None		2,004	Sanctuary	None		None		none		
14	Beaver Island	IA	None		717	Sanctuary	None		717	Closed Area; no fishing, no motors	717	Closed area; no motors, VA	No motors, VA

Table 6: Closed Areas and Sanctuaries*, Alternative A-E (Continued)

Pool	Name	State	Alt. A Acres / Status Existing Features	Alt. B Acres / Status		Alt. C Acres / Status	Alt. D Acres / Status	Alt. E Acres / Status	Comments for Alt. E
14	Wapsipinicon	IA	None	1,467	Sanctuary	None	None	None	
	Total Acres		44,544	60,396		44,614	43,704	43,764	
	Total UMR Refuge Units		15	29		15	21	23	
	* **Closed Area, Alternatives A and C** = closed to all migratory bird hunting. Other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons.						*** Sanctuary** = No entry October 1 to the end of the regular state duck hunting season.		
	*** Closed Area, Alternative D** = closed to all migratory bird hunting. Other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons. **No fishing and no motorized watercraft** allowed October 1 to the end of the respective state regular duck hunting season.								
	*** Closed Area, Alternative E** = closed to all migratory bird hunting. Other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons. Under Alternative E, the public will be asked to practice Voluntary Avoidance (VA) i.e. limiting entry, on all closed areas (“Large” and “Small”) October 15 to the end of the respective state duck hunting season and in addition there will be a “no motor” restriction on Small closed areas October 15 to the end of the regular state duck hunting season. Large closed areas are greater than 1,000 acres and small closed areas are ~1,000 acres or less. “No motors” means the use of motors on watercraft is not allowed.								

Table 7: Closed Areas and Sanctuaries* / Alternative A (No Action)

Pool	Name	State	Alt. A Acres	Status	Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
4	Nelson-Trevino	WI	3,773	Closed Area		763.5	760.0	
4	Peterson Lake	MN-WI	3,111	Closed Area	3.4	756.6	752.7	Includes Buffalo Slough and Rieck's Lake
5	Weaver Bottoms/Lost Is.	MN-WI	3,139	Closed Area	7.1	745.6	741.7	
5A	Fountain City Bay**	WI	None		7.4	734.3	734.1	
5A	Polander Lake	MN-WI	1,589	Closed Area	2.3	731.8	728.4	
6	Trempealeau NWR	WI	n/a	n/a	4.2	724.2	718.0	Part of existing closed area system; special regulations; 5520 acres
7	Lake Onalaska	WI	7,348	Closed Area	10.0	708.0	702.8	Includes Waterfowl Voluntary Avoidance Area (3,356 acres)
8	Goose Is. No Hunt Zone	WI	876	No Hunt Zone / Closed Area	11.6	691.2	689.8	No Hunting Zone; part of the existing closed area system
8	Wisconsin Islands	MN-WI	6,510	Closed Area	2.2	687.6	680.1	
9	Pool Slough	MN-IA	1,112	Closed Area	4.9	675.2	673.0	
9	Harpers Slough	IA-WI	5,209	Closed Area	18.2	654.8	648.0	
10	12-Mile Island	IA	540	Closed Area	37.0	617.0	615.2	Pool 10 Portion of Closed Area
11	12-Mile Island	IA	1,396	Closed Area	0.1	615.2	611.5	Pool 11 Portion of Closed Area
11	Bertom-McCartney	WI	2,415	Closed Area	7.5	604.0	598.7	

Table 7: Closed Areas and Sanctuaries* / Alternative A (No Action) (Continued)

Pool	Name	State	Alt. A Acres	Status	Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
13	Pleasant Creek	IA	2,603	Closed Area	46.0	552.7	548.5	
13	Spring Lake	IL	3,686	Sanctuary	11.7	536.8	531.9	Only Existing Sanctuary in Refuge
13	Elk River	IA	1,237	Closed Area	0.1	532.6	528.1	
	Total Acres		**44,544**		Ave. Distance Between Areas			
	Total UMR Refuge Units		**15**		**10.2**			
	*** Closed Area, Alternative A** = closed to all migratory bird hunting. Other hunting and trapping is only allowed beginning the day after the close of the regular state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons.							*** Sanctuary** = No entry October 1 to the end of the regular state duck hunting season.
** Fountain City Bay Closed Area, Pool 5A, is new closed area proposed under Alternative A. It is 24 acres in size and adjacent to Merrick State Park, WI.								

Table 8: Closed Areas and Sanctuaries* / Alternative B (Wildlife Focus)

Pool	Name	State	Alt. B Acres / Status		Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
4	Nelson-Trevino	WI	3,773	Sanctuary		763.5	760.0	
4	Big Lake-Buffalo Slough	WI	3,249	Sanctuary	0.6	759.4	754.6	Includes Travel Corridor
4	Rieck's Lake	WI	496	Sanctuary	0.1	755.8	755.0	Includes Travel Corridor
5	Weaver Bottoms/Lost Is.	MN-WI	3,780	Sanctuary	9.4	745.6	741.7	Includes Travel Corridor
5	Spring Lake	WI	243	Sanctuary	0.1	741.8	740.7	
5A	Fountain City Bay	WI	24	Sanctuary	6.4	734.3	734.1	
5A	Polander Lake	MN-WI	1,910	Sanctuary	8.9	731.8	728.4	Includes Travel Corridor
6	Trempealeau NWR	WI	n/a	n/a	4.2	724.2	718.0	Part of existing closed area system; special regulations; 5520 acres
7	Lake Onalaska	WI	7,880	Closed Area	10.0	708.0	702.8	Includes Waterfowl Voluntary Avoidance Area (3,356 acres)
8	Goose Is. No Hunt Zone	WI	1,210	Sanctuary	11.6	691.2	689.8	No Hunting Zone part of existing closed area
8	Wisconsin Islands	MN-WI	6,513	Sanctuary	2.2	687.6	680.1	
9	Pool Slough	MN-IA	2,559	Sanctuary	4.6	675.2	673.0	
9	Harpers Slough	IA-WI	5,209	Sanctuary	18.2	654.8	648.0	
10	WI River Delta	WI	1,545	Sanctuary	14.2	633.8	630.7	Includes Travel Corridor

Table 8: Closed Areas and Sanctuaries* / Alternative B (Wildlife Focus) (Continued)

Pool	Name	State	Alt. B Acres / Status		Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
10	Bagley Bottoms	WI	627	Sanctuary	4.0	626.7	624.6	
10	12-Mile Island	IA	540	Sanctuary	7.6	617.0	615.2	Pool 10 Portion of Sanctuary
11	12-Mile Island	IA	1,396	Sanctuary	0.1	615.2	611.5	Pool 11 Portion of Sanctuary; includes travel corridors
11	Bertom-McCartney	WI	2,385	Sanctuary	7.5	604.0	598.7	
11	John Deere Marsh	IA	512	Sanctuary	11.7	587.0	584.8	Includes Travel Corridor
12	Nine-Mile Island	IA	567	Sanctuary	10.4	574.4	571.6	
12	Kehough Slough	IL	343	Sanctuary	2.6	569.0	567.1	
12	Wise Lake	IL	1,081	Sanctuary	3.2	563.9	560.9	
12	Lower Pool 12	IL	478	Sanctuary	3.4	557.5	556.8	
13	Pleasant Creek	IA	2,603	Sanctuary	4.1	552.7	548.5	
13	Brown's Lake	IA	2,362	Sanctuary	2.3	546.2	541.7	
13	Spring Lake	IL	3,686	Sanctuary	4.9	536.8	531.9	Only Existing Sanctuary in Refuge
13	Elk River	IA	1,237	Sanctuary	0.1	532.6	528.1	
13	Lower Pool 13	IA	2,004	Sanctuary	2.8	525.3	522.5	
14	Beaver Island	IA	717	Sanctuary	5.9	516.6	514.0	
14	Wapsipinicon	IA	1,467	Sanctuary	5.8	508.2	506.0	

Table 8: Closed Areas and Sanctuaries* / Alternative B (Wildlife Focus) (Continued)

Pool	Name	State	Alt. B Acres / Status	Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
	Total Acres		60,396	Ave. Distance Between Areas			
	Total UMR Refuge Units		29	5.6			
	*** Closed Area, Alternative B** = closed to all migratory bird hunting. Other hunting and trapping is only allowed beginning the day after the close of the regular state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons.						*** Sanctuary** = No entry October 1 to the end of the regular state duck hunting season.

Table 9: Closed Areas and Sanctuaries* / Alternative C (Public Use Focus)

Pool	Name	State	Alt. C Acres / Status		Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
4	Nelson-Trevino	WI	3,773	Closed Area		763.5	760.0	
4	Peterson Lake	MN-WI	3,111	Closed Area	3.4	756.6	752.7	Includes Buffalo Slough and Rieck's Lake
5	Weaver Bottoms/Lost Is.	MN-WI	3,139	Closed Area	7.1	745.6	741.7	
5A	Fountain City Bay	WI	None		7.4	734.3	734.1	
5A	Polander Lake	MN-WI	1,589	Closed Area	2.3	731.8	728.4	
6	Trempealeau NWR	WI	n/a	n/a	4.2	724.2	718.0	Part of existing closed area system; special regulations; 5520 acres
7	Lake Onalaska	WI	7,103	Closed Area	10.0	708.0	702.8	Includes Waterfowl Voluntary Avoidance Area (3,356 acres)
8	Goose Is. No Hunt Zone	WI	1,210	No Hunt Zone / Closed Area	11.6	691.2	689.8	No Hunting Zone; part of existing closed area
8	Wisconsin Islands	MN-WI	6,483	Closed Area	2.2	687.6	680.1	
9	Pool Slough	MN-IA	1,112	Closed Area	4.9	675.2	673.0	
9	Harpers Slough	IA-WI	5,209	Closed Area	18.2	654.8	648.0	
10	12-Mile Island	IA	540	Closed Area	37.0	617.0	615.2	Pool 10 Portion of Closed Area
11	12-Mile Island	IA	1,396	Closed Area	0.1	615.2	611.5	Pool 11 Portion of Closed Area
11	Bertom-McCartney	WI	2,415	Closed Area	7.5	604.0	598.7	

Table 9: Closed Areas and Sanctuaries* / Alternative C (Public Use Focus) (Continued)

Pool	Name	State	Alt. C Acres / Status		Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
13	Pleasant Creek	IA	2,603	Closed Area	46.0	552.7	548.5	
13	Spring Lake	IL	3,686	Sanctuary	11.7	536.8	531.9	Only Existing Sanctuary in Refuge
13	Elk River	IA	1,237	Closed Area	0.1	532.6	528.1	
	Total Acres		44,614		Ave. Distance Between Areas			
	Total UMR Refuge Units		15		10.2			
	*** Closed Area, Alternative C** = closed to all migratory bird hunting. Other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons.							*** Sanctuary** = No entry October 1 to the end of the regular state duck hunting season.

Table 10: Closed Areas and Sanctuaries* / Alternative D (Wildlife and Integrated Public Use Focus)

Pool	Name	State	Alt. D Acres / Status		Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
4	Big Lake-Buffalo Slough	WI	3,249	Closed Area; no fishing, no motors		759.4	754.6	Includes Travel Corridor
4	Rieck's Lake	WI	496	Closed Area; no fishing, no motors	0.1	755.8	755.0	Includes Travel Corridor
5	Weaver Bottoms/Lost Is.	MN-WI	3,508	Closed Area; no fishing, no motors	9.4	745.6	741.7	Includes Travel Corridor
5	Spring Lake	WI	243	Closed Area; no fishing, no motors	0.1	741.8	740.7	
5A	Fountain City Bay	WI	24	Closed Area; no fishing, no motors	6.4	734.3	734.1	Will be a closed area if land exchange with WDNR does not occur.
5A	Polander Lake	MN-WI	1,910	Closed Area; no fishing, no motors	8.9	731.8	728.4	Includes Travel Corridor
6	Trempealeau NWR	WI	n/a	n/a	4.2	724.2	718.0	Part of existing closed area system; special regulations; 5520 acres
7	Lake Onalaska	WI	7,400	Traditional Closed Area	10.0	708.0	702.8	Includes Waterfowl Voluntary Avoidance Area (3,356 acres)
8	Goose Is. No Hunt Zone	WI	1,210	No Hunt Zone / Closed Area; no fishing, no motors	11.6	691.2	689.8	No Hunting Zone; part of the existing closed area system

Table 10: Closed Areas and Sanctuaries* / Alternative D (Wildlife and Integrated Public Use Focus) (Continued)

Pool	Name	State	Alt. D Acres / Status		Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
8	Wisconsin Islands	MN-WI	6,483	Closed Area; no fishing, no motors	2.2	687.6	680.1	
9	Pool Slough	MN-IA	1,112	Sanctuary	4.9	675.2	673.0	Adjacent to state (IA) sanctuary
9	Harpers Slough	IA-WI	5,209	Closed Area; no fishing, no motors	18.2	654.8	648.0	Closed Area
10	WI River Delta	WI	1,545	Closed Area; no fishing, no motors	14.2	633.8	630.7	Includes Travel Corridor
10	12-Mile Island	IA	540	Closed Area; no fishing, no motors	13.7	617.0	615.2	Pool 10 Portion
11	Guttenberg Ponds	IA	502	Sanctuary	0.1	615.2	613.8	Within 12-Mile Island Closed Area
11	12-Mile Island	IA	894	Closed Area; no fishing, no motors	0.1	615.2	611.5	Pool 11 Portion, Includes Travel Corridors
11	Hay Meadow Lake	WI	841	Closed Area; no fishing, no motors	7.5	604.0	601.8	
11	John Deere Marsh	IA	512	Closed Area; no fishing, no motors	14.8	587.0	584.8	Includes Travel Corridor

Table 10: Closed Areas and Sanctuaries* / Alternative D (Wildlife and Integrated Public Use Focus) (Continued)

Pool	Name	State	Alt. D Acres / Status		Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
12	Kehough Slough	IL	343	Closed Area; no fishing, no motors	15.8	569.0	567.1	
13	Pleasant Creek	IA	2,067	Closed Area; no fishing, no motors	14.4	552.7	548.5	
13	Spring Lake	IL	3,686	Sanctuary	11.7	536.8	531.9	Only Existing Sanctuary in Refuge
13	Elk River	IA	1,237	Closed Area; no fishing, no motors	0.1	532.6	528.1	
14	Beaver Island	IA	717	Closed Area; no fishing, no motors	11.5	516.6	514.0	
	Total Acres		43,704		Ave. Distance Between Areas			
	Total UMR Refuge Units		21		7.8			
	*** Closed Area, Alternative D** = closed to all migratory bird hunting. Other hunting and trapping is only allowed beginning the day after the close of the regular state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons. **No fishing and no motorized watercraft** allowed October 1 to the end of the respective state regular duck hunting season.							*** Sanctuary** = No entry October 1 to the end of the regular state duck hunting season.

Table 11: Closed Areas and Sanctuaries, Alternative E

Pool	Name	State	Alt. E Acres / Status		Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
4	Nelson-Trevino	WI	0	Closed Area Drop in 2009	n/a	763.5	760.0	Remains in effect until the 2009 waterfowl hunting season, then dropped.
4	Big Lake	WI	2,461	Closed Area; VA	0.6	759.4	756.5	Drop Buffalo Slough portion proposed in Alt. E, Draft. Has travel corridor. Will not take effect until the 2009 waterfowl hunting season. Voluntary Avoidance (VA)
4	Rieck's Lake / Buffalo River	WI	608	Closed Area; VA, no motors	0.7	755.8	755.0	This boundary configuration will not take effect until the 2009 waterfowl hunting season; no motors, VA
4	Peterson Lake	MN	677	Closed Area; no motors, VA	0.7	755.7	752.8	This boundary configuration will not take effect until the 2009 waterfowl hunting season; has travel corridor; no motors, VA; Rieck's Lake and Buffalo Slough were part of this area under Alt. A.
5	Weaver Bottoms/Lost Is.	MN-WI	3,508	Closed Area; VA	7.2	745.6	741.7	Drop boundary correction proposed in Alt. E Draft that added 185 acres on WI side; has travel corridor; VA
5	Spring Lake	WI	243	Closed Area; no motors; VA	0.1	741.8	740.7	No motors; VA

Table 11: Closed Areas and Sanctuaries, Alternative E (Continued)

Pool	Name	State	Alt. E Acres / Status		Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
5A	Fountain City Bay	WI	24	Closed Area; no motors; VA	5.2	735.5	735.0	Site will be a closed area if land exchange with WDNR does not occur. Included in Alt. D, but inadvertently left out in Alt. E draft. No motors;VA
5A	Polander Lake	MN-WI	1,907	Closed Area; VA	2.0	733.0	728.4	Has travel corridor; VA
6	Trempealeau NWR	WI	n/a	n/a	4.2	724.2	718.0	Part of existing closed area system; special regulations; 5520 acres
7	Lake Onalaska	WI	7,369	Traditional Closed Area	10.0	708.0	702.8	Adjust boundaries at Proudfoot Slough and “Old Channel” area. Has existing VA of 3,356 acres. No change from current regulations.
8	Goose Island No Hunt Zone	WI	986	No Hunt Zone / Closed Area; no motors; VA	11.6	691.2	689.8	Part of existing closed area system; has 110 acre expansion; no motors and VA; drop special hunt area proposed in Alt. E Draft.
8	Wisconsin Islands	MN-WI	6,510	Closed Area; VA	2.2	687.6	680.1	VA; adds slow, no wake zone in travel corridor on Raft Channel
9	Pool Slough	MN-IA	1,112	Sanctuary	4.9	675.2	673.0	Designated sanctuary in Alt E Draft and Final; is adjacent to state (IA) sanctuary

Table 11: Closed Areas and Sanctuaries, Alternative E (Continued)

Pool	Name	State	Alt. E Acres / Status		Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
9	Harpers Slough	IA-WI	5,209	Closed Area; VA	18.2	654.8	648.0	VA
10	Sturgeon Slough	WI	340	Closed Area; no motors; VA	11.4	636.6	634.8	This is the upper portion of McGregor Lake area (see below); no motors; VA
10	McGregor Lake	WI	0	drop	n/a	636.4	633.5	Dropped from Alt. E Final (852 acres)
10	WI River Delta	WI	0	see comments	n/a	633.8	630.7	Changed to special hunt area (1,376 acres); see Appendix H, Table 17
10	12-Mile Island	IA	540	Closed Area; no motors; VA	17.8	617.0	615.2	Pool 10 Portion; no motors; VA
11	Guttenberg Ponds	IA	252	Sanctuary	0.1	615.2	613.8	Sanctuary located within 12-Mile Island Closed Area
11	12-Mile Island	IA	1,145	Closed Area; VA	0.1	615.2	611.5	Pool 11 portion of closed area; adds Swift Slough travel corridor; VA
11	Bertom McCartney Lake	WI	2,384	Closed Area	7.5	604.0	598.7	Does not include Bertom Island, a no entry area year round; no change from current regulations (no motor restriction or VA in this closed area).

Table 11: Closed Areas and Sanctuaries, Alternative E (Continued)

Pool	Name	State	Alt. E Acres / Status		Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
11	John Deere Marsh	IA	439	Closed Area; no motors; VA	11.7	587.0	584.8	Includes travel corridor; no motors, VA
12	Kehough Slough	IL	343	Closed Area; no motors; VA	15.8	569.0	567.1	no motors; VA
13	Pleasant Creek	IA	2,067	Closed Area; VA	14.4	552.7	548.5	VA
13	Spring Lake	IL	3,686	Sanctuary	11.7	536.8	531.9	Only existing sanctuary in Refuge; remains sanctuary
13	Elk River	IA	1,237	Closed Area; VA	0.1	532.6	528.1	VA
14	Beaver Island	IA	717	Closed Area; no motors; VA	11.5	516.6	514.0	No motors; VA
	Total Acres		43,764		Ave. Distance Between Areas			
	Total UMR Refuge Units		23		7.4			

Table 11: Closed Areas and Sanctuaries, Alternative E (Continued)

Pool	Name	State	Alt. E Acres / Status	Distance Between Areas (miles)	Up-River Mile	Down-River Mile	Comments
	*** Closed Area, Alternative E** = closed to all migratory bird hunting. Other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons. Under Alternative E, the public will be asked to practice Voluntary Avoidance (VA) i.e. limiting entry, on all closed areas (“Large” and “Small”) October 15 to the end of the respective state duck hunting season and in addition there will be a “no motor” restriction on Small closed areas October 15 to the end of the regular state duck hunting season. Large closed areas are greater than 1,000 acres and small closed areas are ~1,000 acres or less. “No motors” means the use of motors on watercraft is not allowed.						*** Sanctuary** = No entry October 1 to the end of the regular state duck hunting season.

Table 12: Commerical Fishing Floats / Piers

			Existing	Proposed				
Pool	**Feature**	**State**	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**	**River Mile**
7	Tremplo Fishing Float	MN	x		x	x	x	714.0
8	Best Float by Dam Site Fishing Float	WI	x		x	x	x	702.5
9	Clements Fishing Float	MN	x		x	x	x	679.0
10	Hubbard Fishing Float	IA	x		x	x	x	647.9
12-14	Potential Fishing Float for Savanna District				x			
	Total Commercial Fishing Floats / Piers		4	0	5	4	4	

Table 13: Electric Motor Areas (E) / Slow, No Wake Areas* (S)

Pool	Feature	State	Existing	Proposed				Up-River Mile	Down-River Mile	Distance to Landing	Comments for Alt. E
			Alt. A Acres	Alt. B Acres	Alt. C Acres	Alt. D Acres	Alt E Acres				
4	Nelson-Trevino	WI			2,626 E	2,626 E	2,626 S	762.5	760.0	0.1	Slow, no wake area, Takes effect March 16, 2009
5	Finger Lakes	MN			497 E	497 E	0	752.7	751.5	0.2	Dropped
5	Island 42	MN				459 E	459 E	749.8	747.6	1.5	Electric motor area
5A	Snyder Lake	MN			182 E	182 E	182 E	735.0	734.0	2.5	Electric motor Area, Adjacent to Canoe Trail
5A	Denzers Slough	MN			83 E	83 E	83 S	733.0	732.0	1.5	Slow, no wake area Adjacent to Canoe Trail
6	Mertes Slough	WI	222 E	222 E	222 E	222 E	222 E	727.0	726.0	0.1	Electric motor area
7	Black River Bottoms	WI		1,146 E	1,146 E	1,146 E	1,165 S	711.0	708.8	0.1	Slow, no wake area, takes effect March 16, 2008
7	Browns Marsh	WI		966 E	966 E	966 E	827 E	711.0	708.0	0.1	Electric motor area; size reduced
8	Blue/Target Lake	MN		1,849 E	1,849 E	1,849 E	1,834 S	699.0	696.0	0.1	Slow, no wake area
8	Root River	MN		695 E	695 E	695 E	695 S	696.0	694.0	0.5	Slow, no wake area
9	Reno Bottoms	MN		4,670 E	2,212 E	3,402 E	2,536 S	681.0	679.2	0.1	Slow, no wake area; reduce size by 866 acres

Table 13: Electric Motor Areas (E) / Slow, No Wake Areas* (S) (Continued)

Pool	Feature	State	Existing	Proposed				Up-River Mile	Down-River Mile	Distance to Landing	Comments for Alt. E
			Alt. A Acres	Alt. B Acres	Alt. C Acres	Alt. D Acres	Alt E Acres				
9	Big Slough/Winneshiek	WI		4,541 E				665.5	660.0	0.1	
10	Sturgeon Slough/McGregor Lake	WI		929 E				636.4	633.3	0.1	
10	Bagley Bottoms	WI		789 E	789 E	789 E	0	626.5	623.5	0.1	Reduced to Hoosier Lake only, see below.
10	Hoosier Lake	WI					162 E	624.8	624.0	0.1	Electric motor area (formerly included Bagley Bottoms and Glass Lake areas)
11	Guttenberg Ponds	IA		93 E	93 E	93 E	0	614.8	614.0	0.8	Dropped in Alt. E Final
12	Nine Mile Island	IA			567 E	567 E	454 S	574.4	571.6	0.3	Slow, no wake area; size reduced
13	Kellers Island	IA			595 E	595 E	0	540.0	537.2	0.3	Dropped
14	Beaver Island	IA			717 E			516.3	513.6	0.5	
14	Princeton (formerly Rock Creek)	IA				327 E	327 S	506.7	506.0	1.3	Slow, no wake area
	Total Acres		222	15,900	13,239	14,498	11,572	*Alternative E: 5 Electric motor areas cover 1,852 acres, 8 Slow, no wake areas cover 9,720 acres			
	Total Units		1	10	15	16	13				

Table 14: Fishing Piers and Platforms

Pool	Feature	State	Existing	Proposed				River Mile	Agency
			Alt. A	Alt. B	Alt. C	Alt. D	Alt. E		
4	None								
5	Halfmoon Landing	MN	x	x	x	x	x	747.5	FWS
5	Halfmoon Landing	MN	x	x	x	x	x	747.5	FWS
5	Halfmoon Landing	MN	x	x	x	x	x	747.5	FWS
5	Upper Spring Lake	WI			x	x	x	743.5	FWS
5A	McNally Landing	MN	x	x	x	x	x	729.0	FWS
6	Mertes Slough	WI					x	726.0	FWS
6	Mertes Slough Point	WI					x	726.0	FWS
7	Long Lake	WI	x	x	x	x	x	713.0	FWS
8	Stoddard Boat Landing	WI	x	x	x	x	x	702.5	FWS/ Partner
9	Visgers Landing	MN	x	x	x	x	x	675.2	FWS
9	New Albin Landing	IA	x	x	x	x	x	673.0	FWS
9	Winneshiek Slough Landing	WI			x	x	x	665.5	FWS
9	Big Slough Landing	WI	x	x	x	x	x	663.5	FWS
9	Cold Springs	WI	x	x	x	x	x	653.2	FWS
10	Sturgeon Slough	WI			x	x	x	635.0	FWS
11	Goetz Island	IA			x			613.3	FWS
11	Turkey River	IA			x			608.0	FWS
12	None								
13	Spring Lake	IL	x	x	x	x	x	534.0	FWS
13	Spring Lake	IL	x	x	x	x	x	534.0	FWS
13	Frog Pond	IL	x	x	x	x	x	535.5	FWS
13	Michelson's Landing	IL	x	x	x	x	x	524.0	FWS
13	Michelson's Landing	IL	x	x	x	x	x	524.0	FWS
14	None								
	Total Fishing Piers		15	15	20	18	20		

Table 15: Hiking Trails

Pool	Feature	State	Existing	Proposed				Up River Mile	Down River Mile	Miles of Trail	Comments
			Alt. A	Alt. B	Alt. C	Alt. D	Alt. E				
4	Tiffany-Nelson Bottoms	WI			x	x	x	762.8	762.6	1.6	Hiking Trail
4	Barton-Lofgren Prairie	MN		x	x	x	x	755.0	753.8	1.6	Hiking Trail
5	Wabasha Prairie	MN		x	x	x	x	752.0	750.8	2.7	Hiking Trail
5A	Thorpe WMA	MN			x	x		736.9	735.8	2.1	Hiking Trail; dropped in Alt E
5A	Minnesota City Bottoms	MN			x	x	x	732.0	731.0	2.3	Hiking Trail
7	Lone Tree Access Road	WI			x	x		713.0	712.1	0.7	Hiking Trail; dropped in Alt E
8	Goose Island	WI	x	x	x	x	x	691.5	691.0	0.8	Hiking Trail
9	Reno Bottoms	MN			x			681.2	680.5	2.0	Hiking Trail
9	Dairyland Power	WI			x	x		677.7	678.8	1.8	Hiking Trail; dropped in Alt E
9	Kain's Switch	IA			x	x	x	670.8	669.0	2.9	Hiking Trail; shortened 1.3 miles, Alt E
9	Black Hawk Park	WI			x			669.5	668.8	1.8	In cooperation w/ Corps of Engineers
9	Rush Creek Delta	WI			x			661.0	660.0	2.2	In cooperation w/ railroad
10	Sturgeon Slough	WI	x	x	x	x	x	635.2	634.8	0.8	Hiking Trail
10	Wisconsin River Delta	WI			x			632.8	632.0	1.8	Hiking Trail

Table 15: Hiking Trails (Continued)

Pool	Feature	State	Existing	Proposed				Up River Mile	Down River Mile	Miles of Trail	Comments
			Alt. A	Alt. B	Alt. C	Alt. D	Alt. E				
11	Goetz Island	IA			x	x	x	614.3	613.4	2.2	Hiking Trail
11	Turkey River	IA				x	x	608.0	607.0	1.5	Hiking trail and auto tour route
11	Dago Slough	WI			x			604.0	603.1	2.0	Hiking Trail
11	John Deere Marsh	IA			x	x	x	586.3	586.0	1.2	Hiking Trail
13	Pleasant Creek	IA	x	x	x	x	x	551.0	549.0	4.7	Hiking Trail; also bike trail on Great River Map
13	Spring Lake	IL	x	x	x	x	x	536.0	531.9	11.0	Hiking Trail; also bike trail on Great River Map
13	Sloane Marsh	IL	x	x	x	x	x	533.0	532.5	1.3	Hiking Trail; also bike trail on Great River Map
13	Potter's Marsh	IL	x	x	x	x	x	526.0	524.8	1.9	Hiking Trail; also bike trail on Great River Map
	Total Miles		20.5	24.8	50.7	40.9	36.5				
	Total Units		6	8	21	16	14				

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards

			Existing	Proposed					
Pool	**Feature**	**State**	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**	**River Mile**	**Comments**
4	Beef Slough Landing	WI			x	x	x	760.4	Kiosk
4	Pontoon Slough Landing	WI			x	x	x	760.3	Kiosk
4	Indian Slough Landing	WI			x	x	x	760.2	Kiosk
4	Wabasha Eagle Deck	MN	x	x	x	x	x	759.4	Interpretive Sign (eagle sign)
4	Wabasha Eagle Deck	MN	x	x	x	x	x	759.4	Interpretive Sign (eagle sign)
4	Wabasha Eagle Deck	MN	x	x	x	x	x	759.4	Interpretive Sign (eagle sign)
4	Wabasha Marina	MN			x	x	x	759.4	Kiosk
4	Wilcox Landing	MN			x	x	x	756.0	Kiosk
4	Rieck's Lake Observation Deck	WI	x	x	x	x	x	755.3	Interpretive sign
4	Rieck's Lake Observation Deck	WI	x	x	x	x	x	755.3	Interpretive sign
4	Rieck's Lake Observation Deck	WI	x	x	x	x	x	755.3	Interpretive sign
4	Lofgren Prairie	MN			x	x	x	755.0	Kiosk
4	Peterson Lake Landing	MN	x	x	x	x	x	754.0	Kiosk (1 panel)
4	Peterson Lake Landing	MN	x	x	x	x	x	754.0	Official Notice Board
4	Alma Marina	WI			x	x	x	753.9	Kiosk
4	Buena Vista	WI	x	x	x	x	x	753.0	Interpretive Sign
5	MN DNR Carry-in Access	MN			x	x	x	752.5	Official Notice Board
5	Pioneer Landing	MN			x	x	x	752.3	Official Notice Board
5	Alma Landing	WI	x	x	x	x	x	751.9	Kiosk (1 panel)

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	Feature	State	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	River Mile	Comments
5	Wabasha Prairie	MN			x	x	x	751.7	Kiosk
5	Great River Harbor	WI			x	x	x	748.0	Kiosk
5	Halfmoon Landing	MN	x	x	x	x	x	747.5	Kiosk (2 panel)
5	Halfmoon Landing	MN	x	x	x	x	x	747.5	Official Notice Board
5	Lizzy Pauls Pond	WI			x	x	x	747.4	Kiosk
5	Belvidere Slough Landing	WI			x	x	x	747.0	Kiosk
5	Weaver Observation Deck	MN	x	x	x	x	x	744.0	Interpretive sign
5	Weaver Landing	MN	x	x	x	x	x	744.0	Kiosk (1 panel)
5	Weaver Landing	MN	x	x	x	x	x	744.0	Kiosk (3 panel)
5	Weaver Landing	MN	x	x	x	x	x	744.0	Official Notice Board
5	Upper Spring Lake Landing	WI			x	x	x	743.5	Kiosk
5	Lower Spring Lake Landing	WI			x	x	x	742.9	Kiosk
5	Minneiska Landing	MN			x	x	x	741.9	Kiosk
5A	Thorpe Hiking Trail	MN			x	x	x	736.0	Kiosk
5A	Merrick State Park South Landing	WI			x	x	x	735.5	Kiosk
5A	Hwy. 61 at Denzers	MN			x	x	x	732.0	Entrance Sign
5A	Lower Fountain City Landing	WI			x	x	x	732.0	Kiosk
5A	Verchota Landing	MN	x	x	x	x	x	730.5	Kiosk (2 panel)
5A	Verchota Landing	MN	x	x	x	x	x	730.5	Official Notice Board

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	Feature	State	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	River Mile	Comments
5A	McNally Landing	MN	x	x	x	x	x	729.0	Kiosk (2 panel)
5A	McNally Landing	MN	x	x	x	x	x	729.0	Official Notice Board
6	Prairie Island Boat Ramp	MN			x	x	x	728.0	Kiosk
6	Dick's Marine	MN			x	x	x	726.0	Kiosk
6	Mertes Slough Landing	WI	x	x	x	x	x	726.0	Kiosk (2 panel)
6	Mertes Slough Landing	WI	x	x	x	x	x	726.0	Official Notice Board
6	Hwy 61	MN	x	x	x	x	x	716.6	Interpretive Sign
7	Hwy 35 Black River Landing	WI			x	x	x	N/A	Kiosk (2 panel)
7	Hwy 35 Black River Landing	WI			x	x	x	N/A	Official Notice Board
7	ACOE Parking Lot, L & D 6	WI			x	x	x	714.3	Interpretive Sign
7	Trempealeau Landing	WI			x	x	x	714.0	Kiosk
7	Trempealeau Landing	WI			x	x	x	714.0	Official Notice Board
7	Round Lake Landing	WI	x	x	x	x	x	713.2	Entrance Sign
7	Round Lake Landing	WI	x	x	x	x	x	713.2	Kiosk (2 panel)
7	Round Lake Landing	WI	x	x	x	x	x	713.2	Official Notice Board
7	Long Lake Landing	WI	x	x	x	x	x	713.0	Entrance Sign
7	Long Lake Landing	WI	x	x	x	x	x	713.0	Kiosk (2 panel)
7	Long Lake Landing	WI	x	x	x	x	x	713.0	Official Notice Board
7	Lone Tree Observation Deck	WI			x	x	x	712.3	Kiosk

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	Feature	State	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	River Mile	Comments
7	Lone Tree Observation Deck	WI			x	x	x	712.3	Official Notice Board
7	Scenic Bluffs State Park	MN			x	x	x	711.8	Interpretive Sign
7	Great River State Trail	WI			x	x	x	710.5	Interpretive Sign
7	Lytle's Canoe Access	WI			x	x	x	709.5	Kiosk
7	Lytle's Canoe Access	WI			x	x	x	709.5	Official Notice Board
7	Mathy Prairie	WI	x	x	x	x	x	709.1	Interpretive Sign
7	Mathy Prairie	WI	x	x	x	x	x	709.1	Interpretive Sign
7	The Tubes	WI			x	x	x	708.3	Official Notice Board
7	Upper Halfway Creek	WI	x	x	x	x	x	708.0	Entrance Sign (Greenwing sponsor)
7	Upper Halfway Creek	WI	x	x	x	x	x	708.0	Interpretive Sign
7	Upper Halfway Creek	WI	x	x	x	x	x	708.0	Interpretive Sign
7	Upper Halfway Creek	WI	x	x	x	x	x	708.0	Interpretive Sign
7	Upper Brice Prairie Landing	WI	x	x	x	x	x	708.0	Kiosk (2 panel)
7	Upper Brice Prairie Landing	WI	x	x	x	x	x	708.0	Official Notice Board
7	Upper Halfway Creek	WI	x	x	x	x	x	708.0	Official Notice Board
7	Dakota Ramp	MN			x	x	x	707.0	Official Notice Board
7	Midway Railroad Prairie SNA	WI	x	x	x	x	x	706.4	Entrance Sign
7	Dakota Overlook	MN			x	x	x	706.4	Interpretive Sign
7	Midway Railroad Prairie SNA	WI	x	x	x	x	x	706.4	Interpretive Sign

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	Feature	State	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	River Mile	Comments
7	Mosey's Landing	WI	x	x	x	x	x	706.0	Kiosk (1 panel)
7	Mosey's Landing	WI	x	x	x	x	x	706.0	Official Notice Board
7	Highway 35 Pull Off	WI			x	x	x	704.8	Interpretive Sign
7	Nelson Park	WI	x	x	x	x	x	704.8	Interpretive Sign (Dabbling Ducks)
7	Nelson Park	WI	x	x	x	x	x	704.8	Interpretive Sign (Diving Ducks)
7	Nelson Park	WI	x	x	x	x	x	704.8	Interpretive Sign (Protecting Waterfowl)
7	Nelson Park	WI	x	x	x	x	x	704.8	Kiosk (2 panel)
7	Nelson Park	WI	x	x	x	x	x	704.8	Official Notice Board
7	Great River State Bike Trail	WI			x	x	x	704.3	Kiosk
7	French Island Walk-in	WI			x	x	x	704.0	Interpretive Sign
7	Fishermen's Road	WI	x	x	x	x	x	703.0	Official Notice Board
8	Upper Dike Landing	WI			x	x	x	702.6	kiosk (single panel)
8	Lower Spillway Landing	WI			x	x	x	702.6	kiosk (single panel)
8	Upper Dike Landing	WI			x	x	x	702.6	Official Notice Board
8	Lower Spillway Landing	WI			x	x	x	702.6	Official Notice Board
8	ACOE Parking Lot, L & D 7	MN			x	x	x	702.5	Interpretive Sign
8	Highway 35 Pull Off	WI	x	x	x	x	x	702.5	Interpretive Sign
8	Proposed Eagle Viewing Area	WI			x	x	x	702.0	Interpretive Sign
8	Apple Blossom Drive	MN	x	x	x	x	x	702.0	Interpretive Sign

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	Feature	State	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	River Mile	Comments
8	Upper I-90 (Boat Landing)	MN	x	x	x	x	x	702.0	Official Notice Board
8	Minnesota Rest Area	MN	x	x	x	x	x	701.9	Entrance Sign
8	Minnesota Rest Area	MN	x	x	x	x	x	701.9	Interpretive Sign (eagle sign)
8	Minnesota Rest Area	MN	x	x	x	x	x	701.9	Interpretive Sign (eagle sign)
8	Minnesota Rest Area	MN	x	x	x	x	x	701.9	Interpretive Sign (eagle sign)
8	Minnesota Rest Area	MN	x	x	x	x	x	701.9	Kiosk (3 panel)
8	I-90	MN			x	x	x	701.8	Entrance Sign
8	1st Parking Lot, I-90 (MN DOT)	MN			x	x	x	701.8	Interpretive Sign
8	WI Rest Area	WI	x	x	x	x	x	701.8	Interpretive Sign
8	WI Rest Area	WI			x	x	x	701.8	Kiosk (3 panel)
8	Lower I-90 (Boat Landing)	MN	x	x	x	x	x	701.6	Entrance Sign
8	Lower I-90 (Boat Landing)	MN	x	x	x	x	x	701.6	Kiosk (2 panel)
8	Lower I-90 (Boat Landing)	MN	x	x	x	x	x	701.6	Kiosk (2 panel)
8	Lower I-90 (Boat Landing)	MN	x	x	x	x	x	701.6	Official Notice Board
8	Logan Street Landing	WI			x	x	x	700.8	Kiosk
8	Logan Street Landing	WI			x	x	x	700.8	Official Notice Board
8	Clinton Street Landing	WI			x	x	x	700.7	Kiosk
8	Clinton Street Landing	WI			x	x	x	700.7	Official Notice Board
8	Clinton Street Landing West	WI			x	x	x	700.4	Kiosk

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	Feature	State	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	River Mile	Comments
8	Clinton Street Landing West	WI			x	x	x	700.4	Official Notice Board
8	Wagon Wheel	MN			x	x	x	699.6	Interpretive Sign
8	La Crescent	MN			x	x	x	699.5	Interpretive Sign
8	Hwy. 61	MN			x	x	x	699.0	Entrance Sign
8	Twilight Obs. Deck/Tower/Photo B.	MN			x	x	x	698.9	Interpretive Sign
8	Allen's Boat Livery	MN			x	x	x	698.7	Official Notice Board
8	Sportsman's Landing	MN			x	x	x	698.6	Official Notice Board
8	Pettibone Park	WI			x	x	x	698.4	Interpretive Sign
8	Grandad's Bluff	WI			x	x	x	697.8	Interpretive Sign
8	Houska Park	WI			x	x	x	697.0	Kiosk
8	La Crosse Municipal Harbor	WI			x	x	x	696.8	Kiosk
8	La Crosse Municipal Harbor	WI			x	x	x	696.8	Official Notice Board
8	Green Island Landing	WI			x	x	x	696.0	Kiosk
8	Green Island Landing	WI			x	x	x	696.0	Official Notice Board
8	Goose Island Upper North Boat Landing	WI	x	x	x	x	x	692.6	Interpretive Sign
8	Goose Island Upper North Boat Landing	WI	x	x	x	x	x	692.6	Official Notice Board
8	Goose Island Middle Landing	WI	x	x	x	x	x	692.0	Interpretive Sign

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	Feature	State	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	River Mile	Comments
8	Goose Island Campground	WI			x	x	x	692.0	Kiosk
8	Goose Island Middle Landing	WI	x	x	x	x	x	692.0	Official Notice Board
8	North Lawrence Lake Walk down	MN			x	x	x	691.9	Interpretive Sign
8	South Lawrence Lake Walk down	MN			x	x	x	691.4	Interpretive Sign
8	Goose Island Observation Area	WI			x	x	x	691.3	Interpretive Sign
8	Goose Island Hiking Trail	WI	x	x	x	x	x	691.0	Interpretive Sign (Dabbling Ducks)
8	Goose Island Hiking Trail	WI	x	x	x	x	x	691.0	Interpretive Sign (Protecting Waterfowl)
8	Goose Island Hiking Trail	WI	x	x	x	x	x	691.0	Interpretive Sign (seasonal travelers)
8	Goose Island Hiking Trail	WI	x	x	x	x	x	691.0	Kiosk (2 panel)
8	Goose Island Hiking Trail	WI	x	x	x	x	x	691.0	Official Notice Board
8	Hwy 35, South of Goose Island	WI	x	x	x	x	x	690.5	Interpretive Sign
8	Goose Island Hunter's Point	WI	x	x	x	x	x	690.5	Kiosk (2 panel)
8	Goose Island Hunter's Point	WI	x	x	x	x	x	690.5	Official Notice Board
8	Goose Island	WI			x	x	x	690.0	Interpretive Sign
8	Hwy 35, South of Goose Island	WI	x	x	x	x	x	690.0	Interpretive Sign
8	Hwy. 35, Goose Island	WI			x	x	x	689.0	Interpretive Sign
8	Hwy 35, south of Goose Island	WI	x	x	x	x	x	689.0	Interpretive Sign
8	Wildcat Park	MN	x	x	x	x	x	688.4	Kiosk (2 panel)
8	Wildcat Park	MN	x	x	x	x	x	688.4	Official Notice Board

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	Feature	State	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	River Mile	Comments
8	ACOE Dock	MN			x	x	x	688.3	Interpretive Sign
8	Lower Wildcat Landing	MN			x	x	x	688.3	Kiosk
8	Lower Wildcat Landing	MN			x	x	x	688.3	Official Notice Board
8	Overpass - Hwy 35 over BNSF RR	WI			x	x	x	687.7	Interpretive Sign
8	Walk down Access	WI			x	x	x	687.2	Interpretive Sign
8	Stoddard Park Landing	WI	x	x	x	x	x	685.5	Kiosk (2 panel)
8	Stoddard Park Landing	WI	x	x	x	x	x	685.5	Official Notice Board
8	Brownsville Swan Observation Deck	MN			x	x	x	685.3	Interpretive Sign
8	Brownsville Swan Observation Deck	MN			x	x	x	685.3	Kiosk
8	Coon Creek, Hwy 35	WI			x	x	x	684.3	Interpretive Sign
8	Hwy 35 eastside pullout	WI	x	x	x	x	x	684.1	Interpretive Sign
8	Brownsville Overlook	MN	x	x	x	x	x	683.2	Interpretive Sign (diving ducks)
8	Brownsville Overlook	MN	x	x	x	x	x	683.2	Interpretive Sign (protecting waterfowl)
8	Brownsville Overlook	MN	x	x	x	x	x	683.2	Interpretive Sign (seasonal travelers)
8	Brownsville Overlook	MN	x	x	x	x	x	683.2	Kiosk (1 panel)
8	Old Settler's Park	WI			x	x	x	682.3	Interpretive Sign
8	Reno Canoe Launch	WI			x	x	x	681.1	Kiosk
8	Engh's Boat Livery	WI			x	x	x	679.8	Interpretive Sign
8	Genoa Harbor	WI			x	x	x	679.7	Official Notice Board

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	Feature	State	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	River Mile	Comments
8	ACOE parking lot, L & D 8	WI			x	s	x	679.5	Interpretive Sign
9	Dairyland Power	WI	x	x	x	x	x	677.9	Kiosk (2 panel)
9	Millstone Landing	MN	x	x	x	x	x	676.8	Kiosk (2 panel)
9	Visgers Landing	MN	x	x	x	x	x	675.5	Kiosk (2 panel)
9	Visgers Landing	MN	x	x	x	x	x	675.5	Official Notice Board
9	Bad Ax Landing	WI	x	x	x	x	x	675.0	Kiosk (2 panel)
9	New Albin Overlook	MN	x	x	x	x	x	674.0	Entrance Sign
9	New Albin Overlook	MN	x	x	x	x	x	674.0	Interpretive Sign
9	New Albin Overlook	MN	x	x	x	x	x	674.0	Kiosk (2 panel)
9	Three State Point	MN	x	x	x	x	x	673.9	Interpretive Sign (3 states)
9	New Albin Landing	IA	x	x	x	x	x	673.0	Entrance Sign
9	New Albin Landing	IA	x	x	x	x	x	673.0	Kiosk (2 panel)
9	New Albin Landing	IA	x	x	x	x	x	673.0	Official Notice Board
9	Blackhawk Park	WI	x	x	x	x	x	671.0	Kiosk (2 panel)
9	Winneshiek Slough Landing	WI	x	x	x	x	x	665.5	Entrance Sign
9	Winneshiek Slough Landing	WI	x	x	x	x	x	665.5	Kiosk (2 panel)
9	Hwy. 82	WI	x	x	x	x	x	664.5	Entrance Sign
9	Big Slough Landing	WI	x	x	x	x	x	663.5	Kiosk (2 panel)
9	Big Slough Landing	WI	x	x	x	x	x	663.5	Official Notice Board

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	Feature	State	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	River Mile	Comments
9	Lansing Field Station	WI	x	x	x	x	x	663.0	Entrance Sign
9	Mt. Hosmer-Lansing City Park	IA	x	x	x	x	x	663.0	Interpretive Sign
9	Village Creek Landing	IA	x	x	x	x	x	662.0	Kiosk (2 panel)
9	Ferryville Observation Deck	WI	x	x	x	x	x	659.0	Interpretive Sign
9	Ferryville Observation Deck	WI	x	x	x	x	x	659.0	Interpretive Sign
9	Ferryville Observation Deck	WI	x	x	x	x	x	659.0	Interpretive Sign
9	Ferryville Landing	WI	x	x	x	x	x	659.0	Kiosk (2 panel)
9	Cold Springs Landing	WI	x	x	x	x	x	653.5	Entrance Sign
9	Cold Springs Landing	WI	x	x	x	x	x	653.5	Kiosk (2 panel)
9	Cold Springs Landing	WI	x	x	x	x	x	653.5	Official Notice Board
10	Gordons Bay Landing	WI	x	x	x	x	x	647.0	Kiosk (2 panel)
10	Harpers Ferry Landing	IA	x	x	x	x	x	646.5	Kiosk (2 panel)
10	Nobles Landing	IA	x	x	x	x	x	643.2	Kiosk (2 panel)
10	Nobles Landing	IA	x	x	x	x	x	643.2	Official Notice Board
10	Ambrough Slough Landing	WI	x	x	x	x	x	639.4	Entrance Sign
10	Ambrough Slough Landing	WI	x	x	x	x	x	639.4	Kiosk (1 panel)
10	Effigy Mounds NP	IA	x	x	x	x	x	638.0	Interpretive Sign
10	North Water St. Landing	WI			x	x	x	635.8	Kiosk (2 panel)
10	Sturgeon Slough	WI	x	x	x	x	x	634.9	Entrance Sign

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	Feature	State	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	River Mile	Comments
10	Sturgeon Slough	WI	x	x	x	x	x	634.8	Interpretive sign (prairie plants)
10	Marquette City Landing	IA	x	x	x	x	x	634.8	Kiosk (2 panel)
10	Sturgeon Slough	WI	x	x	x	x	x	634.8	Kiosk (2 panel)
10	McGregor District Office	IA	x	x	x	x	x	634.0	Entrance Sign
10	McGregor District Office	IA	x	x	x	x	x	634.0	Interpretive sign (bat cave)
10	McGregor District Office	IA	x	x	x	x	x	634.0	Kiosk (3 panel)
10	Pikes Peak State Park	IA	x	x	x	x	x	633.5	Interpretive sign
10	Wyalusing State Park Landing	WI	x	x	x	x	x	630.0	Kiosk (2 panel)
10	Wyalusing State Park Landing	WI	x	x	x	x	x	630.0	Official Notice Board
10	Wyalusing Public Boat Landing	WI	x	x	x	x	x	627.8	Kiosk (2 panel)
10	Sny Magill Landing	IA	x	x	x	x	x	627.0	Kiosk (2 panel)
10	Bagley Bottoms Landing	WI	x	x	x	x	x	625.0	Entrance Sign
10	Bagley Bottoms Landing	WI	x	x	x	x	x	625.0	Kiosk (1 panel)
10	Bagley Bottoms Landing	WI	x	x	x	x	x	625.0	Official Notice Board
10	Jays Lake Landing	WI	x	x	x	x	x	622.0	Kiosk (2 panel)
10	Bussey Lake	IA	x	x	x	x	x	616.7	Kiosk (2 panel)
11	Guttenberg Landing	IA	x	x	x	x	x	614.5	Kiosk (2 panel)
11	Goetz Island Trail Head	IA			x	x	x	614.0	Entrance Sign
11	Nelson Dewey State park	WI	x	x	x	x	x	609.0	Interpretive Sign

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	Feature	State	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	River Mile	Comments
11	Turkey River Landing	IA	x	x	x	x	x	607.8	Entrance Sign
11	Turkey River Landing	IA	x	x	x	x	x	607.7	Kiosk (2 panel)
11	Turkey River Landing	IA	x	x	x	x	x	607.7	Official Notice Board
11	Cassville Field Station	WI	x	x	x	x	x	607.0	Entrance Sign
11	Cassville Overlook	WI	x	x	x	x	x	607.0	Entrance Sign
11	Eagle Roost Resort	WI	x	x	x	x	x	607.0	Interpretive Sign
11	Cassville Overlook	WI	x	x	x	x	x	607.0	Interpretive Sign (heron rookery)
11	Cassville Overlook	WI	x	x	x	x	x	607.0	Interpretive Sign (migration sensation)
11	Cassville Overlook	WI	x	x	x	x	x	607.0	Interpretive Signs (refuge journal)
11	Cassville Public Access	WI	x	x	x	x	x	606.4	Kiosk (2 panel)
11	Bertom Lake Landing	WI	x	x	x	x	x	601.7	Entrance Sign
11	Bertom Lake Landing	WI	x	x	x	x	x	601.7	Kiosk
11	Bertom Lake Landing	WI	x	x	x	x	x	601.7	Official Notice Board
11	Lynn Hollow Landing	WI	x	x	x	x	x	597.0	Entrance Sign
11	Lynn Hollow Landing	WI	x	x	x	x	x	597.0	Kiosk (1 panel)
11	Finley's Landing	IA			x	x	x	595.8	Kiosk
11	Potosi Public Access	WI			x	x	x	592.5	Entrance Sign
11	Potosi Public Access	WI			x	x	x	592.5	Kiosk
11	Grant River Rec. Area	WI	x	x	x	x	x	591.0	Kiosk (2 panel)

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	**Feature**	**State**	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**	**River Mile**	**Comments**
11	Mud Lake Recreation Area	IA	x	x	x	x	x	589.3	Kiosk (2 panel)
11	John Deere Marsh	IA			x	x	x	585.8	Kiosk
11	Sunfish Lake Landing	IA	x	x	x	x	x	583.3	Kiosk (2 panel)
12	Hawthorne St. Boat Ramp	IA			x	x	x	582.0	Interpretive Sign
12	Schmitt Harbor	IA			x	x	x	581.0	Interpretive Sign
12	East Dubuque Public Ramp	IL			x	x	x	579.5	Interpretive Sign
12	Midtown Marina	IL			x	x	x	579.0	Interpretive Sign
12	Bent Prop Marina	IL			x	x	x	578.4	Interpretive Sign
12	Massey Station	IA			x	x	x	573.8	Kiosk
12	Ferry Landing	IL			x	x	x	566.6	Kiosk
12	Spruce Creek	IA	x	x	x	x	x	559.5	Kiosk (1 panel)
12	Blanding Landing	IL			x	x	x	558.7	Kiosk
13	Bellevue Municipal Landing	IA			x	x	x	556.6	Kiosk
13	Mill Creek	IA			x	x	x	555.5	Kiosk
13	Pleasant Creek	IA			x	x	x	550.0	Kiosk
13	Lost Mound Observation Deck	IL			x	x	x	548.3	Interpretive Sign
13	Lost Mound Unit	IL	x	x	x	x	x	546.0	Entrance Sign
13	Lost Mound Unit	IL	x	x	x	x	x	546.0	Kiosk (3 panel)
13	Palisades State Park # 1	IL	x	x	x	x	x	540.8	Interpretive Sign

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	Feature	State	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	River Mile	Comments
13	Miller's Hollow Landing	IL	x	x	x	x	x	540.2	Kiosk (2 panel)
13	Palisades State Park # 2	IL	x	x	x	x	x	540.0	Interpretive Sign
13	Palisades State Park # 3	IL			x	x	x	540.0	Interpretive Sign
13	Palisades State Park # 4	IL			x	x	x	540.0	Interpretive Sign
13	Palisades Park # 5	IL			x	x	x	540.0	Interpretive Sign
13	Marquette Park	IL			x	x	x	537.5	Interpretive Sign
13	Esmay Slough Landing	IA			x	x	x	536.0	Kiosk
13	Frog Pond	IL	x	x	x	x	x	535.5	Kiosk (1 panel)
13	Savanna District Maintenance	IL	x	x	x	x	x	535.0	Entrance Sign
13	Spring Lake Tower	IL	x	x	x	x	x	535.0	Interpretive sign (diving duck)
13	Spring Lake Observation Area	IL	x	x	x	x	x	535.0	Interpretive sign (diving duck)
13	Spring Lake Tower	IL	x	x	x	x	x	535.0	Interpretive sign (puddle duck)
13	Spring Lake Observation Area	IL	x	x	x	x	x	535.0	Interpretive sign (puddle duck)
13	Ingersoll Wetlands Learning Center	IL	x	x	x	x	x	535.0	Kiosk (2 panel)
13	Spring Lake	IL	x	x	x	x	x	535.0	Kiosk (3 panel)
13	Sloane Marsh	IL	x	x	x	x	x	533.0	Interpretive sign (diving duck)
13	Sloane Marsh	IL	x	x	x	x	x	533.0	Interpretive sign (puddle duck)
13	Sloane Marsh	IL	x	x	x	x	x	533.0	Kiosk (2 panel)
13	Savanna District	IL	x	x	x	x	x	528.0	Entrance Sign

Table 16: Kiosks, Interpretive Signs, Entrance Signs and Official Notice Boards (Continued)

			Existing	Proposed					
Pool	**Feature**	**State**	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**	**River Mile**	**Comments**
13	Thomson Prairie	IL	x	x	x	x	x	527.0	Kiosk (3 panel)
13	Potters Marsh Hunter's Park. Lot	IL	x	x	x	x	x	526.0	Kiosk (2 panel)
13	Bulgers Hollow	IA			x	x	x	525.0	Kiosk
13	Michelson's Landing	IL	x	x	x	x	x	524.0	Kiosk (1 panel)
13	Eagle Point Park	IA			x	x	x	522.7	Kiosk
14	Hwy 30	IL	x	x	x	x	x	518.0	Entrance Sign
14	Catfish Ramp	IL			x	x	x	517.6	Interpretive Sign
14	5th St. Ramp	IA			x	x	x	517.0	Interpretive Sign
14	Albany Municipal Boat Ramp	IL			x	x	x	514.0	Interpretive Sign
14	Camanche Municipal Park Ramp	IA			x	x	x	511.0	Interpretive Sign
14	Rock Creek Ramp	IA			x	x	x	508.0	Interpretive Sign
14	Rock Creek Ramp	IA			x	x	x	508.0	Kiosk
14	10th Street Ramp	IL			x	x	x	503.0	Interpretive Sign
	Total Kiosks		66	66	115	115	115		
	Total Interpretive Signs		59	59	102	102	102		
	Total Entrance Signs		25	25	30	30	30		
	Total Official Notice Boards		30	30	49	49	49		

Table 17: Managed/Special Hunts

Pool	Feature	State	Existing	Proposed				Up-River Mile	Down-River Mile	Comments
			Alt. A Acres	Alt. B Acres	Alt. C Acres	Alt. D Acres	Alt. E Acres			
7	Gibb's Lake Managed Hunt	WI				480	<200	708.6	707.2	By Ocotober 1, 2006, complete a step-down hunting plan
8	Goose Island Youth Hunt	WI						692.0	691.5	Youth Waterfowl Hunt proposed in Alt E Draft; drop in Alt E Final
10	Wisconsin River Delta Special Hunt Area	WI					1,406	633.8	630.7	Closed to all hunting and trapping from Nov. 1 to the end of the state duck hunting season and voluntary avoidance during the same dates.
11	John Deere Marsh Special Hunt	IA						586.5	586.0	Special walk-in hunt proposed in Alt E Draft; drop in Alt E Final
12	Blanding Landing Managed Hunt	IL	511					557.7	556.8	Alts. D and E the same: end managed hunt; open area to general hunting
13	Potter's Marsh Managed Hunt	IL	1,923			1,923	1,923	526.0	522.7	Alts. D and E: No permanent blinds; boat blinds only
	Total Acres		2,434	0	0	2,403	~3,530			
	Total Units		2	0	0	2	3			

Table 18: No-wake Zones

Pool	Feature	State	Existing	Proposed				River Mile	Agency
			Alt. A	Alt. B	Alt. C	Alt. D	Alt. E		
4	Wabasha	MN	x	x	x	x	x	760.3	
4	Wilcox Landing	MN			x	x	x	756.5	FWS
5	Belvidere Slough	WI	x	x	x	x	x	747.5	
5	Halfmoon Landing	MN	x	x	x	x	x	747.5	FWS
5A	Fountain City Bay	WI		x	x	x	x	735.0	FWS
5A	Verchota Landing	MN		x		x	x	731.0	FWS
5A	McNally Landing	MN		x	x	x	x	729.0	FWS
6	Winona	MN	x	x	x	x	x	725.5	
7	Lytle's Landing	WI	x	x	x	x	x	710.0	
7	Brice Prairie	WI	x	x	x	x	x	708.0	
7	La Crosse Sailing Club	WI	x	x	x	x	x	705.0	
8	Black River / French Island	WI	x	x	x	x	x	703.0	
8	R & R Marine	WI	x	x	x	x	x	701.0	
8	Al's Marina	WI	x	x	x	x	x	700.5	
8	Clinton St. Landing	WI	x	x	x	x	x	700.4	
8	French Island Yacht Club	WI	x	x	x	x	x	700.3	
8	Taylor Island	WI	x	x	x	x	x	699.0	
8	Bikini Yacht Club	WI	x	x	x	x	x	698.0	
8	Houska Park	WI	x	x	x	x	x	697.0	

Table 18: No-wake Zones (Continued)

Pool	Feature	State	Existing	Proposed				River Mile	Agency
			Alt. A	Alt. B	Alt. C	Alt. D	Alt. E		
8	Green Island Landing	WI	x	x	x	x	x	695.8	
8	Chut's Landing	WI	x	x	x	x	x	695.3	
8	Goose Island Campground	WI	x	x	x	x	x	692.0	
8	Lawrence Lake Marina	MN	x	x	x	x	x	690.5	
8	Raft Channel*	MN					x	687.5	FWS
9	Fish Lake	IA			x	x	x	672.5	FWS
9	Cold Springs	WI		x	x	x	x	653.9	FWS
10	Ambrough Slough	WI	x	x	x	x	x	639.0	FWS
10	McGregor	IA	x	x	x	x	x	634.5	
10	Wyalusing Park	WI		x	x	x	x	630.0	FWS
10	Johnson Slough	IA		x	x	x	x	628.0	FWS
11	Mud Lake	IA					x	587.7	FWS
11	Sunfish Lake	WI					x	583.3	FWS
12	Hawthorne St. Boat Ramp	IA	x	x	x	x	x	582.0	
12	Schmitt's Harbor	IA	x	x	x	x	x	581.0	
12	East Dubuque	IL	x	x	x	x	x	579.5	
12	Midtown Marine	IL	x	x	x	x	x	579.0	
12	Bent Prop. Marina	IL	x	x	x	x	x	578.5	
12	Frentress Lake Marina	IL	x	x	x	x	x	576.0	

Table 18: No-wake Zones (Continued)

Pool	Feature	State	Existing	Proposed				River Mile	Agency
			Alt. A	Alt. B	Alt. C	Alt. D	Alt. E		
12	Massey Station	IA	x	x	x	x	x	573.0	
12	Menominee Slough	IL		x				571.0	FWS
12	Ferry Landing	IL	x	x	x	x	x	567.0	
12	Spruce Creek County Park	IA	x	x	x	x	x	559.5	
13	Bellevue Municipal Landing	IA	x	x	x	x	x	556.8	
13	Crooked Slough **	IL		x				556.0	
13	Millers Hollow Landing	IL	x	x	x	x	x	542.0	
13	Marquette Park	IL	x	x	x	x	x	537.0	
13	North Sabula Access	IA	x	x	x	x	x	535.8	
13	South Sabula Lake	IA	x	x	x	x	x	534.5	
13	Spring Lake Resort	IL	x	x	x	x	x	533.6	
13	Spring Lake Zone **	IL		x	x	x		533.0	
13	Big Slough	IL	x	x	x	x	x	531.5	
14	Fulton Harbor	IL	x	x	x	x	x	519.6	
14	Ninth Avenue Ramp	IA	x	x	x	x	x	519.0	
14	Clinton Marina	IA	x	x	x	x	x	518.8	
14	Catfish Ramp	IL	x	x	x	x	x	517.6	
14	Camanche Boat Harbor	IA	x	x	x	x	x	512.3	
14	Camanche Municipal Ramp	IA	x	x	x	x	x	511.0	

Table 18: No-wake Zones (Continued)

Pool	Feature	State	Existing	Proposed				River Mile	Agency
			Alt. A	Alt. B	Alt. C	Alt. D	Alt. E		
14	Rock Creek Ramp	IA	x	x	x	x	x	508.0	
14	Green Gables Boat Harbor	IA	x	x	x	x	x	495.0	
14	Lock & Dam 14	IA	x	x	x	x	x	493.8	
	Total		46	55	54	55	57		

*Slow, no wake zone is within the Raft Channel travel corridor of the Wisconsin Islands Closed Area, in effect October 15 to the end of the duck season; Alt. E only.

** Speed/distance regulation in effect; Alt. E only.

Table 19: Observation Decks, Towers, and Photo Blinds

			Existing	Proposed				
Pool	**Feature**	**State**	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**	**River Mile**
4	Rieck's Lake Photo Blind	WI			x	x	x	755.7
4	Rieck's Lake Observation Deck (Coop with Corps of Engineers)	WI	x	x	x	x	x	755.3
5	Weaver Observation Deck	MN	x	x	x	x	x	744.0
5	Upper Spring Lake Observation Deck	WI			x	x	x	743.5
5A	McNally Observation Tower	MN			x	x	x	728.5
7	Lone Tree Observation Deck	WI			x	x	x	712.0
7	Mathy Prairie/Wooden deck	WI	x	x	x	x	x	709.0
7	Brown's Marsh Observation Deck	WI			x	x	x	709.0
7	Upper Halfway Creek Observation Tower	WI			x	x	x	708.0
7	Upper Halfway Creek /Bike Trail / Observation Area	WI	x	x	x	x	x	708.0
7	Upper Halfway Creek /County HWY Z/ Observation Deck	WI	x	x	x	x	x	707.8
8	Wittenberg Marsh EE Facility /Observation Deck	WI			x	x	x	703.2
8	I-90 Eagle Observation Deck	WI			x	x	x	701.8
8	Wagon Wheel Observation Deck *	MN			x	x		699.7
8	Blue Lake Observation Tower *	MN			x	x		698.5
8	Twilight Observation Deck/Tower/Photo Blind	MN			x	x	x	699.0

Table 19: Observation Decks, Towers, and Photo Blinds (Continued)

			Existing	Proposed				
Pool	**Feature**	**State**	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**	**River Mile**
8	Goose Island Observation Deck *	WI			x	x		691.4
8	Goose Island Observation Deck /Hiking trail	WI	x	x	x	x	x	690.9
8	Brownsville Overlook/Deck	MN					x	685.4
8	Hwy 26 Overlook/Deck	MN	x	x	x	x	x	683.2
9	Reno Bottoms Observation Deck	MN			x	x	x	681.1
9	New Albin Observation Deck	MN	x	x	x	x	x	674.0
9	Ferryville Observation Deck (Coop with Village of Ferryville)	WI	x	x	x	x	x	659.0
9	Harper's Slough Observation Deck	IA			x	x	x	650.0
10	Sturgeon Slough Observation Deck	WI	x	x	x	x	x	634.7
10	WI River Delta Observation Deck	WI			x			632.9
11	Cassville Observation Deck (Coop with Village of Cassville)	WI	x	x	x	x	x	607.0
11	Dago Slough Observation Deck	WI			x			604.0
11	Potosi Observation Deck	WI			x	x	x	592.3
11	Potosi Photo Blind	WI			x	x	x	592.3
11	Mud Lake Observation Deck	IA			x			589.4
11	John Deere Outdoor Classroom /Photo Blind	IA			x	x	x	586.0
12	None Existing							

Table 19: Observation Decks, Towers, and Photo Blinds (Continued)

			Existing	Proposed				
Pool	**Feature**	**State**	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**	**River Mile**
13	Pleasant Creek Observation Deck	IA			x			551.0
13	Lost Mound Observation Deck	IL	x	x	x	x	x	549.0
13	Kellers Island Observation Deck	IA			x			536.9
13	Spring Lake Observation Deck	IL	x	x	x	x	x	535.0
13	Sloane Marsh Observation Deck	IL	x	x	x	x	x	532.5
13	L & D 13 Observation Deck (Coop with Corps of Engineers)	IL	x	x	x	x	x	522.7
14	Albany Municipal Boat Ramp /Observ. Deck	IL			x			514.0
	Total Photo Blinds		0	0	3	3	4	
	Total Observation Decks / Areas		15	15	31	26	25	
	Total Observation Towers		0	0	3	3	3	

* Drop in Alt. E Final

Table 20: Refuge Staffing

	Number of Full-time Equivalents																								
	Winona District					La Crosse District					McGregor District					Savanna District					District Totals				
	Existing	Proposed				Existing	Proposed				Existing	Proposed				Existing	Proposed				Existing	Proposed			
Staff Positions	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E
Refuge Districts																									
District Manager	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4
Assistant Manager/ Refuge Operations Specialist	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	5	5	5	5	5
Administrative Technician	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4
Law Enforcement Refuge Officer	1	1	1	1	2	1	1	1	1	2	1	1	1	1	2	1	1	1	1	2	4	4	4	4	8
Visitor Services Specialist	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	2	4	4	4	4
Wildlife Biologist	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	4	4	4	4
Private Lands Biologist	0	1	1	1	1	0	1	1	1	1	0	1	1	1	1	0	1	1	1	1	0	4	4	4	4
Biological Technician	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	4	4	4	4
Maintenance	1	2	2	2	2	0	2	2	2	2	1	1	1	1	1	2	2	2	2	2	4	7	7	7	7

Table 20: Refuge Staffing (Continued)

	Number of Full-time Equivalents																								
	Winona District					La Crosse District					McGregor District					Savanna District					District Totals				
	Existing	Proposed				Existing	Proposed				Existing	Proposed				Existing	Proposed				Existing	Proposed			
Staff Positions	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**
Receptionist / Permit Specialist (Part Time)	0.0	0.5	0.5	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.0	2.0	2.0	2.0	2.0
Lost Mound Unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	3	3	3	1	3	3	3	3
Sub-Total Positions / Each District[1]	7.0	10.5	10.5	10.5	11.5	7.0	10.5	10.5	10.5	11.5	7.0	10.5	10.5	10.5	11.5	9.0	13.5	13.5	13.5	14.5	30.0	45.0	45.0	45.0	49.0

1. There will be some latitude in the types of positions filled. For example, a District may need 2 biological technicians instead of the standard 1.

Table 20: Refuge Staffing

	Headquarters				
	Existing	Proposed			
Refuge Headquarters	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**
Complex Manager	1	1	1	1	1
Administrative Officer	1	1	1	1	1
Environmental Engineer	1	1	1	1	1

Table 20: Refuge Staffing

	Headquarters				
	Existing	Proposed			
Refuge Headquarters	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**
Visitor Services Specialist	1	1	2**	2**	2**
Watershed Biologist	1	1	1	1	1
Wildlife Biologist	1	1	1	1	1
Forester	0	1	0	1	1
Fishery Biologist	0	1	0	1	1
Geographic Information System (GIS) Specialist	1	1	1	1	1
Public Information Specialist	0	0	1	1	1
Receptionist (Part time)	0	0.5	0.5	0.5	0.5
Sub-Total-Headquarters	7.0	9.5	9.5	11.5	11.5
District Totals	30.0	45.0	45.0	45.0	49.0
Refuge Wide Total Positions	37.0	54.5	54.5	56.5	60.5

** 1 person stationed at the National Mississippi River Museum, Dubuque, Iowa.

Table 21: Summary of Project Features by Alternative

	Existing Features		Total Proposed Features								
	Alt A: No Action		Alt. B: Wildlife Focus		Alt. C: Public Use Focus		Alt. D: Wildlife and Public Use Focus		Alt. E: Modified Wildlife and Public Use Focus		
	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Comments
Waterfowl Closed Areas and/or Sanctuaries	15	44,544	29	60,396	15	44,614	21	43,704	23	43,764	
No open water hunting areas	0	0	2	10,487	0	0	2	10,487	1	4,000	Alt B & D: Pool 9 – 6,429 acres; Pool 11– 4,058 acres. Alt. E: Pool 11 only.
Managed / Special Hunts	2	2,434	0	0	0	0	2	2,403	3	~3,530	Alt. E includes the Wisconsin River Delta Special Hunt Area
Administrative no hunting zones	8	3,555	10	3,813	17	5,959	14	5,404	11	3,845	
Fish catch and release area	1	700	1	700	1	700	1	700	1	700	
Heron sanctuary	0	0	1	64	0	0	1	64	0	0	
No wake zones	46	NA	55	NA	54	NA	55	NA	57	NA	
Electric motor areas	1	222	10	15,900	15	13,239	16	14,498	5	1,852	
Slow, no wake areas	0		0		0		0		8	9,720	
Research Natural Areas	4	6,946	4	6,946	4	6,946	4	6,946	4	6,946	
Trails											
Canoe trails	4	32.1	4	32.1	26	167.9	21	126.9	19	120.6	
Hiking trails	6	20.5	8	24.8	21	50.7	16	40.9	14	36.5	
Auto tour routes	1	2.5	1	2.5	3	11.0	3	11.0	3	11.0	

Table 21: Summary of Project Features by Alternative (Continued)

	Existing Features		Total Proposed Features								
	Alt A: No Action		Alt. B: Wildlife Focus		Alt. C: Public Use Focus		Alt. D: Wildlife and Public Use Focus		Alt. E: Modified Wildlife and Public Use Focus		
	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Comments
Biking trails	3	10.0	3	10.0	6	17.0	5	14.1	6	21.1	
Access Facilities											
Fishing piers	15	NA	15	NA	20	NA	18	NA	20	NA	
Commercial fishing floats / piers	4	NA	0	NA	5	NA	4	NA	4	NA	
Boat access	25	NA	25	NA	26	NA	26	NA	26	NA	
Walk-in access	0	NA	0	NA	3	NA	3	NA	4	NA	
Canoe landing / launch	1	NA	1	NA	4**	NA	2**	NA	2**	NA	** Includes proposed improvement to Reno Canoe Launch (non-FWS)
Parking lot improvements	0	NA	0	NA	5	NA	5	NA	5	NA	
Wildlife Observation Facilities											
Observation decks/areas	15	NA	15	NA	31	NA	26	NA	25	NA	
Observation towers	0	NA	0	NA	3	NA	3	NA	3	NA	
Photo blinds	0	NA	0	NA	3	NA	3	NA	4	NA	
Signage											
Kiosks	66	NA	66	NA	115	NA	115	NA	115	NA	
Interpretive signs	59	NA	59	NA	102	NA	102	NA	102	NA	
Entrance signs	25	NA	25	NA	30	NA	30	NA	30	NA	

Table 21: Summary of Project Features by Alternative (Continued)

	Existing Features		Total Proposed Features								
	Alt A: No Action		Alt. B: Wildlife Focus		Alt. C: Public Use Focus		Alt. D: Wildlife and Public Use Focus		Alt. E: Modified Wildlife and Public Use Focus		
	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Units	Acres or Miles	Comments
Official Notice Boards	30	NA	30	NA	49	NA	49	NA	49	NA	
Proposed Buildings											
Build new maintenance facilities	2	NA	3	NA	5	NA	5	NA	5	NA	
Build new office facilities	0	NA	0	NA	3	NA	3	NA	3	NA	HQ office combined with Winona or La Crosse office in Alternatives C, D & E.
Build major visitor center	0	NA	0	NA	1	NA	0	NA	0	NA	HQ Visitor Center + Office combined in Alt. C, located in Winona or La Crosse
Refuge Staffing	37.0	NA	54.5	NA	54.5	NA	56.5	NA	60.5	NA	Number of FTEs (Full Time Equivalents); Alt E adds 4 Law Enforcement Officers

Appendix I: Current Hunting Regulations

Upper Mississippi River National
Wildlife & Fish Refuge
Headquarters
51 East Fourth Street, Room 101
Winona, MN 55987 (507/452 4232)

Refuge Website
www.umesc.usgs.gov/umr_refuge.html

Winona District (Pools 4-6)
51 East Fourth Street, Room 203
Winona, MN 55987 (507/454 7351)

La Crosse District (Pools 7-8)
555 Lester Avenue
Onalaska, WI 54650 (608/783 8405)

McGregor District (Pools 9-11)
P.O. Box 460
McGregor, IA 52157 (563/873 3423)

Savanna District (Pools 12-14)
7071 Riverview Road
Thomson, IL 61285 (815/273 2732)

Deaf or hard of hearing persons may contact
the refuge through the Federal Relay
Number at 1 800/877 8339.

U.S. Fish & Wildlife Service
1 800/344 WILD
http:www.fws.gov/

Printed 2001

U.S. Fish & Wildlife Service

Upper Mississippi River

National Wildlife & Fish Refuge

Hunting Regulations

Refuge Signs - Look for these signs on the refuge

Boundary Signs
These signs mark the refuge boundary.

The area posted by these signs is closed to all migratory bird hunting. Other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever occurs first, except spring turkey hunting is allowed during state seasons. During waterfowl hunting season firearms must be unloaded while traveling through an Area Closed.

The area posted by these signs is closed to all hunting. Trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever occurs first. Firearms must be unloaded and in a case while in a No Hunting Zone.

Interior Refuge Signs
These reminder signs are posted on some lands located inside the refuge boundary. (They do not mark the actual boundary line)

These reminder signs are posted on some lands located inside the Area Closed boundary. (They do not mark the actual boundary line)

Waterfowl Band Reporting

Hunters can report waterfowl bands by mail to 12100 Beech Forest Road, Waterfowl Bands Laurel, MD 20708-4037 or by calling 1-800-327-2263 (BAND) or on the internet at www.pwrc.usgs.gov/bbl/homepage/recwbnd.htm

Turn in Poachers
Iowa 1-800-532-2020
Illinois 1-877-236-7529
Minnesota 1-800-652-9093
Wisconsin 1-800-847-9367

Voluntary Avoidance Area

The public is asked to refrain from boating through the portion of Lake Onalaska marked as a "Voluntary Avoidance Area" to allow waterfowl to rest and feed without being disturbed. This Avoidance Area is in effect from mid-October to mid-November.

Spring Lake Unit in Illinois - Waterfowl Sanctuary

In addition to being closed to all migratory bird hunting, the area is closed to all entry from October 1 to the end of the Illinois duck season each year. Other hunting, trapping and fishing are allowed beginning the day after the close of the Illinois duck hunting season until season closure or March 15, whichever occurs first. Visitors are allowed to use the parking lot, trail to the observation deck, and the observation deck during the Illinois duck hunting season.

Deer and Small Game Hunting

Area Closed

Locations posted as Area Closed are closed to all hunting until the day after the close of the duck hunting season.

Hunt Methods

Shining to locate game is prohibited on the refuge. You may use lights and dogs to hunt raccoons, and other specifically authorized small mammals, in accordance with state regulations. You may only use lights on the refuge at the point of kill. All other uses of lights for hunting on the refuge are prohibited. The use or possession of any drug on any arrow for bow hunting is prohibited on the refuge. The distribution of bait and the hunting over bait is prohibited.

Tree Stands

The construction or use of permanent platforms or ladders is prohibited. All stands must be removed from the refuge at the end of each day of hunting. No stand should damage a tree. Spikes, nails or screws may not be used for ladders or to attach a stand to a tree.

Migratory Game Bird Hunting

Bag Limit

Only one bag limit of migratory game birds may be taken by a hunter in one days time, even if the hunter hunts in two different states.

Blinds

This regulations applies to Pools 4 through 11 only. The construction of permanent hunting blinds using manmade materials is prohibited. At the end of each day's hunt, you must remove all manmade blind materials you brought onto the refuge. Any blinds containing manmade materials left on the refuge are subject to immediate removal and disposal. Manmade materials include, but are not limited to: wooden pallets, lumber, railroad ties, fence posts (wooden or metal), wire, nails, staples, netting or tarps. You are allowed to leave only seasonal blinds, made entirely of natural vegetation, and biodegradable twines, on the refuge. All such blinds are considered public property and open to use by any person on a first-come basis. You are allowed to gather only willow, grasses, marsh vegetation, and dead wood on the ground from the refuge for blind-building materials. Cutting or removing any other refuge trees or vegetation is prohibited. Constructing hunting blinds from rocks placed for shoreline protection is prohibited.

Decoys

On Pools 4 through 11, you may not place or leave decoys on the refuge during the time from 1/2 hour after the close of legal shooting hours, until 1 hour before the start of legal shooting hours.

Game Retrieval

Retrieving dead or wounded game birds from an Area Closed or a No Hunting Zone is allowed provided the hunter does not take a gun into the area and does not attempt to chase birds from the area. Controlled hunting and retrieving dogs may be used while engaged in authorized hunting activities during hunting season.

Hunting Information

Hunting has a deep history and tradition on the refuge with most hunting opportunities on islands and in flood plain forest, accessible mainly by boat. Over the years, hunters and hunting groups, have been very active in contributing to the refuge through voluntary support and conservation efforts.

Portions of the refuge are open to hunting and trapping in accordance with federal, state and local regulations. All regulations should be checked before hunting with the most restrictive regulation applying. Local ordinances may restrict hunting near populated areas. Contact one of the refuge offices for information regarding special regulations that apply in your area of interest. Hunters must be aware that individuals involved in other types of recreational activities may also be using the refuge and may not be aware of the hunting season.

Alcohol — Use or possession of alcoholic beverages while hunting is prohibited.

Campfires — Campfires are allowed using only dead wood on the ground, or materials brought onto the refuge such as charcoal or firewood. Burying live fires or hot coals is prohibited.

Camping — During waterfowl hunting seasons, camping is prohibited within areas posted Area Closed, No Hunting Zone, or on any sites not clearly visible from the main commercial navigation channel.

Closed Areas — The posted areas are designated on Refuge Pool Maps which can be obtained at any of the District Offices.

Firearms — Carrying, possessing, or discharging firearms or any other weapons on the refuge is prohibited, except by licensed hunters or trappers engaged in authorized activities during established seasons, in accordance with federal, state, and local regulations. Target practice is prohibited.

License/Permits — Hunters must possess a valid hunting license or firearms safety permit for the state in which they are hunting. There is no entrance fee and hunting areas can not be reserved.

Non-toxic shot — Shotgun hunters may only use or possess approved non-toxic shot while in the field, with the exception of turkey hunting.

Protected Wildlife — Only those species listed in the state hunting regulations with established open hunting seasons may be taken on the refuge. All other wildlife and plants on the refuge are protected at all times.

State Boundary — The main channel of the Mississippi River is not the state boundary line in all areas. For verification of the state boundary line, contact the Refuge Office, Department of Natural Resources, or refer to Pool Maps.

Vegetation — Cutting, removing or damaging any tree or other vegetation, standing or down, live or dead, is prohibited, without a written permit, except that willow may be used for trap stakes, commercial fishing gear, and hunting blinds. Dead wood on the ground may be cut and used for campfires.

Vehicle — All off-road vehicles are prohibited, including snowmobiles and wheeled or tracked all-terrain vehicles, on or across refuge lands at anytime, except on designated routes of travel, or on the ice over navigable waters accessed from boat landings.

Weathe — Be alert to changing weather conditions. Shallow open water areas and the main river channel can become extremely dangerous in windy weather and visibility can be reduced to near zero in snow and fog. Carry extra warm clothes and emergency supplies when heading out in a boat.

Additional regulations are published in the Code of Federal Regulations Title 50, Subchapter C, The National Wildlife Refuge System.

Voluntary Avoidance Area

The public is asked to refrain from boating through the portion of Lake Onalaska marked as a "Voluntary Avoidance Area" to allow waterfowl to rest and feed without being disturbed. This Avoidance Area is in effect from mid-October to mid-November.

Spring Lake Unit in Illinois - Waterfowl Sanctuary

In addition to being closed to all migratory bird hunting, the area is closed to all entry from October 1 to the end of the Illinois duck season each year. Other hunting, trapping and fishing are allowed beginning the day after the close of the Illinois duck hunting season until season closure or March 15, whichever occurs first. Visitors are allowed to use the parking lot, trail to the observation deck, and the observation deck during the Illinois duck hunting season.

Deer and Small Game Hunting

Area Closed

Locations posted as Area Closed are closed to all hunting until the day after the close of the duck hunting season.

Hunt Methods

Shining to locate game is prohibited on the refuge. You may use lights and dogs to hunt raccoons, and other specifically authorized small mammals, in accordance with state regulations. You may only use lights on the refuge at the point of kill. All other uses of lights for hunting on the refuge are prohibited. The use or possession of any drug on any arrow for bow hunting is prohibited on the refuge. The distribution of bait and the hunting over bait is prohibited.

Tree Stands

The construction or use of permanent platforms or ladders is prohibited. All stands must be removed from the refuge at the end of each day of hunting. No stand should damage a tree. Spikes, nails or screws may not be used for ladders or to attach a stand to a tree.

Migratory Game Bird Hunting

Bag Limit

Only one bag limit of migratory game birds may be taken by a hunter in one days time, even if the hunter hunts in two different states.

Blinds

This regulations applies to Pools 4 through 11 only. The construction of permanent hunting blinds using manmade materials is prohibited. At the end of each day's hunt, you must remove all manmade blind materials you brought onto the refuge. Any blinds containing manmade materials left on the refuge are subject to immediate removal and disposal. Manmade materials include, but are not limited to: wooden pallets, lumber, railroad ties, fence posts (wooden or metal), wire, nails, staples, netting or tarps. You are allowed to leave only seasonal blinds, made entirely of natural vegetation, and biodegradable twines, on the refuge. All such blinds are considered public property and open to use by any person on a first-come basis. You are allowed to gather only willow, grasses, marsh vegetation, and dead wood on the ground from the refuge for blind-building materials. Cutting or removing any other refuge trees or vegetation is prohibited. Constructing hunting blinds from rocks placed for shoreline protection is prohibited.

Decoys

On Pools 4 through 11, you may not place or leave decoys on the refuge during the time from 1/2 hour after the close of legal shooting hours, until 1 hour before the start of legal shooting hours.

Game Retrieval

Retrieving dead or wounded game birds from an Area Closed or a No Hunting Zone is allowed provided the hunter does not take a gun into the area and does not attempt to chase birds from the area. Controlled hunting and retrieving dogs may be used while engaged in authorized hunting activities during hunting season.

Appendix J: Public Use Regulations

Public Use Regulations

The refuge is home to fish and wildlife and you are the guest. Certain regulations are necessary to protect wildlife and to provide you with a safe and enjoyable experience.

Alcohol

Entering or remaining on the refuge when under the influence of alcohol is prohibited. Possession or use of alcoholic beverages by persons under 21 years of age is prohibited.

Boating

Boats may not be left unattended on the refuge for over 72 hours. Mooring within 200 feet of refuge boat landings, or in any areas posted with restrictive signs or buoys is prohibited. Boats left unattended or moored in violation may be impounded at the owner's expense.

Campfires

Campfires are allowed using only dead wood on the ground, or materials brought onto the refuge such as charcoal or firewood. Building fires at, or in proximity to, any developed facilities, or at any areas posted with restrictive signs is prohibited. Developed facilities include, but are not limited to, structures, boat landings, access areas, parking lots, roads, trails, etc. Building, attending, maintaining, or using any fire without sufficient clearance from flammable materials adequate to prevent its escape is not allowed.

Burying live fires or hot coals is prohibited. Burning, or attempting to burn, any nonflammable materials, or any materials that may produce toxic fumes or leave hazardous wastes is not allowed. These include, but are not limited to, metal cans, plastic containers, glass, fiberglass, treated wood products, wood containing nails or staples, wire, floatation materials, tires, other refuse, etc.

Camping

Camping on land or on boats at any one site on the refuge for a period longer than 14 days during any 30-consecutive-day period is prohibited. After 14 days, you must move all persons, property, equipment, and boats to a new site located at least one half (1/2) mile away from the previous site. Leaving tents, camping equipment, boats, or other property unattended at any site for over 24 hours is prohibited. Any property left unattended in violation may be impounded at the owner's expense. If tables, fireplaces, or other facilities are erected, you must remove all traces before departure. Camping at, or in proximity to, any developed facilities, or at any areas posted with restrictive signs is prohibited. Developed facilities include, but are not limited to, structures, boat landings, access areas, parking lots, roads, trails, etc.

During waterfowl hunting seasons, camping is prohibited within areas posted Area Closed, No Hunting Zone, or on any sites not clearly visible from the main commercial navigation channel.

Collecting

All plants, animals, and objects of antiquity, such as arrowheads, are protected. Disturbing or collecting is prohibited, except by special use permit.

Domestic Animals
Unconfined domestic animals are prohibited on the refuge, except for controlled hunting and retrieving dogs during the hunting season.

Firearms
Carrying, possessing, or discharging firearms or any other weapons on the refuge is prohibited, except by licensed hunters or trappers engaged in authorized activities during established seasons, in accordance with federal, state, and local regulations.

Fireworks
Possession or use of fireworks or explosives is not allowed on the refuge.

Fishing
Fishing is allowed in accordance with state and federal regulations. On Spring Lake Closed Area (Pool 13), fishing is prohibited from October 1 until the day after the close of the Illinois duck hunting season. On Mertes Slough (Pool 6), only hand-powered boats or boats with electric motors are allowed.

Group Events
A refuge permit is required to hold public meetings, assemblies, demonstrations, parties, organized group events, and other public gatherings, whether or not an entrance fee is charged.

Hunting and Trapping
Portions of the refuge are open to hunting and trapping in accordance with federal, state, and local regulations. Contact the refuge office for special regulations which apply. You may possess only approved nontoxic shot while in the field, except when hunting turkey and deer. You may use slugs and shot containing lead to hunt these species only. Use or possession of alcoholic beverages while hunting is prohibited.

Trappers must have a federal refuge trapping permit in addition to a state trapping license, and trap in accordance with state laws and refuge trapping permit conditions.

On areas posted No Hunting Zone, all hunting is prohibited. Trapping is only allowed beginning the day after the close of the state duck hunting season until season closure or March 15, whichever occurs first.

On areas posted Area Closed, hunting of migratory birds is prohibited. Other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season until season closure or March 15, whichever occurs first, except spring turkey hunting is allowed during state seasons.

On areas open to hunting, hunting and trapping are prohibited from March 16 until the opening of state fall hunting seasons, except spring turkey hunting is allowed during state seasons.

Private Structures
Private structures of any kind are not allowed on the refuge without a special use permit, except for temporary duck blinds.

Sanitation
All public use sites must be kept clean during the period of use or occupancy. You must keep all refuse, trash, and litter contained in bags or other suitable containers, and not left scattered on the ground or in the water at any time. All public use sites must be left clean upon departure. You must remove all personal property, refuse, trash, and litter immediately upon vacating a site. Disposing of any materials on the refuge by burying or other methods is prohibited.

Vegetation

Cutting, removing, or damaging any tree or other vegetation, standing or down, live or dead, is prohibited, without a written permit, except that willow may be used for trap stakes, commercial fishing gear, and hunting blinds on the refuge. Dead wood on the ground may be cut and used for campfires on the refuge.

Vehicles

All off-road vehicles are prohibited, including snowmobiles and wheeled or tracked all-terrain vehicles, on or across refuge lands at anytime, except on designated routes of travel, or on the ice over navigable waters accessed from boat landings.

Parking beyond vehicle control barriers, or on grass or other vegetation is prohibited. Vehicles may not obstruct or impede any road, trail, fire lane, boat ramp, access gate, or other facilities. Parking in a manner to create a safety hazard, or endanger any person, property, or environmental feature is prohibited. Vehicles left parked in violation may be impounded at the owner's expense.
This is only a partial listing of Refuge public use regulations. Additional regulations are published in the Code of Federal Regulations Title 50, Subchapter C, The National Wildlife Refuge System.

Appendix K: Animal and Plant Species Lists

Amphibians page 645
Birds pages 646-664
Fish pages 665-671
Mammals pages 672-673
Freshwater Mussels pages 674-676
Reptiles pages 677-678
Plants pages 679-697

Appendix K: Species Lists

Amphibians		**Federally (T or E)** [1]	**Illinois (T or E)** [1]	**Iowa (T or E)** [1]	**Minnesota (T or E)** [1]	**Wisconsin (T or E)** [1]	**RCP** [2]
Common Name	**Species (Scientific Name)**						
Frogs and Toads							
Bullfrog	*Rana catesbeiana*						
Frog, Green	*Rana clamitans*						
Frog, Blanchard's Cricket	*Acris crepitans blanchardi*			E	E	E	
Frog, Northern Leopard	*Rana pipiens*						
Frog, Pickerel	*Rana palustris*						
Frog, Western Chorus	*Pseudacris triseriata*						
Frog, Wood	*Rana sylvatica*						
Peeper, Spring	*Pseudacris crucifer*						
Toad, American	*Bufo americanus*						
Treefrog, Gray	*Hyla versicolor*						
Treefrog, Cope's Gray	*Hyla chrysoscelis*						
Salamanders							
Mudpuppy	*Necturus maculosus*			T			
Salamander, Blue-spotted	*Ambystoma laterale*			E			
Salamander, Eastern Tiger	*Ambystoma tigrinum*						

[1] E. (Endangered)
T. (Threatened)
[2] RCP. (Resource Conservation Priority for Fish & Wildlife Service, Region 3)

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Avocets and Stilts														
Avocet, American	*Recurvirostra americana*								2	r	r	r		m
Stilt, Black-necked	*Himantopus mexicanus*													a
Blackbirds and Allies														
Blackbird, Brewer's	*Euphagus cyanocephalus*									u	u	u	r	b
Blackbird, Red-winged	*Agelaius phoeniceus*									a	a	a	u	b
Blackbird, Rusty	*Euphagus carolinus*								2	c		c	u	m
Blackbird, Yellow-headed	*Xanthocephalus xanthocephalus*									u	u	u		b
Bobolink	*Dolichonyx oryzivorus*									u	u	u		b
Cowbird, Brown-headed	*Molothrus ater*									a	a	u	r	b
Grackle, Common	*Quiscalus quiscula*									a	a	a	u	b
Meadowlark, Eastern	*Sturnella magna*									c	c	c	u	b
Meadowlark, Western	*Strunella neglecta*									r	r	r		b
Oriole, Baltimore	*Icterus galbula*									c	a			b
Oriole, Orchard	*Icterus spurius*									u	u			b
Cardinals and Allies														
Bunting, Indigo	*Passerina cyanea*									c	c	c		b
Bunting, Snow	*Plectrophenax nivalis*											r	u	m
Cardinal, Northern	*Cardinalis cardinalis*									a	a	c	c	b
Dickcissel	*Spiza americana*								2	c	c			b

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Grosbeak, Rose-breasted	*Pheucticus ludovicianus*									c	c	c		b
Chickadees and Titmice														
Chickadee, Black-capped	*Parus atricapillus*									c	c	c	c	b
Chickadee, Boreal	*Poecile hudsonicus*													a
Titmouse, Tufted	*Parus bicolor*									u	u	u	u	b
Cormorants														
Cormorant, Double-crested	*Phalacrocorax auritus*						X			c	c	c		b
Cranes														
Crane, Sandhill	*Grus canadensis*		T							u	u	u		b
Crane, Whooping	*Grus americana*	E					X		1					a
Creepers														
Creeper, Brown	*Certhia americana*		T							c	u	u	u	b
Crows and Jays														
Crow, American	*Corvus brachyrhynchos*									a	a	a	c	b
Jay, Blue	*Cyanocitta cristata*									a	a	a	c	b
Jay, Gray	*Perisoreus canadensis*													a
Raven, Common	*Corvus corax*													a
Cuckoos														
Cuckoo, Black-billed	*Coccyzus erythropthalmus*						X	16		u	c	c		b
Cuckoo, Yellow-billed	*Coccyzus americanus*									c	c	u		b

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Doves														
Dove, Mourning	*Zenaida macroura*									c	c	c	a	b
Dove, Rock	*Columba livia*									c	c	c	c	b
Ducks, Geese and Swans														
Bufflehead	*Bucephala albeola*							16		c		a	r	m
Canvasback	*Aythya valisineria*						X	16		a	r	a	u	m
Duck, American Black	*Anas rubripes*						X	16	2	a	r	a		m
Duck, Long-tailed	*Clangula hyemalis*									r		r	r	m
Merganser, Red-breasted	*Mergus serrator*									c		u	u	m
Duck, Ring-necked	*Aythya collaris*									a	r	a		m
Duck, Ruddy	*Oxyura jamaicensis*									c	r	c	r	m
Duck, Wood	*Aix sponsa*						X			a	c	a	r	b
Gadwall	*Anas strepera*									c	u	a		m
Goldeneye, Common	*Bucephala clangula*									a		a	c	m
Goose, Canada	*Branta canadensis*						X			a	c	a	c	b
Goose, Greater White-fronted	*Anser albifrons*									r		r		m
Goose, Snow	*Chen caerulescens*						X			u		u		m
Mallard	*Anas platyrhynchos*						X			a	c	a	c	b
Merganser, Common	*Mergus merganser*									r		r	c	m
Merganser, Hooded	*Lophodytes cucullatus*							16		c	c	c	r	b

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Pintail, Northern	*Anas acuta*						X			c	r	c	r	m
Redhead	*Aythya americana*							16		c	r	c	u	m
Scaup, Greater	*Aythya marila*							16		u		u		m
Scaup, Lesser	*Aythya affinis*						X			a	r	a	u	m
Scoter, Black	*Melanitta nigra*								2			r	r	m
Scoter, Surf	*Melanitta perspicillata*													a
Scoter, White-winged	*Melanitta fusca*									r		u	r	m
Shoveler, Northern	*Anas clypeata*									c	u	c		m
Swan, Mute	*Cygnus olor*									r	r	r	r	b
Swan, Trumpeter	*Cygnus buccinator*				T	E				r	r	u	r	b
Swan, Tundra	*Cygnus columbianus*									a		a	u	m
Teal, Blue-winged	*Anas discors*						X			a	c	a		b
Teal, Cinnamon	*Anas cyanoptera*													a
Teal, Green-winged	*Anas crecca*						X			c	r	c	r	m
Wigeon, American	*Anas americana*									a	u	a		m
Wigeon, Eurasian	*Anas penelope*													a
Emberizid Finches, Sparrows and Allies														
Junco, Dark-eyed	*Junco hyemalis*									a		a	a	m
Longspur, Lapland	*Calcarius lapponicus*									r		r	r	m
Sparrow, American Tree	*Spizella arborea*									c		a	a	m

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Sparrow, Chipping	*Spizella passerina*									a	c	a		b
Sparrow, Clay-colored	*Spizella pallida*									u		u		m
Sparrow, Field	*Spizella pusilla*									a	c	c	r	b
Sparrow, Fox	*Passerella iliaca*									c		c		m
Sparrow, Grasshopper	*Ammodramus savannarum*									c	c	u		b
Sparrow, Harris'	*Zonotrichia querula*								2	u		u		m
Sparrow, Henslow's	*Ammodramus henslowii*		E	T	E	T			1	r		r		m
Sparrow, Lark	*Chondestes grammacus*									u	u			b
Sparrow, Le Conte's	*Ammodramus leconteii*									r	r	r		m
Sparrow, Lincoln's	*Melospiza lincolnii*									u		u		m
Sparrow, Salt Marsh Sharp-tailed	*Ammodramus cauducutus*								1					a
Sparrow, Savannah	*Passerculus sandwichensis*									u	u	u		b
Sparrow, Song	*Melospiza melodia*									a	a		u	b
Sparrow, Swamp	*Melospiza georgiana*									c	c	r		b
Sparrow, Vesper	*Pooecetes gramineus*									u	u	u		b
Sparrow, White-crowned	*Zonotrichia leucophrys*									u		u	r	m
Sparrow, White-throated	*Zonotrichia albicollis*									c		c	r	m
Towhee, Eastern	*Pipilo erythrophtlalmus*									u	u	u	r	b
Falcons														
Falcon, Prairie	*Falco mexicanus*													a

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Falcon, Peregrine	*Falco peregrinus*		E	E	T	E	X	16		u	u	u		b
Kestrel, American	*Falco sparverius*									c	c	c	u	b
Merlin	*Falco columbarius*									u		u		m
Finches														
Crossbill, Red	*Loxia curvirostra*									r			r	m
Crossbill, White-winged	*Loxia leucoptera*									r			r	m
Finch, House	*Carpodacus mexocanus*									c	c	c	c	b
Finch, Purple	*Carpodacus purpureus*									u		u	u	m
Goldfinch, American	*Gcaruelis tristis*									a	a	a	c	b
Grosbeak, Black-headed	*Pheucticus melanocephalus*													a
Grosbeak, Blue	*Guiraca caerulea*													a
Grosbeak, Evening	*Coccothraustes verpertinus*												r	m
Grosbeak, Pine	*Pinicola enucleator*													a
Redpoll, Common	*Carduelis flammea*									u			u	m
Redpoll, Hoary	*Carduelis hornemanni*												r	m
Siskin, Pine	*Carduelis pinus*									u		u	u	m
Gnatcatchers														
Gnatcatcher, Blue-gray	*Plioptila caerulea*									c	c	u		b
Grebes														
Grebe, Eared	*Podiceps nigricollis*													a

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Grebe, Horned	*Podiceps auritus*				T				2	u		u		m
Grebe, Pied-billed	*Podilymbus podiceps*		T							c	c	c		b
Grebe, Red-necked	*Podiceps grisegena*					E				r		r		m
Grebe, Western	*Aechmophorus occidentalis*													a
Gulls and Terns														
Gull, Bonaparte's	*Larus philadelphia*									u		u		m
Gull, Franklin's	*Larus pipixcan*									u		u		m
Gull, Glaucous	*Larus hyperboreus*									r		r		m
Gull, Herring	*Larus argentatus*									c	u	c	u	m
Gull, Iceland	*Larus glaucoides*													a
Gull, Lesser Black-back	*Larus fuscus*													a
Gull, Ring-billed	*Larus delawarensis*									c	u	c	u	m
Jaeger, Pomarine	*Stercorarius pomarinus*													a
Jaeger, Parasitic	*Stercorarius parasiticus*													a
Kittewake, Black-Legged	*Rissa tridactyla*													a
Tern, Black	*Chlidonias niger*		E				X	16		c	c	u		b
Tern, Caspian	*Sterna caspia*					E				u	u	u		m
Tern, Common	*Sterna hirundo*		E		T	E	X			u	u	u		m
Tern, Forster's	*Sterna forsteri*		E			E	X			c	u	u		b
Tern, Least	*Sterna antillarum*		E	E			X		2					a

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Tern, Roseate	*Sterna dougallii*								2					a
Hawks, Kites and Eagles														
Eagle, Bald	*Haliaeetus leucocephalus*	T	T	E			X	16		c	c	a	c	b
Eagle, Golden	*Aquila chrysaetos*									r		u	r	m
Goshawk, Northern	*Accipiter gentilis*						X	16				r	u	m
Harrier, Northern	*Circus cyaneus*		E	E						u	u	u	u	b
Hawk, Broad-winged	*Buteo platypterus*									c	u	a		b
Hawk, Cooper's	*Accipiter cooperii*									u	u	c	u	b
Hawk, Red-shouldered	*Buteo lineatus*		T	E		T	X			u	u	u	r	b
Hawk, Red-tailed	*Buteo Jamaicensis*									c	c	a	c	b
Hawk, Rough-legged	*Buteo lagopus*									u		u	u	m
Hawk, Sharp-shinned	*Accipiter striatus*									c	u	a	u	m
Hawk, Swainson's	*Buteo swainsoni*		E				X		2			r		m
Osprey	*Panion haliaetus*		E			T				u	u	c		b
Herons, Egrets, and Bitterns														
Bittern, American	*Botaurus lentiginosus*		E				X			u	u	u		b
Bittern, Least	*Ixobrychus exilis*		T							u	u	u		b
Egret, Cattle	*Bubulcus ibis*									u	r	u		m
Egret, Great	*Casmerodius albus*					T				a	c	a		b
Egret, Snowy	*Egretta thula*		E			E				r	r			m

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Heron, Black-crowned Night-heron	*Nycticorax nycticorax*		E				X			u	u	r		b
Heron, Great Blue	*Ardea herodias*									a	a	a	r	b
Heron, Green	*Butorides striatus*									c	c	c		b
Heron, Little Blue	*Egretta caerulea*		E						2		u			m
Heron, Tri-Colored	*Egretta tricolor*													a
Heron, Yellow-crowned Night-heron	*Nycticorax violaceus*		E			T				u	r	u		b
Hummingbirds														
Hummingbird, Ruby-throated	*Archilochus colubris*									u	c	u		b
Ibises														
Ibis, Glossy	*Plegadis falcinellus*													a
Ibis,White	*Eudocimus albus*													a
Ibis, White-faced	*Plegadis chihi*													a
Kingfishers														
Kingfisher, Belted	*Ceryle alcyon*									c	c	u	u	b
Kinglets														
Kinglet, Golden-crowned	*Regulas satrapa*									u		u	r	m
Kinglet, Ruby-crowned	*Regulas calendula*									c		c		m
Larks														
Lark, Horned	*Eremophila alpestris*									r	r	r	u	b

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Loons														
Loon, Arctic	*Gavia arctica*													a
Loon, Common	*Gavia immer*									u		u		m
Loon, Red-throated	*Gavia stellata*													a
Mockingbirds and Thrashers														
Catbird, Gray	*Dumetella carolinensis*									c	c	c		b
Mockingbird, Northern	*Mimus polyglottos*									r	u	r		m
Thrasher, Brown	*Toxostoma rufum*									c	c	c		b
Nightjars														
Nighthawk, Common	*Chordeiles minor*									c	c	u		b
Whip-poor-will	*Caprimulgus vociferus*						X	16		u	u	u		b
Nuthatches														
Nuthatch, Red-breasted	*Sitta canadensis*									u		u	u	m
Nuthatch, White-breasted	*Sitta carolinensis*									c	c	c	c	b
Owls														
Owl, Barred	*Strix varia*									c	c	c	c	b
Owl, Eastern Screech-owl	*Otus asio*							16		u	u	u	u	b
Owl, Great Horned	*Bubo virginianus*									c	c	c	c	b
Owl, Long-eared	*Asio otus*			T			X	16		u	r	u	u	b
Owl, Northern Hawk	*Surnia ulula*													a

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Owl, Northern Saw-whet	*Aegolius acadicus*													a
Owl, Short-eared	*Asio flammeus*		E	E			X	16	2	u		u	u	m
Owl, Snowy	*Nyctea scandiaca*									r			r	m
Old World Sparrows														
Sparrow, House	*Passer domesticus*									a	a	a	a	b
Pelicans														
Pelican, American White	*Pelecanus erythrothynchos*									c	u	c		m
Pheasants, Grouse, and Quail														
Bobwhite, Northern	*Clinus virginianus*							16		u	u	u	u	b
Grouse, Ruffed	*Bonasa umbellus*									c	c	c	c	b
Partridge, Gray	*Perdix perdix*													a
Pheasant, Ring-necked	*Phasianus colchicus*									u	u	u	u	b
Turkey, Wild	*Meleagris gallopavo*									u	u	u	u	b
Pipits														
Pipit, American	*Anthus rubescens*									r		r		m
Plovers														
Killdeer	*Charadrius vociferus*									c	c	c	r	b
Plover, American Golden-	*Pluvialis dominica*								2	u		u		m
Plover, Black-bellied	*Pluvialis squatarola*									u		u		m
Plover, Semipalmated	*Gharadrius semipalmatus*									u	u	u	u	m

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Rails and Coots														
Coot, American	*Fulica americana*									a	r	a	u	b
Moorhen, Common	*Gallinula chloropus*		T				X			u	u	u		b
Rail, King	*Rallus elegans*		E	E	E		X		1	r	r			b
Rail, Virginia	*Rallus limicola*									c	c	c		b
Sora	*Porzana carolina*									c	c	u		b
Sandpipers and Allies														
Dowitcher, Long-billed	*Limnodromus scolopaceus*									u			r	m
Dowitcher, Short-billed	*Limnodromus griseus*						X		2	u	u	u		m
Dunlin	*Calidris alpina*								2	u	u	u		m
Curlew, Long-billed	*Numenius Americanus*								1					a
Godwit, Hudsonian	*Limosa haemastica*						X		2	r				m
Godwit, Marbled	*Limosa fedoa*						X		2	r				m
Knot, Red	*Calidris canutus*								3					a
Phalarope, Red-necked	*Phalaropus lobatus*									r		r		m
Phalarope, Wilson's	*Phalaropus tricolor*		E		T		X	16	2	u	u	r		m
Ruff	*Philomachus pugnax*													a
Sanderling	*Calidris alba*								2	u	u	u		m
Sandpiper, Baird's	*Calidris bairdii*									u	u	u		m
Sandpiper, Least	*Calidris minutilla*									c	c	c		m

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Sandpiper, Pectoral	*Calidris melanotos*									c	c	c		m
Sandpiper, Semipalmated	*Calidris pusilla*								2	c	c	c		m
Sandpiper, Solitary	*Tringa solitaria*								2	u	u	u		m
Sandpiper, Spotted	*Actitis macularia*									c	c	c		b
Sandpiper, Stilt	*Calidris himantopus*						X		2	u	u	u		m
Sandpiper, Upland	*Bartramia longicauda*		E				X	16	2	r	r			b
Sandpiper, Western	*Calidris mauri*								2	r				m
Sandpiper, White-rumped	*Calidris fuscicollis*									u	u	u		m
Snipe, Common	*Gallinago gallinago*									c	u	c	u	m
Turnstone, Ruddy	*Arenaria interpres*									u	r	u		m
Willet	*Catoptophorus semipalatus*									r	r	r		m
Woodcock, American	*Scolopax minor*						X	16	2	u	u	u		b
Yellowlegs, Greater	*Tinga melanoleuca*						X			u	u	u		m
Yellowlegs, Lesser	*Tringa flavipes*								2	c	c	c		m
Shrikes														
Shrike, Loggerhead	*Lanius ludovicianus*		T		T	E	X	32,16		r	r	r		b
Shrike, Northern	*Lanius excubitor*									u		u	u	m
Starlings														
Starling, European	*Strunus vulgaris*									a	a	a	c	b

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Swallows														
Martin, Purple	*Progne subis*									u	u	u		b
Swallow, Bank	*Riparia riparia*									c	u	u		b
Swallow, Barn	*Hirundo rustica*									c	c	c		b
Swallow, Cliff	*Hirundo pyrrhonota*									u	r	u		b
Swallow, Northern Rough-winged	*Stelgidopteryx serripennis*									c	c	u		b
Swallow, Tree	*Tachycineta bicolor*									a	a	c		b
Swifts														
Swift, Chimney	*Chaetura vauxi*									c	c	u		b
Tanagers														
Tanager, Scarlet	*Piranga olivacea*									c	u	u		b
Tanager, Summer	*Piranga rubra*													a
Tanager, Western	*Piranga ludoviciana*													a
Thrushes and Allies														
Bluebird, Eastern	*Sialia sialis*									c	c	c	r	b
Robin, American	*Turdus migratorius*									a	a	a	u	b
Thrush, Gray-cheeked	*Catharus minimus*									c		u		m
Thrush, Hermit	*Catharus guttatus*									u		u		m
Thrush, Swainson's	*Catharus ustulatus*									u		u		m
Thrush, Wood	*Hylocichla mustelina*						X	16	2	c	u	u		b

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Veery	*Catharus fuscescens*									u	r	u		b
Tyrant Flycatchers														
Flycatcher, Acadian	Empidonax virescens					T				r	r	r		b
Flycatcher, Alder	Empdonax alnorum									r				m
Flycatcher, Great Crested	*Myiarchus crinitus*									c	a	u		b
Flycatcher, Least	*Empidonax minimus*									c	c	c		b
Flycatcher, Olive-sided	*Contopus borealis*						X		2	r	u	u		m
Flycatcher, Willow	*Empidonax traillii*								2	u	u	u		b
Flycatcher, Yellow-bellied	*Empidonax flaviventris*									r	r	r		m
Kingbird, Eastern	*Tyrannus tyrannus*									c	c	u		b
Kingbird, Western	*Tyrannus verticalis*													a
Pewee, Eastern Wood-	*Contopus virens*									c	c	c		b
Phoebe, Eastern	*Sayornis phoebe*									c	u	c		b
Vireos														
Vireo, Bell's	*Vireo bellii*					T	X	16	2	r	r			b
Vireo, Blue-headed	*Vireo solitarius*									u	u	u		m
Vireo, Philadelphia	*Vireo philadelphicus*									u		u		m
Vireo, Red-eyed	*Vireo olivaceus*									a	a	a		b
Vireo, Warbling	*Vireo gilvus*									a	a	a		b
Vireo, White-eyed	*Vireo griseus*									r	r			m

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Vireo, Yellow-throated	*Vireo flavifrons*									u	u			b
Vultures														
Vulture, Turkey	*Cathartes aura*									c	c	c	r	m
Waxwings														
Waxwing, Bohemian	*Bonbycilla garrulus*												r	m
Waxwing, Cedar	*Bonbycilla cedrorum*									c	c	c	u	b
Wood Warblers														
Chat, Yellow-breasted	*Icteria virens*									r	r			b
Ovenbird	*Seiurus aruocapillus*									c	u	u		b
Parula, Northern	*Parula americana*									r		u		m
Redstart, American	*Setophaga ruticilla*									a	a	c		b
Warbler, Bay-breasted	*Dendroica castanea*								2	r				m
Warbler, Black-and-white	*Mniotilta varia*									c		c		m
Warbler, Blackburnian	*Dendroica fusca*									c		c		m
Warbler, Blackpoll	*Dendroica striata*									c		c		m
Warbler, Black-throated Blue	*Dnedroica caeruulescens*									r		r		m
Warbler, Black-throated Green	*Dendroica virens*									u		u		m
Warbler, Blue-winged	*Vermivora pius*						x	16	3	u	u			b
Warbler, Canada	*Wilsonia canadensis*								2	r		u		m
Warbler, Cape May	*Dendroica tigrina*									u		u		m

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Warbler, Cerulean	*Dendroica cerulea*					T			2	u	u			b
Warbler, Chestnut-sided	*Dendroica pensylvanica*									c		u		m
Warbler, Connecticut	*Oporornis agilis*									r		r		m
Warbler, Golden-winged	*Vermivora chrysoptera*								1	u	u	u		m
Warbler, Hooded	*Wilsonia citrina*					T				r	r			m
Warbler, Kentucky	*Oporornis formosus*					T			2	r	r			b
Warbler, Magnolia	*Dendroica magnolia*									u		u		m
Warbler, Mourning	*Oporornis philadelphia*									r	r	u		m
Warbler, Nashville	*Vermivora ruficapilla*									c		c		m
Warbler, Orange-crowned	*Vermivora celata*									r		u		m
Warbler, Palm	*Dendroica palmarum*									c		c		m
Warbler, Pine	*Dendroica pinus*									r		u		m
Warbler, Prothonotary	*Protonotaria citrea*								2	c	c			b
Warbler, Tennessee	*Vermivora peregrina*									c		c		m
Warbler, Wilson's	*Wilsonia pusilla*									u		u		m
Warbler, Worm-eating	*Helmitheros vermivorous*					E			2					a
Warbler, Yellow	*Dendroica petechia*									a	a	u		b
Warbler, Yellow-rumped	*Dendroica coronata*									a		a		m
Warbler, Yellow-throated	*Dendroica dominica*									r	r			b
Waterthrush, Louisiana	*Seiurus motacilla*									u	u	u		m

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													
Waterthrush, Northern	*Seiurus noveboracensis*									c		u		m
Yellowthroat, Common	*Geothlypis trichas*									a	a	c		b
Woodpeckers														
Flicker, Northern	*Colaptes auratus*									c	c	c	u	b
Sapsucker, Yellow-bellied	*Sphyrapicus varius*									c	c	c	r	b
Woodpecker, Downy	*Picoides pubescens*									c	c	c	c	b
Woodpecker, Hairy	*Picoides villosus*									c	c	c	c	b
Woodpecker, Pileated	*Dryocopus pileatus*									u	u	u	u	b
Woodpecker, Red-bellied	*Melaneres carolinus*									c	c	c	c	b
Woodpecker, Red-headed	*Melaneres erythrocephalus*						X	16	2	u	u	u	r	b
Wrens														
Wren, Bewick's	*Thryomanes bewickii*		E			E	X	16		r				m
Wren, Carolina	*Thryothorus ludovicianus*									r	r	r		b
Wren, House	*Troglodytes aedon*									a	a	c		b
Wren, Marsh	*Cistothrous palustris*									c	c	c		b
Wren, Sedge	*Cistothorus platensis*						X	16		u	u	u		b
Wren, Winter	*Troglodytes troglodytes*									u	u	u	r	b

Birds		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	PIF Region 16 or 32 [3]	ABC Green List [4]	Spring [5]	Summer [5]	Fall [5]	Winter [5]	Migrant (m) Breeding (b) Accidental (a)
Common Name	**Species (Scientific Name)**													

[1] E. (Endangered)
T. (Threatened)

[2] RCP. (Resource Conservation Priority for Fish & Wildlife Service, Region 3)

[3] Partners In Flight Bird Conservation Plan for Dissected Till Plains (Physiographic area 32) or Partners in Flight Plan for the Upper Great Lakes Plains (Physiographic area 16)

[4] American Bird Conservancy Green List 1, 2, or 3:
1. Highest continental concern
2. Moderately abundant species with declines or high threats
3. Species with restricted distributions and low population size

[5] a. abundant (seasonally numerous)
c. Common (almost certain to be seen)
u. Uncommon (present but seen only occasionally)
r. Rare (seen at intervals of 2-5 yrs.)

Fish*		Federally (T or E)[1]	Illinois (T or E)[1]	Iowa (T or E)[1]	Minnesota (T or E)[1]	Wisconsin (T or E)[1]	RCP[2]	Pool 4[3]	Pool 5[3]	Pool 5A[3]	Pool 6[3]	Pool 7[3]	Pool 8[3]	Pool 9[3]	Pool 10[3]	Pool 11[3]	Pool 12[3]	Pool 13[3]	Pool 14[3]
Common Name	**Family (Scientific Name)**																		
Temporate Bass	*Percichthyidae*																		
Bass, White	*Morone chrysops*							A	C	C	C	C	C	C	C	C	C	C	C
Bass, Yellow	*Morone mississippiensis*							H			O	O	R	U	U	U	U	O	U
Bass, Striped hybrid	*Morone saxatilis*												X					X	X
Bowfin	*Amiidae*																		
Bowfin	*Amia calva*							C	C	C	C	C	C	C	C	C	C	C	C
Catfish	*Ictaluridae*																		
Bullhead, Black	*Ameiurus melas*							U	O	O	O	O	U	O	O	O	O	O	O
Bullhead, Brown	*Ameiurus nebulosus*							R	O	O	O	O	R	O	U	U	H	H	H
Bullhead, Yellow	*Ameiurus natalis*							U	O	O	O	O	U	O	O	O	O	O	O
Catfish, Blue	*Ictalurus furcatus*							H										H	H
Catfish, Channel	*Ictalurus punctatus*							C	C	C	C	C	C	C	C	C	C	C	C
Catfish, Flathead	*Pylodictis olivaris*							O	O	O	O	O	O	O	O	O	O	O	O
Madtom Freckled	*Noturus nocturnus*			E														R	H
Madtom, Tadpole	*Noturus gyrinus*							O	O	O	O	O	O	O	O	O	O	0	O
Stonecat	*Noturus flavus*							R	O		H		R	U	U	U	U	U	U
Cod	*Gadidae*																		
Burbot	*Lota lota*			T				U	O			U	U	U	U	U		R	
Pirate Perch	*Aphredoderidae*																		
Perch, Pirate	*Aphredoderus sayanus*			SC	SC	SC		X	X	X	X	O	R	H	H	H	H		
Drums	*Scieaenidae*																		
Drum, Freshwater	*Aplodinotus grunniens*							A	C	C	C	C	C	A	A	A	A	A	A
Eels	*Anguillidae*																		
Eel, American	*Arguilla rostrata*					SC		O	O	O	O	O	U	U	U	U	U	U	U
Gar	*Lepisosteidae*																		
Gar, Longnose	*Lepisosteus osseus*							C	C	C	C	C	C	C	C	C	C	C	C
Gar, Shortnose	*Lepisosteus platostomus*							C	C	C	C	O	O	C	C	C	C	C	C
Gar, Spotted	*Lepisosteus oculatus*																	R	

Fish*		Federally (T or E)[1]	Illinois (T or E)[1]	Iowa (T or E)[1]	Minnesota (T or E)[1]	Wisconsin (T or E)[1]	RCP[2]	Pool 4[3]	Pool 5[3]	Pool 5A[3]	Pool 6[3]	Pool 7[3]	Pool 8[3]	Pool 9[3]	Pool 10[3]	Pool 11[3]	Pool 12[3]	Pool 13[3]	Pool 14[3]
Common Name	**Family (Scientific Name)**																		
Herring	*Clupeidae*																		
Herring, Skipjack	*Alosa chrysochloris*				S C	E		R	R	R	H		H	H	H	H		R	R
Shad, Gizzard	*Dorosoma cepedianum*							A	A	A	A	A	A	A	A	A	A	A	A
Killifish	*Cyprinodontidae*																		
Topminnow, Blackstripe	*Fundulus notatus*													U	U	U			R
Topminnow, Starhead	*Fundulus dispar*					E						R							
Lampreys	*Petromyzontidae*																		
Lamprey, Chestnut	*Ichthyomyzon castaneus*			T				U	U			H	U	U	U	U	U	U	U
Lamprey, Silver	*Ichtyomyzon unicuspis*							O	O	O	O	H	U	O	O	O	O	O	O
Lamprey, American Brook	*Lampetra appendix*			T									X						
Minnows	*Cyprinidae*																		
Carp, Bighead	*Hypophthalmichthys nobilis*															R			
Carp, Common	*Cyprinus carpio*							A	A	A	A	A	A	A	A	A	A	A	A
Carp, Grass	*Ctenopharyngodon idella*							R		R				R	R	R	U	U	U
Chub, Creek	*Semotilus atromaculatus*							X	X				X	X	X	X	X	X	X
Chub, Silver	*Macrhybopsis storeriana*					S C		C	C	C	C	C	C	C	C	C	C	C	C
Chub, Speckled	*Macrhybopsis aestivalis*					T		O	C	C	C	C	R	O	C	C	C	O	C
Dace, Southern Redbelly	*Phoxinus erythrogaster*													X	X	X	X	X	X
Dace, Blacknose	*Rhynichtys atratulus*							X		X									
Dace, Pearl	*Margariscus margarita*																		X
Goldfish	*Carassius auratus*													X	X	X			
Minnow, Bluntnose	*Pimephales notatus*							O	O	O	O	O	R	O	O	O	O	R	O
Minnow, Brassy	*Hybognathus hankinsoni*							R	R	R	R	R	R	R	R				
Minnow, Bullhead	*Pimephales vigilax*							C	A	A	A	A	A	C	C	C	A	A	C
Minnow, Fathead	*Pimephales promelas*							R	U	U	U	U	O	U	U	U	U	R	U

Fish*		Federally (T or E)[1]	Illinois (T or E)[1]	Iowa (T or E)[1]	Minnesota (T or E)[1]	Wisconsin (T or E)[1]	RCP[2]	Pool 4[3]	Pool 5[3]	Pool 5A[3]	Pool 6[3]	Pool 7[3]	Pool 8[3]	Pool 9[3]	Pool 10[3]	Pool 11[3]	Pool 12[3]	Pool 13[3]	Pool 14[3]
Common Name	**Family (Scientific Name)**																		
Minnow, Mississippi Silvery	*Hybognathus nuchalis*							R	U	U	U	U	O	U	U	U	U	U	O
Minnow, Pugnose	*Opsopoeodus emiliae*			S C	S C	S C		O	O	O	O	O	C	O	O	O	O	O	R
Minnow, Suckermouth	*Phenacobius mirabilis*								X	X			H	R	H	U	R	R	R
Shiner, Bigmouth	*Notropis dorsalis*							R	O	O	O	O	R	O	O	O	O	R	R
Shiner, Channel	*Notropis wickliffi*													C			C		
Shiner, Common	*Luxilis cornutus*							X	O	O	O	O	R	X	X	X		X	R
Shiner, Emerald	*Notropis atherinoides*							A	A	A	A	A	A	A	A	A	A	A	A
Shiner, Ghost	*Notropis buchanani*							H	H	H	H	H	H	H	H	R	H	H	H
Shiner, Golden	*Notemigonus crysoleucas*							U	O	O	O	O	O	O	O	O	O	O	O
Shiner, Mimic	*Notropis volucellus*							C	C	O	H	H	C	U	U	U			R
Shiner, Pallid	*Notropis amnis*					E		R	H	H		R	R	H	R	H		R	R
Shiner, Pugnose	*Notropis anogenus*							X		X									
Shiner, Red	*Cyprinella lutrensis*																		R
Shiner, Redfin	*Lythrurus umbratillis*											O							
Shiner, River	*Notropis blennius*							C	A	A	A	A	A	A	A	A	A	A	A
Shiner, Rosyface	*Notropis rubellus*								X		X			H		R			
Shiner, Sand	*Notropis stramineus*							U	O	O	O	O	O	O	O	O	O	U	C
Shiner, Silverband	*Notropis shumardi*																	R	X
Shiner, Spotfin	*Cyprinella spiloptera*							C	C	C	C	C	C	C	C	C	C	C	C
Shiner, Spottail	*Notropis hudsonius*							C	C	C	C	C	C	C	C	C	C	C	C
Shiner, Weed	*Notropis texanus*		E	E				U	U	U	U	O	O	U	U	U	U	R	
Stoneroller, Central	*Campostoma anomalum*							X				X	X	X	X	X	X	X	X
Mooneye	*Hiodontidae*																		
Goldeye	*Hiodon alosoides*					E		R	R	R	R	R	R	U	U	U	R	R	R
Mooneye	*Hiodon tergisus*							C	C	C	C	C	O	O	O	U	C	O	C
Mosquitofish	*Poeciliidae*																		
Mosquitofish, Western	*Gambusia affinis*																		R
Mudminnows	*Umbridae*																		

Fish*		Federally (T or E)[1]	Illinois (T or E)[1]	Iowa (T or E)[1]	Minnesota (T or E)[1]	Wisconsin (T or E)[1]	RCP[2]	Pool 4[3]	Pool 5[3]	Pool 5A[3]	Pool 6[3]	Pool 7[3]	Pool 8[3]	Pool 9[3]	Pool 10[3]	Pool 11[3]	Pool 12[3]	Pool 13[3]	Pool 14[3]
Common Name	**Family (Scientific Name)**																		
Mudminnow, Central	*Umbra limi*							X				X	R	U	U	U	R	R	R
Paddlefish	*Polydontidae*																		
Paddlefish	*Polyodon spathula*				T	T	X	U	U	U	R	R	R	O	O	O	O	O	O
Perch	*Percidae*																		
Darter, Banded	*Etheostoma zonale*													X	X	X			
Darter, Blackside	*Percina maculata*							X	X				H	H	H	H			
Darter, Bluntnose	*Etheostoma chlorosomum*			E	S C	E							H	H			R	R	R
Darter, Fantail	*Etheostoma flabellare*							X	X					H	H	H	X	X	X
Darter, Western Sand	*Ammocrypta clara*			T		S C		O	O	O	O	O	O	O	O	O	O	U	U
Darter, Iowa	*Etheostoma exile*		E						X	X	X	R	R	H	H				
Darter, Johnny	*Etheostoma nigrum*							O	U	U	U	O	O	O	O	O	O	O	O
Darter, Mud	*Etheostoma asprigene*					S C		U	U	R	H	U	O	O	H	H	O	O	O
Darter, Rainbow	*Etheostoma caeruleum*									X	X								
Darter, River	*Percina shumardi*							O	C	C	C	U	O	U	U	U	C	C	U
Darter, Slenderhead	*Percina phoxocephala*							U	R		R	R	U	R		H	U	U	U
Darter, Crystal	*Ammocrypta asperella*				S C	E	X	R	R	U	H		R	R	R	R		R	
Logperch	*Percina caprodes*							C	C	C	C	C	C	C	C	C	C C	O	O
Perch, Yellow	*Perca flavescens*							C	C	C	C	C	C	C	C	C	C	O	O
Sauger	*Stizostedion canadense*							A	C	C	C	C	C	C	C	C	C	C	C
Walleye	*Stizostedion vitreum*						X	C	C	C	C	C	C	C	C	C	C	C	C
Pike	*Esocidae*																		
Muskellunge	*Esox masquinongy*							X	X	X	H	H	H	H	H	H			
Pickerel, Grass	*Esox americanus vermiculatus*			T										X	R	X	R	R	R
Pike, Northern	*Esox lucius*							C	C	C	C	C	O	C	C	C	C	C	O
Smelt	*Osmeridae*																		

Fish*		**Federally (T or E)[1]**	**Illinois (T or E)[1]**	**Iowa (T or E)[1]**	**Minnesota (T or E)[1]**	**Wisconsin (T or E)[1]**	**RCP[2]**	**Pool 4[3]**	**Pool 5[3]**	**Pool 5A[3]**	**Pool 6[3]**	**Pool 7[3]**	**Pool 8[3]**	**Pool 9[3]**	**Pool 10[3]**	**Pool 11[3]**	**Pool 12[3]**	**Pool 13[3]**	**Pool 14[3]**
Common Name	**Family (Scientific Name)**																		
Smelt, Rainbow	*Osmerus mordax*												X						
Silversides	*Atherinidae*																		
Silverside, Brook	*Labidesthes sicculus*							U	C	C	C	C	O	C	C	C	C	C	C
Sturgeon	*Acipenseridae*																		
Sturgeon, Lake	*Acipenser fulvescens*		E	E	SC	SC	X	U	U	R	H		H	R	R	R		R	R
Sturgeon, Shovelnose	*Scaphirhynchus platorynchus*				SC		X	O	O	O	O	O	O	O	O	O	O	O	O
Sticklebacks	*Gasterosteidae*																		
Stickleback, Brook	*Culaea inconstans*							X				X	R	U	U	U	X	X	X
Suckers	*Catostomidae*																		
Buffalo, Bigmouth	*Ictiobus cyprinellus*							O	C	C	C	C	C	C	C	C	C	C	C
Buffalo, Black	*Ictiobus niger*					T		R	H	H	H	R	R	U	U	U	U	U	U
Buffalo, Smallmouth	*Ictiobus bubalus*							O	O	O	O	O	C	C	C	C	C	C	C
Carpsucker, Highfin	*Carpiodes velifer*							U	O	O	O	O	U	U	U	U	O	O	O
Carpsucker, River	*Carpiodes carpio*							O	C	C	C	C	O	A	A	A	C	C	C
Quillback	*Carpiodes cyprinus*							C	C	C	C	C	C	C	C	C	U	U	C
Redhorse, Black	*Moxostoma dequesneii*							X		X									
Redhorse, Golden	*Moxostoma erythrurum*							O	U	U	U	U	O	O	U	U	U	O	O
Redhorse, Greater	*Moxostoma valenciennesi*							R	H				H	R	R	R			
Redhorse, River	*Moxostoma carinatum*		T			T		O	O	O	O	O	O	U	H	H	H	H	H
Redhorse, Shorthead	*Moxostoma macrolepidotum*							C	C	C	C	C	C	C	C	C	C	C	C
Redhorse, Silver	*Moxostoma anisurum*							C	O	O	O	O	O	O	U	U	U	U	U
Sucker, Blue	*Cycleptus elongatus*				SC	T		U	U	R	R	H	U	U	U	U	U	U	U
Sucker, Longnose	*Catostromus catostromus*																		X
Sucker, Northern hog	*Hypentelium nigricans*							U	R	R	R	X	R	X	X	X	R	R	X
Sucker, Spotted	*Minytrema melanops*							C	C	C	C	C	O	C	C	C	O	C	O
Sucker, White	*Catostomus commersoni*							O	C	C	C	C	U	U	U	U	U	U	U

Fish*		**Federally (T or E)** [1]	**Illinois (T or E)** [1]	**Iowa (T or E)** [1]	**Minnesota (T or E)** [1]	**Wisconsin (T or E)** [1]	**RCP** [2]	**Pool 4** [3]	**Pool 5** [3]	**Pool 5A** [3]	**Pool 6** [3]	**Pool 7** [3]	**Pool 8** [3]	**Pool 9** [3]	**Pool 10** [3]	**Pool 11** [3]	**Pool 12** [3]	**Pool 13** [3]	**Pool 14** [3]
Common Name	**Family (Scientific Name)**																		
Sunfish	Centrarchidae																		
Bass, Largemouth	*Micropterus salmoides*							C	C	C	C	C	C	C	C	C	C	C	C
Bass, Rock	*Ambliplites rupestris*							C	C	C	C	C	O	C	C	C	R	O	U
Bass, Smallmouth	*Micropterus dolomieu*							C	O	O	O	O	O	O	O	O	O	O	O
Bluegill	*Lepomis macrochirus*							A	A	A	A	A	A	A	A	A	A	A	A
Crappie, Black	*Pomoxis nigromaculatus*							C	C	C	C	C	C	C	C	C	C	C	C
Crappie, White	*Pomoxis annularis*							O	C	C	C	C	O	C	C	C	C	C	C
Pumpkinseed	*Lepomis gibbosus*							O	O	O	C	C	C	C	C	C	C	C	C
Sunfish, Green	*Lepomis cyanellus*							O	O	O	O	O	O	U	U	U	O	U	O
Sunfish, Orange-spotted	*Lepomis humilis*							R	O	O	O	O	O	O	O	O	O	O	O
Warmouth	*Lepomis gulosus*									U	U	O	U	O	O	O	O	O	U
Trout-perch	Salmonidae																		
Trout, Brook	*Salvelinus fontinalis*							X	X	X			X	X	X	X			
Trout, Brown	*Salmo trutta*							X	x				X	X	X	X		X	X
Trout, Lake	*Salvelinus namaycush*							X						X	X	X			X
Trout, Rainbow	*Oncorhynchus mykiss*							X	X			X	X	X	X	X		X	X
Trout-perch	Percopsidae																		
Trout-perch	*Percopsis omiscomaycus*							O	O	O	O	O	U	H	O	O		H	

** Species list and pool distribution adapted from Pitlo, John, Jr., et al. 1995. Distribution and Relative Abundance of Upper Mississippi River Fishes. Upper Mississippi River Conservation Committee, Rock Island, IL.*

[1] *E. (Endangered); T. (Threatened)*
T. (Threatened) S.C. (Special Concern)

[2] *RCP. (Resource Conservation Priority for Fish & Wildlife Service, Region 3)*

[3] *X. Probably occurs only as a stray from a tributary or inland stocking.*

H. Records of occurrence are available, but no collections have been documented in the last 10 yrs.

R. Considered to be rare. Some species in this category may be on the verge of extirpation.

Fish*		Federally (T or E)[1]	Illinois (T or E)[1]	Iowa (T or E)[1]	Minnesota (T or E)[1]	Wisconsin (T or E)[1]	RCP[2]	Pool 4[3]	Pool 5[3]	Pool 5A[3]	Pool 6[3]	Pool 7[3]	Pool 8[3]	Pool 9[3]	Pool 10[3]	Pool 11[3]	Pool 12[3]	Pool 13[3]	Pool 14[3]
Common Name	**Family (Scientific Name)**																		

U. Uncommon. Does not usually appear in sample collections; populations are small, but the species do not appear to be on the verge of extirpation.

O. Occasionally collected. Not generally distributed, but local concentrations may occur.

C. Commonly taken in most sample collections. Can make up a large portion of some samples.

A. Abundantly taken in all river surveys.

Mammals		Federally (T or E)	Illinois (T or E)	Iowa (T or E)	Minnesota (T or E)	Wisconsin (T or E)	RCP
Common Name	**Species (Scientific Name)**						
Bats							
Bat, Big Brown	*Eptescius fuscus*						
Bat, Hoary	*Lasiurus cinerus*						
Bat, Northern Myotis	*Myotis septentrionalis*						
Bat, Little Brown	*Myotis lucifugus*						
Bat, Red	*Lasiurus borealis*						
Bat, Silver-haired	*Lasionycteris noctivagans*						
Pipistrel, Eastern	*Pipistrellus subflavus*						
Carnivores							
Badger	*Taxida taxus*						
Bear, Black	*Ursus americanus*						
Bobcat	*Lynx rufus*			T			
Coyote	*Canis latrans*						
Fox, Gray	*Urocyon cineroargenteus*						
Fox, Red	*Vulpes fulva*						
Mink	*Mustela vison*						
Otter, River	*Lutra canadensis*		T				
Raccoon	*Procyon lotor*						
Skunk, Spotted	*Spilogale putorius*			E	T		
Skunk, Striped	*Mephitis mephitis*						
Weasel, Least	*Mustela nivalis*						
Weasel, Long-tailed	*Mustela frenata*						
Weasel, Short-tailed	*Mustela erminea*						
Hooved Animals							
Deer, White-tailed	*Odocoileus virginianus*						
Insectivores							
Mole, Eastern	*Scalopus aquaticus*						
Mole, Starnose	*Condylura cristata*						
Shrew, Least	*Cryptotis parva*			T			
Shrew, Masked	*Sorex cinereus*						
Shrew, Short-tailed	*Blarina brevicauda*						

Mammals		Federally (T or E)	Illinois (T or E)	Iowa (T or E)	Minnesota (T or E)	Wisconsin (T or E)	RCP
Common Name	**Species (Scientific Name)**						
Marsupials							
Opossum, Virginia	*Didelphis virginiana*						
Rabbits							
Rabbit, Eastern Cottontail	*Sylvilagus floridanus*						
Rodents							
Beaver	*Castor canadensis*						
Chipmunk, Eastern	*Tamias striatus*						
Gopher, Plains Pocket	*Geomys bursarius*						
Mouse, Plains Pocket	*Perognathus flavescens*			E			
Lemming, Southern Bog	*Synaptomys cooperi*			T			
Mouse, Deer	*Peromyscus maniculatus*						
Mouse, House	*Mus musculus*						
Mouse, Meadow Jumping	*Zapus hudsonius*						
Mouse, Western Harvest	*Reithrodontomy megalotis*						
Mouse, White-footed	*Peromyscus leucopus*						
Muskrat	*Ondatra zibethicus*						
Rat, Norway	*Rattus norvegicus*						
Squirrel, Eastern Fox	*Sciurus niger*						
Squirrel, Eastern Gray	*Sciurus carolinensus*						
Squirrel, Franklin's Ground	*Spermophilis franklinii*						
Squirrel, Red	*Tamiasciurus hudsonicus*						
Squirrel, Southern Flying	*Glaucomys volans*						
Squirrel, Thirteen-lined Ground	*Spermophilus tridecemlineatus*						
Vole, Meadow	*Microtus pennsylvanicus*						
Vole, Woodland	*Microtus pinetorum*						
Vole, Prairie	*Microtus ochrogastor*						
Woodchuck	*Mormota monax*						

[1] E. (Endangered)
T. (Threatened)
[2] RCP. (Resource Conservation Priority for Fish & Wildlife Service, Region 3)

Freshwater Mussels		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]	Status on Refuge [3]
Common Name	**Species (Scientific Name)**							
Dreissenidae								
Zebra Mussel	*Dreissena polymorpha*						X	
Corbiculidae								
Asiatic Clam	*Corbicula fluminea*						X	
Unionidae								
Cumberlandinae								
Spectaclecase	*Cumberlandia monodonta*	C	E	E	T	E	X	R: Pool 10
Ambleminae								
Washboard	*Magalonaias nervosa*		SC		T		X	R: Pool 10 & Below
Pistolgrip (Buckhorn)	*Tritogonia verrucosa*			E	T	T	X	
Mapleleaf	*Quadrula quadrula*						X	
Monkeyface	*Quadrula metanevra*			T			X	
Wartyback	*Quadrula nodulata*			E	R			
Pimpleback	*Quadrula pustulosa*						X	
Threeridge	*Amblema plicata*						X	
Ebonyshell	*Fusconaia ebena*		T		E	E		R: Pools 9, 10, 11
Wabash Pigtoe	*Fusconaia flava*							
Purple Wartyback	*Cyclonaias tuberculata*			T	T	E		R: Pool 4
Sheepnose	*Plethobasus cyphyus*	C	E	E	E	E	X	
Round Pigtoe	*Pleurobema sintoxia*			E	T	SC	X	
Spike	*Elliptio dilatata*		T		SC			
Anodontinae								
Paper Pondshell	*Utterbackia imbecillis*							
Flat Floater	*Anodonta suborbiculata*					SC	X	
Giant Floater	*Pyganodon grandis*							
Creeper (aka Squawfoot)	*Strophitus undulatus*							

Freshwater Mussels		**Federally (T or E)** [1]	**Illinois (T or E)** [1]	**Iowa (T or E)** [1]	**Minnesota (T or E)** [1]	**Wisconsin (T or E)** [1]	**RCP** [2]	**Status on Refuge** [3]
Common Name	**Species (Scientific Name)**							
Elktoe	*Alasmidonta marginata*				T	SC	X	Pools 6 & 8
Rock Pocketbook	*Arcidens confragosus*				E	T	X	
Salamander Mussel	*Simpsonaias ambigua*	C		E	T	T	X	
White Heelsplitter	*Lasmigona complanata*						X	
Fluted Shell	*Lasmigona costata*			T	SC	T		R: Pool 10
Lampsilinae								
Threehorn Wartyback	*Obliquaria reflexa*							
Mucket	*Actinonaias ligamentina*				T		X	Pool 11
Butterfly	*Ellipsaria lineolata*		T	T	T	E	X	
Hickorynut	*Obovaria olivaria*					SC		
Deertoe	*Truncilla truncata*							
Fawnsfoot	*Truncilla donaciformis*							
Fragile Papershell	*Leptodea fragilis*							
Pink Papershell	*Potamilus ohiensis*							
Pink Heelsplitter	*Potamilus alatus*						X	
Lilliput	*Toxolasma parvus*							
Black Sandshell	*Ligumia recta*				SC		X	
Yellow Sandshell	*Lampsilis teres anodontoides*			E	E	E	X	
Slough Sandshell	*Lampsilis teres teres*			E		E		Pools 10, 11
Fat Mucket	*Lampsilis siliquoidea*						X	
Higgins Eye	*Lampsilis higginsii*	E	E	E	E	E	X	R: Pools 7-14
Plain Pocketbook	*Lampsilis cardium*							
Sphaeriidae								
Fingernail Clam	*Musculium transversum*							

Freshwater Mussels		**Federally (T or E)** [1]	**Illinois (T or E)** [1]	**Iowa (T or E)** [1]	**Minnesota (T or E)** [1]	**Wisconsin (T or E)** [1]	**RCP** [2]	**Status on Refuge** [3]
Common Name	**Species (Scientific Name)**							

[1] C. (Candidate)
E. (Endangered)
T. (Threatened)
X. (Extirpated)
SC. (Special Concern)

[2] RCP. (Resource Conservation Priority for Fish & Wildlife Service, Region 3)

[3] Status on Refuge: Species present in most pools, unless otherwise noted.
R. Rare, only isolated occurrences in Refuge area.

Reptiles		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]
Common Name	**Species (Scientific Name)**						
Lizards							
Racerunner, Six-lined	*Cnemidophorus sexlineatus*						
Snakes							
Bullsnake, Gopher	*Pituophis melanoleucus*						
Rattlesnake, Eastern Massasauga	*Sistrurus catenatus*	C	E	E	E	E	X
Rattlesnake, Timber	*Crotalus horridus*		T		T		X
Snake, Blue Racer	*Coluber constrictor foxi*						
Snake, Brown	*Storeria dekayi*						
Snake, Eastern Garter	*Thamnophis sirtalis*						
Snake, Eastern Hognose	*Heterodon platirhinos*						
Snake, Fox	*Elaphe vulpina*						
Snake Graham's Crayfish	*Regina Grahamii*						
Snake, Kirtland's Water Snake	*Clonophis Kirtlandii)*		T				
Snake, Milk	*Lampropeltis triangulum*						
Snake, Northern Red-bellied	*Storeria occipitomaculata*						
Snake, Northern Water	*Nerodia sipedon*						
Snake, Plains Garter	*Thamnophis radix*						
Snake, Prairie Lined	*Tropidoclonion lineatum*						
Snake, Rat	*Elaphe obsoleta*						
Snake, Ringneck	*Diadophis punctatus*						
Snake, Smooth Green	*Opheodrys vernalis*						
Snake, Western Hognose	*Heterodon nasicus*		T				
Turtles							
Turtle, Blanding's	*Emydoidea blandingii*		T	T	T	T	
Turtle, Common Musk	*Sternotherus odoratus*						
Turtle, False Map	*Graptemys pseudogeographica*						
Turtle, Common Map	*Graptemys geographica*						

Reptiles		Federally (T or E) [1]	Illinois (T or E) [1]	Iowa (T or E) [1]	Minnesota (T or E) [1]	Wisconsin (T or E) [1]	RCP [2]
Common Name	**Species (Scientific Name)**						
Turtle, Ornate Box	*Terrapene ornata*			T		E	
Turtle, Painted	*Chysemys picta*						
Turtle, Smooth Softshell	*Apalone mutica*						
Turtle, Snapping	*Chelydra serpentina*						
Turtle, Spiny Softshell	*Apalone spinifera*						
Turtle, Ouachita Map	*Graptemys ouachitensis*						
Turtle, Wood	*Clemmys insculpta*			E	T	T	

[1] E. (Endangered)
T. (Threatened)
[2] RCP. (Resource Conservation Priority for Fish & Wildlife Service, Region 3)

Plant Species Found on the Refuge

The following list is derived from Galatowitsch, S.M.; McAdams, T.V.; July, 1994; Distribution and Requirements of Plants on the Upper Mississippi River NWR: Literature Review. Iowa Cooperative Fish and Wildlife Research Unit, Ames, Iowa.

The floristic list was compiled from published records for the Upper Mississippi River; e.g., Mohlenbrock (1983), Peck and Smart (1986), Swanson and Sohmer (1978). Nomenclature follows Gleason and Cronquist (1991). General geographic distribution was obtained from Gleason and Cronquist (1991).

Distribution

Ubiquitous: Range extending across all UMR pools.
Northern: Range not reaching to southern pools.
Southern: Range restricted to southern pools ofthe UMR.

* Denotes species not indigenous to North America.
** Denotes species added to the list in 2004 by the Refuge.

Key to Plant Guilds

Woody Plant Guilds		**Semi-aquatic and Terrestrial Herbaceous Guilds**	
FTPT	Flood-tolerant Pioneering Trees	**SE**	Spring Ephemerals
FIPT	Flood-intolerant Pioneering Trees	**AWF**	Autumnal Woodland Forbs
SF	Swamp Forest Trees	**WG**	Woodland Graminoids
SFT	Softwood Floodplain Trees	**V**	Vines
BHT	Bottomland Hardwood Trees	**MF**	Meadow Forbs
FTPS	Flood-tolerant Pioneering Shrubs	**MG**	Meadow Graminoids
FTSS	Flood-tolerant Stable Shrubs	**SAF**	Semi-aquatic Annual Forbs
WS	Woodland shrubs	**SAG**	Semi-aquatic Annual Grasses
Aquatic Guilds		**TAF**	Terrestrial Annual Forbs
EP	Emergent Perennials	**PP**	Parasitic Plants
EA	Emergent Annuals		
RSA	Rooted Submersed Aquatics		
USA	Unrooted Submersed Aquatics		
FP	Floating Perennials		
FA	Floating Annuals		

Plant Species Found on Upper Mississippi River Refuge

Common Name	Scientific Name	Family	Distrib.	Guild
Alder	*Alnus serrulata (Ait.) Willd.*	Betulaceae	Ubiquitous	FTSS
Alder buckthorn	*Rhamnus frangula L.**	Rhamnaceae	Ubiquitous	FTSS
American bindweed	*Convolvulus arvensis L.**	Convolvulaceae	Ubiquitous	V
American bugleweed	*Lycopus americanus Muhl.*	Lamiaceae	Ubiquitous	MF
American elm	*Ulmus americana L.*	Ulmaceae	Ubiquitous	SFT
American fever-few	*Parthenium integrifolium L.*	Asteraceae	Ubiquitous	MF
American germander	*Teucrium canadense L.*	Lamiaceae	Ubiquitous	MF
Aquatic liverwort	*Riccia fluitans*	Ricciaceae	Ubiquitous	FA
Arrow arum	*Peltandra virginica (L.) schott & Endl.*	Araceae	Ubiquitous	EP
Arrow-leaved violet	*Viola sagittata Ait.*	Violaceae	Ubiquitous	MF
Asiatic dayflower	*Commelina communis L.*	Commelinaceae	Ubiquitous	TAF
Awned cyperus	*Cyperus squarrosus L.*	Cyperaceae	Ubiquitous	SAG
Bald cypress	*Taxodium distichum (L.) Rich.*	Taxodiaceae	Ubiquitous	SF
Bald spikerush	*Eleocharis erythropoda Steud.*	Cyperaceae	Ubiquitous	MG
Barnyard grass	*Echinochloa crusgalli (L.) Beauv.*	Poaceae	Ubiquitous	SAG
Barnyard grass	*Echinochloa muricata (Beauv.) Fern.*	Poaceae	Ubiquitous	SAG
Basswood	*Tilia americana L.*	Tiliaceae	Ubiquitous	BHT
Bead grass	*Paspalum fluitans (Elliott) Kunth.*	Poaceae	Ubiquitous	MG
Beaked sedge	*Carex rostrata Stokes.*	Cyperaceae	Northern	MG
Bebb's sedge	*Carex bebbii Olney*	Cyperaceae	Ubiquitous	MG
Bellwort	*Uvularia grandiflora J.E. Smith*	Liliaceae	Ubiquitous	SE
Bicknell's sedge	*Carex bicknellii Britt.*	Cyperaceae	Ubiquitous	MG
Biennial gaura	*Gaura biennis D.*	Onagraceae	Ubiquitous	TAF
Big bluestem	*Andropogon gerardii Vitman*	Poaceae	Ubiquitous	FTSS
Bigleaf pondweed	*Potamogeton amplifolius Tuckerm.*	Potamogetonaceae	Ubiquitous	RSA
Bitter cress	*Cardamine hirsuta L.*	Brassicaceae	Ubiquitous	MF
Bitter cress	*Cardamine pennsylvanica Muhl.*	Brassicaceae	Ubiquitous	AWF
Bitternut hickory	*Carya cordiformis (Wang.) K. Koch*	Juglandaceae	Ubiquitous	BHT
Bittersweet	*Solanum dulcamara L.*	Solanaceae	Ubiquitous	MF
Black Ash	*Fraxinus nigra Marsh.*	Oleaceae	Northern	SFT
Black bulrush	*Scirpus atrovirens Willd.*	Cyperaceae	Ubiquitous	MG
Black cherry	*Prunus serotina Ehrh.*	Rosaceae	Ubiquitous	BHT
Black locust	*Robinia pseudo-acacia L.**	Fabaceae	Ubiquitous	BHT
Black mustard	*Brassica nigra L.*	Brassicaceae	Ubiquitous	TAF

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Black nightshade	*Solanum nigrum L.*	Solanaceae	Ubiquitous	TAF
Black oak	*Quercus velutina Lam.*	Fagaceae	Ubiquitous	BHT
Black raspberry	*Rubus occidentalis L.*	Rosaceae	Ubiquitous	WS
Black walnut	*Juglans nigra L.*	Juglandaceae	Ubiquitous	BHT
Black willow	*Salix nigra Marsh.*	Salicaceae	Ubiquitous	FTPT
Blackberry lily	*Belamcanda chinensis (L.) DC.**	Iridaceae	Ubiquitous	FTSS
Black-eyed susan	*Rudbeckia hirta L.*	Asteraceae	Ubiquitous	MF
Blackjack oak	*Quercus marilandica Muench.*	Fagaceae	Ubiquitous	BHT
Bladdernut	*Staphylea trifolia L.*	Staphyleaceae	Ubiquitous	WS
Bland sweet cicely	*Osmorhiza claytonii (Michx.)*	Apiaceae	Ubiquitous	SE
Blood polygala	*Polygala sanguinea L.*	Polygonaceae	Ubiquitous	TAF
Bloodroot	*Sanguinaria canadensls L.*	Papaveraceae	Ubiquitous	SE
Blue flag	*Iris virginica L. var. shrevei (Small) E. Anders.*	Iridaceae	Ubiquitous	EP
Blue vervain	*Verbena hastata L.*	Verbenaceae	Ubiquitous	MF
Blue-joint	*Calamagrostis canadensis (Michx.) Nutt.*	Poaceae	Ubiquitous	MG
Blunt broom sedge	*Carex tribuloides Wahl.*	Cyperaceae	Ubiquitous	MG
Bluntleaf bedstraw	*Galium obtusum bigel.*	Rubiaceae	Ubiquitous	MF
Blunt-lobed woodsia	*Woodsia obtusa (Spreng.) Torr.*	Polypodiaceae	Ubiquitous	AWF
Bog-hemp	*Boehmeria cylindrica (L.) Sw.*	Urticaceae	Ubiquitous	AWF
Boneset	*Eupatorium perfoliatum L.*	Asteraceae	Ubiquitous	MF
Bottlebrush sedge	*Carex hystericina Muhl.*	Cyperaceae	Ubiquitous	MG
Bottomland aster	*Aster ontarionis Wieg.*	Asteraceae	Ubiquitous	FTSS
Box elder	*Acer negundo L.*	Aceraceae	Ubiquitous	FTPT
Brevior's sedge	*Carex brevior (Dew.) Mackens.*	Cyperaceae	Ubiquitous	MG
Bristly crowfoot	*Ranunculus pensylvanicus L.*	Ranunculaceae	Ubiquitous	SAF
Bristly greenbrier	*Smilax hispida Muhl.*	Smilacaceae	Ubiquitous	V
Broad-leaved arrowhead	*Sagittaria latifolia Willd.*	Alismataceae	Ubiquitous	EP
Brook cinquefoil	*Potentilla rivalis Nutt.*	Rosaceae	Ubiquitous	SAF
Brook sedge	*Cyperus bipartitus Torr.*	Cyperaceae	Ubiquitous	SAG
Bulbet-bladder fern	*Cystopteris bulbifera (L.)Bernh.*	Polypodiaceae	Ubiquitous	AWF
Bull thistle	*Cirsium vulgare (Savi) Tenore.**	Asteraceae	Ubiquitous	TAF
Bur cucumber	*Sicyos angulatus L.*	Curcurbitaceae	Ubiquitous	V
Bur marigold	*Bidens laevis (L.) BSP.*	Asteraceae	Ubiquitous	SAF
Burhead	*Echinodorus Corddifolius (L.) Griseb.*	Alismataceae	Ubiquitous	EP

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Burhead	*Sparganium americanum Nutt.*	Sparganiaceae	Ubiquitous	EP
Burreed	*Sparganium chlorocarpum Rydb.*	Sparganiaceae	Northern	EP
Bushy knotweed	*Polygonum ramosissimum Michx.*	Polygonaceae	Ubiquitous	SAF
Butternut	*Juglans cinerea L.*	Juglandaceae	Ubiquitous	BHT
Buttonbush	*Cephalanthus occidentalis L.*	Rubiaceae	Ubiquitous	FTSS
Buttonbush dodder	*Cuscuta cephalanthi Engelm.*	Cuscutaceae	Ubiquitous	PP
Buttonweed	*Spermacoce glabra Michx.*	Rubiaceae	Ubiquitous	MF
Canada anemone	*Anemone canadensis L.*	Ranunculaceae	Ubiquitous	FTSS
Canada goldenrod	*Solidago canadensis L.*	Asteraceae	Ubiquitous	MF
Canada thistle	*Cirsium arvense (L.) Scop.**	Asteraceae	Ubiquitous	MF
Canada tick-trefoil	*Desmodium canadense (L.) DC.*	Fabaceae	Ubiquitous	MF
Canada wild rye	*Elymus canadensis L.*	Poaceae	Ubiquitous	MG
Cannabis	*Cannabis sativa L.*	Cannabaceae	Ubiquitous	MF
Cardinal flower	*Lobelia cardinalis L.*	Campanulaceae	Ubiquitous	AWF
Carpetweed	*Mollugo verticillata L.*	Molluginaceae	Ubiquitous	TAF
Carrion flower	*Smilax herbacea L.*	Smilacaceae	Ubiquitous	V
Catchfly grass	*Leersia lenticularis Michx.*	Poaceae	Ubiquitous	MG
Cattail sedge	*Carex typhina Michx.*	Cyperaceae	Ubiquitous	MG
Chickweed	*Cerastium vulgatum L.*	Caryophyllaceae	Ubiquitous	MF
Chinquapin oak	*Quercus prinoides Willd.*	Fagaceae	Ubiquitous	BHT
Choke-cherry	*Prunus virginiana L.*	Rosaceae	Ubiquitous	FIPT
Cinnamon fern	*Osmunda cinnamonea L.*	Osmundaceae	Ubiquitous	MF
Cinnamon willow-herb	*Epilobium coloratum Biehler.*	Onagraceae	Ubiquitous	MF
Clammy ground cherry	*Physalis heterophylla Nees.*	Solanaceae	Ubiquitous	AWF
Clasping dogbane	*Apocynum sibiricum Jacq.*	Araliaceae	Ubiquitous	FTSS
Clearweed	*Pilea pumila L. Gray.*	Urticaceae	Ubiquitous	TAG
Climbing milkweed	*Ampelamus albidus (Nutt.) Britton*	Asclepiadaceae	Ubiquitous	FTSS
Cluster-leaftick trefoil	*Desmodium glutinosum (Muhl.) Wood.*	Fabaceae	Ubiquitous	AWF
Coarse cyperus	*Cyperus odoratus L.*	Cyperaceae	Ubiquitous	SAG
Common blackberrry	*Rubus allegheniensis Porter.*	Rosaceae	Ubiquitous	WS
Common bladderwort	*Utricularia vulgaris L.*	Lentibulariaceae	Ubiquitous	USA
Common buckthorn	*Rhamnus cathartica L.**	Rhamnaceae	Ubiquitous	WS
Common burreed	*Sparganium eurycarpum Engelm.*	Sparganiaceae	Ubiquitous	EP
Common cattail	*Typha latifolia L.*	Typhaceae	Ubiquitous	EP
Common chickweed	*Stellaria media (L.) Cyrillo*	Caryophyllaceae	Ubiquitous	TAF

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Common cocklebur	*Xanthium strumarium L.**	Asteraceae	Ubiquitous	TAF
Common dodder	*Cuscuta gronovii Willd.*	Cuscutaceae	Ubiquitous	PP
Common horsetail	*Equisetum arvense L.*	Equisataceae	Ubiquitous	MF
Common juniper	*Juniperus communis L.*	Cuppressaceae	Ubiquitous	WS
Common plantain	*Plantago major L.**	Plantaginaceae	Ubiquitous	MF
Common poison ivy	*Toxicodendron radicans ssp. negundo (Greene) Gillis*	Anacardiaceae	Ubiquitous	V
Common purslane	*Portulaca oleracea L.*	Portulaceae	Ubiquitous	MF
Common ragweed	*Ambrosia artemisiifolia L.*	Asteraceae	Ubiquitous	TAF
Common reed	*Phragmites australis (Cav.) Trin.*	Poaceae	Ubiquitous	EP
Common ricciocarpus	*Ricciocarpus natans*	Ricciaceae	Ubiquitous	FA
Common skullcap	*Scutellaria galericulata L.*	Lamiaceae	Ubiquitous	MF
Common tansy	*Tanacetum vulgare L.**	Asteraceae	Ubiquitous	MF
Common water weed	*Elodea canadensis Michx*	Hydrophyllaceae	Ubiquitous	RSA
Coontail	*Ceratophyllum demersum L.*	Ceratophyllaceae	Ubiquitous	USA
Coontail	*Ceratophyllum echinatum Gray*	Ceratophyllaceae	Ubiquitous	USA
Cottonwood	*Populus deltoides Marsh.*	Salicaceae	Ubiquitous	FTPT
Cow-parsnip	*Heracleum lanatum Michx.*	Apiaceae	Ubiquitous	MF
Crab grass	*Digitaria sanguinalis (L.) Scop.**	Poaceae	Ubiquitous	MG
Creeping burhead	*Echinodorus berteroi (Sprengel) Fassett*	Alismataceae	Ubiquitous	SAF
Creeping dayflower	*Commelina diffusa Burman*	Commelinaceae	Ubiquitous	TAF
Creeping lovegrass	*Eragrostis hypnoides (Lam.) BSP.*	Poaceae	Ubiquitous	SAG
Crested sedge	*Carex cristatella Britt.*	Cyperaceae	Ubiquitous	MG
Crested wood fern	*Dryopteris cristata (L.) Gray*	Polypodiaceae	Ubiquitous	MF
Crown vetch	*Coronilla varia L. *,***	Fabaceae		
Culver's root	*Veronicastrum virginicum (L.) Farw.*	Scrophulariaceae	Ubiquitous	MF
Curly dock	*Rumex crispus L.**	Polygonaceae	Ubiquitous	MF
Curly-leaved pondweed	*Potamogeton crispus L.**	Potamogetonaceae	Ubiquitous	RSA
Cursed crowfoot	*Ranunculus scleratus L.*	Ranunculaceae	Ubiquitous	SAF
Cutleaf coneflower	*Rudbeckia laciniata L.*	Asteraceae	Ubiquitous	MF
Daisy fleabane	*Erigeron annuus (L.) Pers.*	Asteraceae	Ubiquitous	TAF
Dandelion	*Taraxacum officinale Weber.*	Asteraceae	Ubiquitous	MF
Deer-tongue grass	*Panicum clandestinum L.*	Poaceae	Ubiquitous	TAG
Devil's beggarticks	*Bidens frondosa L.*	Asteraceae	Ubiquitous	SAF
Diamond willow	*Salix eriocephala Michx.*	Salicaceae	Ubiquitous	FTPS

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Ditch-stonecrop	*Penthorum sedoides L.*	Saxifragaceae	Ubiquitous	MF
Dock	*Rumex salicifolius J.A. Weinm.*	Polygonaceae	Ubiquitous	MF
Dodder	*Cuscuta compacta A.L. Juss.*	Cuscutaceae	Ubiquitous	PP
Dodder	*Cuscuta cuspidata Engelm.*	Cuscutaceae	Ubiquitous	PP
Dotted hawthorne	*Crategus punctata Jacq.*	Rosaceae	Ubiquitous	FTSS
Dotted water meal	*Wolffia punctata Griseb.*	Lemnaceae	Ubiquitous	FA
Downy phlox	*Phlox pilosa L.*	Polemoniaceae	Ubiquitous	MF
Drummond's aster	*Aster drummondii Lindl.*	Asteraceae	Ubiquitous	FTSS
Duckweed	*Lemna obscura (Austin) Daubs*	Lemnaceae	Ubiquitous	FA
Duckweed	*Lemna perpusilla Torr.*	Lemnaceae	Ubiquitous	FA
Duckweed	*Lemna trinervis (Austin) Small*	Lemnaceae	Ubiquitous	FA
Duckweed	*Lemna valdiviana Phil.*	Lemnaceae	Ubiquitous	FA
Dwarf bulrush	*Hemicarpha micrantha (Vahl) Pax*	Cyperaceae	Ubiquitous	SAG
Dwarf St. John's-wort	*Hypericum mutilum L.*	Clusiaceae	Ubiquitous	MF
Dwarfhackberry	*Celtis tenuifolia Nutt.*	Ulmaceae	Ubiquitous	WS
Dye bedstraw	*Galium tinctorium L.*	Rubiaceae	Ubiquitous	MF
Early meadow rue	*Thalictrum dioicum L.*	Ranunculaceae	Ubiquitous	SE
Early wild rose	*Rosa blanda Ait.*	Rosaceae	Ubiquitous	WS
Eastern serviceberry	*Amelanchier canadensis (L.) Medikus*	Rosaceae	Ubiquitous	FTSS
Elderberry	*Sambucus canadensis L.*	Caprifoliaceae	Ubiquitous	WS
Elegant bedstraw	*Galium concinnum T. & G.*	Rubiaceae	Ubiquitous	AWF
Emory's sedge	*Carex emoryi Dew.*	Cyperaceae	Ubiquitous	MG
Enchanter's nightshade	*Circaea lutetiana L.*	Onagraceae	Ubiquitous	AWF
Eurasian milfoil	*Myriophyllum spicatum L. var. exalbescens (Fern.) Jepson**	Haloragaceae	Ubiquitous	RSA
Eutrophic water nymph	*Najas minor All.**	Najadaceae	Ubiquitous	RSA
Evening primrose	*Oenothera biennis L.*	Onagraceae	Ubiquitous	MF
Fall panic grass	*Panicum dichotomiflorum Michx.*	Poaceae	Ubiquitous	TAG
False buckwheat	*Polygonum scandens L.*	Polygonaceae	Ubiquitous	MF
False dragonhead	*Physostegia virginiana (L.) Benth.**	Lamiaceae	Ubiquitous	MF
False indigo	*Amorpha fruticosa L.*	Fabaceae	Ubiquitous	FTSS
False petunia	*Ruellia strepens L.*	Acanthaceae	Ubiquitous	AWF
False pimpernel	*Lindernia dubia (L.) Pennell.*	Scrophulariaceae	Ubiquitous	SAF
False starwort	*Boltonia asteroides (L.) L. Her.*	Asteraceae	Ubiquitous	MF
Fancy wood fern	*Dryopteris intermedia (Muhl.) A. Gray*	Polypodiaceae	Ubiquitous	AWF

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Field mint	*Mentha arvensis L.*	Lamiaceae F	Ubiquitous	MF
Field thistle	*Cirsium discolor (Muhl.) Spreng.*	Asteraceae	Ubiquitous	TAF
Figwort	*Scrophularia marilandica L.*	Scrophulariaceae	Ubiquitous	MF
Fireweed	*Erechtites hieracifolia (L.) Raf.*	Asteraceae	Ubiquitous	TAF
Flat-stem pondweed	*Potamogeton zosteriformis Fern.*	Potamogetonaceae	Ubiquitous	RSA
Flatstem spikerush	*Eleocharis compressa Sullivant*	Cyperaceae	Ubiquitous	MG
Fleabane	*Erigeron philadelphicus L.*	Asteraceae	Ubiquitous	MF
Floating pondweed	*Potamogeton natans L.*	Potamogetonaceae	Northern	RSA
Floating primrose willow	*Ludwigia peploides (HBK) Raven*	Onagraceae	Ubiquitous	MF
Flowering dogwood	*Cornus florida L.*	Cornaceae	Ubiquitous	WS
Fog fruit	*Phyla lanceolata Michx. (Green)*	Verbenaceae	Ubiquitous	MF
Forest pea	*Lathyrus venosus Muhl. var. intonsus Butters and St. John*	Fabaceae	Ubiquitous	AWF
Forest phlox	*Phlox divaricata L.*	Polemoniaceae	Ubiquitous	SE
Fowl meadow grass	*Glyceria striata (Lam.) A. Hitchc.*	Poaceae	Ubiquitous	MG
Fox sedge	*Carex vulpinoidea Michx.*	Cyperaceae	Ubiquitous	MG
Foxtail sedge	*Carex alopecoidea Tuckerm.*	Cyperaceae	Ubiquitous	MG
Frank's sedge	*Carex frankii Kunth*	Cyperaceae	Ubiquitous	WG
Fringed loosestrife	*Lysimachia ciliata L.*	Primulaceae	Ubiquitous	MF
Fringed quickweed	*Galinsoga quadriradiata Ruiz & Pavon*	Asteraceae	Ubiquitous	TAF
Fringeleaf ruellia	*Ruellia humilis Nutt.*	Acanthaceae	Ubiquitous	MF
Frog orchid	*Habenaria viridis (L.) Br. var. bracteata (Muhl.) A. Gray*	Orchidaceae	Ubiquitous	AWF
Frost grape	*Vitis vulpina L.*	Vitaceae	Ubiquitous	V
Garden asparagus	*Asparagus officinalis L.**	Liliaceae	Ubiquitous	FTSS
Garlic mustard*, **	*Alliaria petiolata*	Brassicaceae		
Giant chickweed	*Stellaria aquatica (L.) Scop.*	Caryophyllaceae	Ubiquitous	MF
Giant foxtail	*Setaria faberi Herrm.*	Poaceae	Ubiquitous	TAG
Golden alexander	*Zizia aurea (L.) W.Do J. Koch.*	Apiaceae	Ubiquitous	MF
Golden coreopsis	*Coreopsis tinctoria Nutt.*	Asteraceae	Ubiquitous	TAF
Golden dock	*Rumex maritimus L.*	Polygonaceae	Ubiquitous	SAF
Gooseberry	*Ribes hirtellum Michx.*	Saxifragaceae	Ubiquitous	WS
Goosefoot	*Chenopodium album L.**	Chenopodiaceae	Ubiquitous	TAF
Grape fern	*Botrychium dissectum Sprengel var. obliquum Clute*	Ophioglossaceae	Ubiquitous	AWF

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Grape woodvine	*Parthenocissus vitacea (Knerr.) A. Hitchc.*	Vitaceae	Ubiquitous	V
Grass of parnassus	*Parnassia glauca Raf.*	Saxifragaceae	Northern	MF
Grass-leaved arrowhead	*Sagittaria graminea Michx.*	Alismataceae	Ubiquitous	EP
Grass-leaved golden aster	*Chrysopsis graminifolia (Michx.) Elliot var. latifolia Fern.*	Asteraceae	Ubiquitous	MF
Grass-leaved water plantain	*Alisma gramineum Lej.*	Alismataceae	Northern	EP
Gray sedge	*Carex amphibola Steud. var. turgida Fern.*	Cyperaceae	Ubiquitous	WG
Graybark grape	*Vitis cinerea Engelm.*	Vitaceae	Ubiquitous	V
Gray-headed coneflower	*Ratibida pinnata (Vent.) Barnh.*	Asteraceae	Ubiquitous	MF
Gray's sedge	*Carex grayi Carey.*	Cyperaceae	Ubiquitous	WG
Great lobelia	*Lobelia siphilitica L.*	Campanulaceae	Ubiquitous	MF
Great ragweed	*Ambrosia trifida L.*	Asteraceae	Ubiquitous	TAF
Great St. John's-wort	*Hypericum pyramidatum Ait.*	Clusiaceae	Ubiquitous	MF
Greater duckweed	*Spirodela polyrhiza (L.) Schleiden*	Lemnaceae	Ubiquitous	FA
Green amaranth	*Amaranthus hybridus L.*	Amaranthaceae	Ubiquitous	TAF
Green ash	*Fraxinus pennsylvanica Marsh.*	Oleaceae	Ubiquitous	FTPT
Green dragon	*Arisaema dracontium (L.) Schott.*	Araceae	Ubiquitous	FTSS
Green foxtail	*Setaria viridis (L.) Beauv.*	Poaceae	Ubiquitous	TAG
Green muhly	*Muhlenbergia racemosa (Michx.) BSP*	Poaceae	Ubiquitous	MG
Ground ivy	*Glechoma hederacea L.*	Lamiaceae	Ubiquitous	MF
Ground nut	*Apios americana Medic.*	Fabaceae	Ubiquitous	FTSS
Hackberry	*Celtis occidentalis L.*	Ulmaceae	Ubiquitous	SFT'
Hairy spurge	*Euphorbia vermiculata Raf.*	Euphorbiaceae	Ubiquitous	TAF
Hardstem bulrush	*Scirpus acutus Muhl.*	Cyperaceae	Ubiquitous	EP
Hart Wright's sedge	*Carex hyalinolepis Steud.*	Cyperaceae	Southern	MG
Hayden's sedge	*Carex haydenii Dew.*	Cyperaceae	Ubiquitous	MG
Hazelnut	*Corylus americana Walter.*	Betulaceae	Ubiquitous	WS
Hedge hyssop	*Gratiola neglecta Torr.*	Scrophulariaceae	Ubiquitous	SAF
Hedge nettle	*Stachys tenuifolia Willd.*	Lamiaceae	Ubiquitous	AWF
Hog peanut	*Amphicarpa bracteata (L.) Fern.*	Fabaceae	Ubiquitous	FTSS
Honewort	*Cryptotaenia canadensis (L.) DC.*	Apiaceae	Ubiquitous	AWF
Honey locust	*Gleditsia triacanthos L.*	Caesalpiniaceae	Ubiquitous	SFT
Honeysuckle	*Lonicera x bella Zabel.**	Caprifoliaceae	Ubiquitous	WS

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Honeysuckles, Bush	*Lonicera tartarica. and others**	Caprifoliaceae	Ubiquitous	WS
Hop sedge	*Carex lupulina Willd.*	Cyperaceae	Ubiquitous	MG
Hops	*Humulus lupulus L.*	Cannabaceae	Ubiquitous	V
Horned pondweed	*Zannichellia palustris L.*	Zannichelliaceae	Ubiquitous	RSA
Horse-gentian	*Triosteum perfoliatum L.*	Caprifoliaceae	Ubiquitous	AWF
Horsenettle	*Solanum caroliniense L.*	Solanaceae	Ubiquitous	MF
Horseweed	*Conyza canadensis (L.) Cronq.*	Asteraceae	Ubiquitous	TAF
Illinois pondweed	*Potamogeton illinoensis Morong*	Potamogetonaceae	Ubiquitous	RSA
Indian grass	*Sorghastrum nutans (L.) Nash*	Poaceae	Ubiquitous	MG
Indian hemp	*Apocynum cannabinum L.*	Araliaceae	Ubiquitous	FTSS
Indian plantain	*Cacalia suaveolens L.*	Asteraceae	Ubiquitous	MF
Interrupted fern	*Osmunda claytoniana L.*	Osmundaceae	Ubiquitous	MF
Joe-pye-weed	*Eupatorium maculatum L.*	Asteraceae	Ubiquitous	MF
Joint rush	*Juncus nodosus L.*	Juncaceae	Ubiquitous	MG
Jumpseed	*Polygonum virginianum L.*	Polygonaceae	Ubiquitous	AWF
Kentucky bluegrass	*Poa pratensis L.*	Poaceae	Ubiquitous	MG
Kentucky coffee tree	*Gymnocladus dioica (L.) K. Koch*	Fabaceae	Ubiquitous	BHT
Knotty-leaved rush	*Juncus acuminatus Michx.*	Juncaceae	Ubiquitous	MG
Lady's thumb	*Polygonum persicaria L.*	Polygonaceae	Ubiquitous	SAF
Lake sedge	*Carex lacustris Willd.*	Cyperaceae	Ubiquitous	MG
Lance-leaved loosestrife	*Lysimachia lanceolata Walt.*	Primulaceae	Ubiquitous	MF
Large purple agalinis	*Agalinis purpurea (L.) Penn.*	Scrophulariaceae	Ubiquitous	MF
Late boneset	*Eupatorium serotinum Michx.*	Asteraceae	Ubiquitous	AWF
Leafy pondweed	*Potamogeton foliosus Raf.*	Potamogetonaceae	Ubiquitous	RS
Leafy spurge*,**	*Euphorbia esula*	Euphorbiaceae		
Lesser duckweed	*Lemna minor L.*	Lemnaceae	Ubiquitous	FA
Lizard's tail	*Saururus cernuus L.*	Saururaceae	Ubiquitous	SAF
Long-bracted tickseed	*Bidens polylepis S.F. Blake*	Asteraceae	Ubiquitous	SAF
Long-leaved ground cherry	*Physalis longifolia Nutt.*	Solanaceae	Ubiquitous	MF
Long-leaved pondweed	*Potamogeton nodosus Poir.*	Potamogetonaceae	Ubiquitous	RSA
Low cudweed	*Gnaphalium uliginosum L.*	Asteraceae	Ubiquitous	SAF
Low cyperus	*Cyperus diandrus Torr.*	Cyperaceae	Ubiquitous	SAG
Mad-dog skullcap	*Scutellaria lateriflora L.*	Lamiaceae	Ubiquitous	MF
Marsh cress	*Rorripa palustris (L.) Bess.*	Brassicaceae	Ubiquitous	SAF
Marsh elder	*Iva annua l.*	Asteraceae	Ubiquitous	TA

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Marsh fern	*Thelypteris palustris Schott.*	Polypodiaceae	Ubiquitous	MF
Marsh foxtail	*Alopecurus geniculatus L.*	Poaceae	Ubiquitous	MG
Marsh marigold	*Caltha palustris L.*	Ranunculaceae	Ubiquitous	MF
Marsh pea	*Lathyrus palustris L.*	Fabaceae	Ubiquitous	MF
Marsh speedwell	*Veronica scutellata L.*	Asteraceae	Ubiquitous	MF
Marsh spikerush	*Eleocharis palustris (L.) Roem. & Schultes*	Cyperaceae	Ubiquitous	MG
May apple	*Podophyllum peltatum L.*	Berberidaceae	Ubiquitous	SE
Meadow sedge	*Carex granularis Muhl. ex Willd.*	Cyperaceae	Ubiquitous	MG
Mermaid-weed	*Proserpinaca palustris L.*	Haloragaceae	Ubiquitous	RSA
Michigan lily	*Lilium michiganense Farw.*	Liliaceae	Ubiquitous	MF
Milfoil	*Myriophyllum heterophyllum Michx.*	Haloragaceae	Ubiquitous	RSA
Milfoil	*Myriophyllum pinnatum (Walt.) BSP.*	Haloragaceae	Ubiquitous	RSA
Mississippi arrowhead	*Sagittaria calycina Engelm.*	Alismataceae	Ubiquitous	EA
Mississippi Valley loosestrife	*Lysimachia hybrida Michx.*	Primulaceae	Ubiquitous	MF
Missouri gooseberry	*Ribes missouriense Nutt.*	Saxifragaceae	Ubiquitous	WS
Missouri ironweed	*Vernonia missurica Rat:*	Asteraceae	Southern	MF
Missouri violet	*Viola sororia Willd.*	Violaceae	Ubiquitous	MF
Mist flower	*Eupatorium coelestinum L.*	Asteraceae	Ubiquitous	AWF
Mockernut hickory	*Carya tomentosa Nutt.*	Juglandaceae	Ubiquitous	BHT
Moneywort	*Lysimachia nummularia L.**	Primulaceae	Ubiquitous	AWF
Moonseed	*Menispermum canadense L.*	Menisperimaceae	Ubiquitous	V
Mosquito fern	*Azolla mexicana Presl*	Salviniaceae	Ubiquitous	FTSS
Motherwort	*Leonurus cardiaca L.**	Lamiaceae	Ubiquitous	MF
Motherwort	*Leonurus marrubiastrum L.**	Lamiaceae	Ubiquitous	TAF
Mud plantain	*Heterantheria limosa (Sw,) Willd.*	Pontederiaceae	Ubiquitous	MF
Muskingum sedge	*Carex muskingumensis Schwein.*	Cyperaceae	Ubiquitous	MG
Nannyberry	*Viburnum lentago L.*	Caprifoliaceae	Ubiquitous	WS
Narrow-leaved cattail	*Typha angustifolia L.*	Typhaceae	Ubiquitous	EP
Necklace sedge	*Carex projecta Mack.*	Cyperaceae	Ubiquitous	MG
Needle spikerush	*Eleocharis acicularis (L.) Roem. & Schultes*	Cyperaceae	Ubiquitous	MG
Nimbleweed	*Muhlenbergia schreberi J.F. Gemelin*	Poaceae	Ubiquitous	MG
Nodding bulrush	*Scirpus pendulus Muhl.*	Cyperaceae	Ubiquitous	MG
Nodding smartweed	*Polygonum lapathifolium L.*	Polygonaceae	Ubiquitous	SAF
Nodding trillium	*Trillium cernuum L.*	Liliaceae	Northern	SE

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Northern arrowhead	*Sagittaria cuneata Sheldon*	Alismataceae	Ubiquitous	EP
Northern bugleweed	*Lycopus uniflorus Michx.*	Lamiaceae	Ubiquitous	MF
Northern catalpa	*Catalpa speciosa Warder**	Bignoniaceae	Ubiquitous	BHT
Northern dewberry	*Rubus flagellaris L.*	Rosaceae	Ubiquitous	WS
Northern manna grass	*Glyceria borealis Nash.*	Poaceae	Ubiquitous	MG
Northern St. John's-wort	*Hypericum boreale (Britt.) Bick.*	Clusiaceae	Ubiquitous	MF
Northern swamp dogwood	*Cornus racemosa Lam.*	Cornaceae	Ubiquitous	FTSS
Northern three-lobed bedstraw	*Galium trifidum L.*	Rubiaceae	Ubiquitous	MF
Northern water nymph	*Najas flexilis (Willd.) Rostk. & Schmidt*	Najadaceae	Northern	RSA
Northern water plantain	*Alisma triviale Pursh*	Alismataceae	Ubiquitous	EP
Nutsedge	*Cyperus esculentus L.**	Cyperaceae	Ubiquitous	MG
Old witch grass	*Panicum capillare L.*	Poaceae	Ubiquitous	TAG
Olney-three square	*Scirpus americanus Pers.*	Cyperaceae	Ubiquitous	MG
Ostrich fern	*Matteuccia struthiopteris (L.) Todaro*	Polypodiaceae	Ubiquitous	AWF
Pale dock	*Rumex altissimus Wood.*	Polygonaceae	Ubiquitous	MF
Pale dogwood	*Cornus amomum Mill.*	Cornaceae	Ubiquitous	FTSS
Pale touch-me-not	*Impatiens pallida Nutt.*	Balsaminaceae	Ubiquitous	TAF
Pale-spike lobelia	*Lobelia spicata Lam.*	Campanulaceae	Ubiquitous	MF
Partridge pea	*Chamaecrista fasciculata Michx.*	Fabaceae	Ubiquitous	TAF
Path rush	*Juncus tenuis Willd. var. dudleyi (Wieg.)*	Juncaceae	Ubiquitous	MG
Peach-leaved willow	*Salix amygdaloides Anderss.*	Salicaceae	Ubiquitous	FTPT
Pecan	*Carya illinoensis (Wang.) K. Koch*	Juglandaceae	Ubiquitous	BHT
Persimmon	*Diospyros virginiana L.*	Ebenaceae	Ubiquitous	FIPT
Pickerelweed	*Pontederia cordata L.*	Pontederiaceae	Ubiquitous	EP
Pin oak	*Quercus palustris Muench.*	Fagaceae	Ubiquitous	BHT
Pinkweed	*Polygonum pensylvanicum L.*	Polygonaceae	Ubiquitous	SAF
Plains yellow primrose	*Calylophus serrulatus (Nutt.) Raven*	Onagraceae	Ubiquitous	MF
Pointed broom sedge	*Carex scoparia Schkuhr ex Willd.*	Cyperaceae	Ubiquitous	MG
Pokeweed	*Phytolacca americana L.*	Phtolaccaceae	Ubiquitous	MF
Possum haw	*Ilex decidua Walt.*	Aquilfoliaceae	Ubiquitous	FTSS
Prairie blue-eyed grass	*Sisyrinchium campestre E. Bickn.*	Iridaceae	Ubiquitous	MF
Prairie cord grass	*Spartina pectinata Link.*	Poaceae	Ubiquitous	MG
Prairie fringed orchid	*Habenaria leucophaea mutt.) A. Gray*	Orchidaceae	Ubiquitous	MF

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Prairie milkweed	*Asclepias hirtella (Pennell) Woodson*	Asclepiadaceae	Ubiquitous	FTSS
Prairie rose	*Rosa setigera Michx.*	Rosaceae	Ubiquitous	WS
Prairie three-awn	*Aristida oligantha Michx.*	Poaceae	Ubiquitous	FTSS
Prairietick-trefoil	*Desmanthus illinoensis (Michx.) MacM.*	Mimosaceae	Ubiquitous	MF
Prickly ash	*Xanthoxylum americanum Mill.*	Rutaceae	Ubiquitous	WS
Prickly cucumber	*Echinocystis lobata (Michx.) T. & G.*	Curcurbitaceae	Ubiquitous	V
Prickly sida	*Sida spinosa L.*	Malvaceae	Ubiquitous	TAF
Purple fringed orchid	*Habenaria psycodes (L.) Sprengel.*	Orchidaceae	Ubiquitous	MF
Purple giant hyssop	*Agastache scrophulariaefolia (Willd.) Kuntze*	Lamiaceae	Ubiquitous	AWF
Purple joe-pye-weed	*Eupatorium purpureum L.*	Asteraceae	Ubiquitous	MF
Purple loosestrife	*Lythrum salicaria L.**	Lythraceae	Ubiquitous	MF
Purple lovegrass	*Eragrostis spectabilis (Pursh) Seud.*	Poaceae	Ubiquitous	MG
Purple milkweed	*Asclepias purpurascens L.*	Asclepiadaceae	Ubiquitous	FTSS
Purple-stem beggarticks	*Bidens connata Muhl. Willd.*	Asteraceae	Ubiquitous	SAF
Purslane-speedwell	*Veronica peregrina L.*	Scrophulariaceae	Ubiquitous	TAF
Quillwort	*Isoetes melanpoda Gay and Dur.*	Isoetaceae	Northern	RSA
Rattlesnake fern	*Botrychium virginianum (L.) Sw.*	Ophioglossaceae	Ubiquitous	AWF
Raven's foot sedge	*Carex crus-corvi Shuttlew Kunze.*	Cyperaceae	Ubiquitous	MG
Red baneberry	*Actaea rubra (Aiton) Willd.*	Ranunculaceae	Ubiquitous	AWF
Red cedar	*Juniperus virginiana L.*	Cuppressaceae	Ubiquitous	FIPT
Red elm	*Ulmus rubra Muhl.*	Ulmaceae	Ubiquitous	SFT
Red grape	*Vitis palmata Vahl.*	Vitaceae	Ubiquitous	V
Red maple	*Acer rubrum L.*	Aceraceae	Ubiquitous	SFT
Red mulberry	*Morus rubra L.*	Moraceae	Ubiquitous	FTSS
Red oak	*Quercus rubra L.*	Fagaceae	Ubiquitous	BHT
Red raspberry	*Rubus strigosus Michx.*	Rosaceae	Ubiquitous	WS
Red sprangletop	*Leptochloa filiformis P. (Lam.) Beauv.*	Poaceae	Ubiquitous	MG
Red top	*Agrostis gigantea Roth.*	Poaceae	Ubiquitous	MG
Redbud	*Cercis canadensis L.*	Fabaceae	Ubiquitous	BHT
Red-head pondweed	*Potamogeton richardsonii (Benn.) Rydb.*	Potamogetonaceae	Ubiquitous	RSA
Red-osier dogwood	*Cornus stolonifera Michx.*	Cornaceae	Ubiquitous	FTSS
Red-rooted sedge	*Cyperus erythrorhizos Muhl.*	Cyperaceae	Ubiquitous	SAG
Red-stemmed plantain	*Plantago rugelii Dene.*	Plantaginaceae	Ubiquitous	MF

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Red-top panicum	*Panicum rigidulum Bosc.*	Poaceae	Ubiquitous	MG
Reed canary grass	*Phalaris arundinacea L.**	Poaceae	Ubiquitous	MG
Reed meadow grass	*Glyceria grandis S. Wats.*	Poaceae	Ubiquitous	MG
Retrorse sedge	*Carex retrorsa Schwein.*	Cyperaceae	Northern	MG
Ribbon-flowered pondweed	*Potamogeton epihydrus Raf.*	Potamogetonaceae	Ubiquitous	RSA
Rice cutgrass	*Leersia oryzoides (L.) Sw.*	Poaceae	Ubiquitous	MG
River birch	*Betula nigra L.*	Betulaceae	Ubiquitous	FTSS
River bulrush	*Scirpus fluviatilis Torr. & Gray*	Cyperaceae	Ubiquitous	EP
Riverbank grape	*Vitis riparia Michx.*	Vitaceae	Ubiquitous	V
Robin's plantain	*Erigeron pulchellus Michx.*	Asteraceae	Ubiquitous	AWF
Rope dodder	*Cuscuta glomerata Choisy.*	Cuscutaceae	Ubiquitous	PP
Rose turtlehead	*Chelone obliqua L.*	Scrophulariaceae	Ubiquitous	AWF
Rough avens	*Geum laciniatum Murr.*	Rosaceae	Ubiquitous	MF
Rough fleabane	*Erigeron strigosus Muhl.*	Asteraceae	Ubiquitous	TAF
Rough-leaved dogwood	*Cornus drummondii Meyer*	Cornaceae	Ubiquitous	FTSS
Roundfruit St. John's wort	*Hypericum sphaerocarpum Michx.*	Clusiaceae	Ubiquitous	MF
Round-leaved dogwood	*Cornus rugosa Lam.*	Cornaceae	Ubiquitous	WS
Round-leaved spurge	*Euphorbia serpens HBK.*	Euphorbiaceae	Ubiquitous	SAF
Royal fern	*Osmunda regalis L.*	Osmundaceae	Ubiquitous	MF
Sago pondweed	*Potamogeton pectinatus L.*	Potamogetonaceae	Ubiquitous	RSA
Sallow sedge	*Carex lurida Wahl.*	Cyperaceae	Ubiquitous	MG
Sand bur	*Cenchrus longispinus (Hack.) Fern.*	Poaceae	Ubiquitous	TAG
Sand Post Oak	*Quercus stellata Wang.*	Fagaceae	Ubiquitous	BHT
Sandbar lovegrass	*Eragrostis frankii C.A. Mey*	Poaceae	Ubiquitous	SAG
Sandbar willow	*Salix interior Rowlee*	Salicaceae	Ubiquitous	FTPS
Sandvine	*Ampelopsis cordata Michx.*	Asclepiadaceae	Ubiquitous	FTSS
Sassafras	*Sassafras albidum (Nutt.) Nees.*	Lauraceae	Ubiquitous	WS
Satin grass	*Muhlenbergia frondosa (Poir.) Fernald*	Poaceae	Ubiquitous	MG
Sawtooth sunflower	*Helianthus grosseserratus Martens*	Asteraceae	Ubiquitous	MF
Scouring rush	*Equisetum hyemale L. var. affine (Engelm.)*	Equisataceae	Ubiquitous	MF
Sedge	*Carex brunnescens (Pers.) Poir.*	Cyperaceae	Ubiquitous	MG
Sedge	*Carex comosa f. boott.*	Cyperaceae	Ubiquitous	MG
Sedge	*Carex echinata Murray*	Cyperaceae	Ubiquitous	MG

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Sedge	*Carex laeviconica Dewey.*	Cyperaceae	Ubiquitous	MG
Sedge	*Carex normalis Mackenz.*	Cyperaceae	Ubiquitous	MG
Sedge	*Carex rosea Schk.*	Cyperaceae	Ubiquitous	WG
Sedge	*Carex stipata Muhl.*	Cyperaceae	Ubiquitous	MG
Sedge	*Carex trichocarpa Muhl.*	Cyperaceae	Ubiquitous	MG
Seedbox	*Ludwigia alternifolia L.*	Onagraceae	Ubiquitous	MF
Self heal	*Prunella vulgaris L.*	Lamiaceae	Ubiquitous	MF
Sensitive fern	*Onoclea sensibilis L.*	Polypodiaceae	Ubiquitous	MF
Sessile-flowered cress	*Rorripa sessiliflora (Nutt.) Hitchc.*	Brassicaceae	Ubiquitous	SAF
Sessile-fruited arrowhead	*Sagittaria rigida Pursh*	Alismataceae	Ubiquitous	EP
Shagbark hickory	*Carya ovata (Mill.) K. Koch.*	Juglandaceae	Ubiquitous	BHT
Sharp-lobed lobelia	*Hepatica acutiloba DC.*	Ranunculaceae	Ubiquitous	SE
Sharp-winged monkey flower	*Mimulus alatus Ait.*	Scrophulariaceae	Ubiquitous	AWF
Sheep sorrel	*Rumex acetosella L.**	Polygonaceae	Ubiquitous	MF
Shellbark hickory	*Carya laciniosa (Michx.) Loud.*	Juglandaceae	Ubiquitous	BHT
Shepherd's purse	*Capsella bursa-pastoris (L.) Medic.*	Brassicaceae	Ubiquitous	TAF
Shingle oak	*Quercus imbricaria Michx.*	Fagaceae	Ubiquitous	BHT
Shooting star	*Dodecatheon meadia L.*	Primulaceae	Ubiquitous	MF
Short-beaked arrowhead	*Sagittaria brevirostra Mack. & Bush*	Alismataceae	Ubiquitous	EP
Short's sedge	*Carex shortinana Dew.*	Cyperaceae	Ubiquitous	MG
Showy lady's slipper	*Cypripedium reginae Walter*	Orchidaceae	Ubiquitous	MF
Showy milkweed	*Asclepias speciosa Torr.*	Asclepiadaceae	Ubiquitous	FTSS
Shrubby St. John's-wort	*Hypericum prolificum L.*	Clusiaceae	Ubiquitous	MF
Shumard oak	*Quercus shumardii Buckl.*	Fagaceae	Ubiquitous	BHT
Siberian elm	*Ulmus pumila L.**	Ulmaceae	Ubiquitous	SFT
Silver maple	*Acer saccharinum L.*	Aceraceae	Ubiquitous	FTPT
Skunk cabbage	*Symplocarpus foetidus (L.) Nutt.*	Araceae	Northern	SE
Slender bulrush	*Scirpus heterochaetus Chase*	Cyperaceae	Ubiquitous	EP
Slender pondweed	*Potamogeton pusillus L.*	Potamogetonaceae	Ubiquitous	RSA
Slender sedge	*Carex tenera Dewey*	Cyperaceae	Ubiquitous	MG
Small lovegrass	*Eragrostis pectinacea (Michx.) Ness.*	Poaceae	Ubiquitous	SAG
Small-headed aster	*Aster racemosus Elliott.*	Asteraceae	Ubiquitous	FTSS
Smartweed-dodder	*Cuscuta polygonorum Engelm.*	Cuscutaceae	Ubiquitous	PP
Smooth rosemallow	*Hibiscus laevis All.*	Malvaceae	Ubiquitous	MF
Smooth scouring rush	*Equisetum laevigatum A.Br.*	Equisataceae	Ubiquitous	MF

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Snailseed pondweed	*Potamogeton diversifolius L.*	Potamogetonaceae	Ubiquitous	RSA
Sneezeweed	*Helenium autumnale L.*	Asteraceae	Ubiquitous	MF
Soft fox sedge	*Carex conjuncta E. Boott.*	Cyperaceae	Ubiquitous	WG
Soft rush	*Juncus effusus L.*	Juncaceae	Northern	MG
Softstem bulrush	*Scirpus validus Vahl.*	Cyperaceae	Ubiquitous	EP
Southern agrimony	*Agrimonia parviflora Ait.*	Rosaceae	Ubiquitous	AWF
Southern water nymph	*Najas guadalupensis (Spreng.) Morong*	Najadaceae	Ubiquitous	RSA
Southern water plantain	*Alisma subcordatum Raf.*	Alismataceae	Ubiquitous	EP
Spanish needles	*Bidens bipinnata L.*	Asteraceae	Ubiquitous	FTSS
Spatter dock	*Nuphar advena Aiton*	Nymphaceae	Ubiquitous	FP
Spectacle-weed	*Triodanis perfoliata (L.) Nieuwl.*	Campanulaceae	Ubiquitous	MF
Spiderwort	*Tradescantia virginiana L.*	Commelinaceae	Ubiquitous	MF
Spikenard	*Aralia racemosa L.*	Araliaceae	Ubiquitous	FTSS
Spikerush	*Eleocharis ovata (Roth) R. & S.*	Cyperaceae	Ubiquitous	SAG
Spiny pigweed	*Amaranthus spinosus L.*	Amaranthaceae	Ubiquitous	TAF
Spotted cowbane	*Cicuta maculata L.*	Apiaceae	Ubiquitous	EP
Spotted knapweed*,**	*Centaurea maculosa*	Asteraceae		
Spotted pondweed	*Potamogeton pulcher Tuckerm.*	Potamogetonaceae	Ubiquitous	RSA
Spotted spurge	*Euphorbia maculata L.*	Euphorbiaceae	Ubiquitous	TAF
Spotted St. John's-wort	*Hypericum punctatum L.*	Clusiaceae	Ubiquitous	MF
Spotted touch-me -not	*Impatiens capensis Meerb.*	Balsaminaceae	Ubiquitous	TAF
Spreading chervil	*Chaerophyllum procumbens (L.) Crantz*	Apiaceae	Ubiquitous	TAF
Spring-cleavers	*Galium aparine L.*	Rubiaceae	Ubiquitous	TAF
Spurge	*Euphorbia humistrata (Engelm.)*	Euphorbiaceae	Ubiquitous	MF
Square-stemmed monkey flower	*Mimulus ringens L.*	Scrophulariaceae	Ubiquitous	MF
Square-stemmed spikerush	*Eleocharis quadrangulata (Michx.) Roem. & Schultes*	Cyperaceae	Ubiquitous	EP
Squarrose sedge	*Carex squarrosa L.*	Cyperaceae	Ubiquitous	WG
Stalked water horehound	*Lycopus rubellus Moench*	Lamiaceae	Ubiquitous	MF
Star duckweed	*Lemna trisulca L.*	Lemnaceae	Ubiquitous	FA
Stickseed	*Hackelia virginiana (L.) Johnston.*	Boraginaceae	Ubiquitous	TAF
Stick-tight	*Bidens cernua L.*	Asteraceae	Ubiquitous	FTSS
Stinging nettle	*Urtica dioica L.**	Urticaceae	Ubiquitous	MF
Straight-leaved pondweed	*Potamogeton strictifolius Benn.*	Potamogetonaceae	Northern	RSA

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Strawberry weed	*Potentilla norvegica L.*	Rosaceae	Ubiquitous	TAF
Straw-colored cyperus	*Cyperus strigosus L.*	Cyperaceae	Ubiquitous	SAG
Straw-stem beggarstick	*Bidens comosa (Gray) Wiegand.*	Asteraceae	Ubiquitous	TAF
Sugar maple	*Acer saccharum Marsh.*	Aceraceae	Ubiquitous	BHT
Sugarberry	*Celtis laevigata Willd.*	Ulmaceae	Ubiquitous	SFT
Sulfur cinquefoil	*Potentilla recta L.**	Rosaceae	Ubiquitous	MF
Summer grape	*Vitis aestivalis var. argentinfolia*	Vitaceae	Ubiquitous	V
Swamp barnyard grass	*Echinochloa walteri (Pursh) Heller*	Poaceae	Ubiquitous	SAG
Swamp buttercup	*Ranunculus hispidus Michx.*	Ranunculaceae	Ubiquitous	MF
Swamp candles	*Lysimachia terrestris (L.) BSP.*	Primulaceae	Ubiquitous	MF
Swamp dock	*Rumex verticillatus L.*	Polygonaceae	Ubiquitous	MF
Swamp loosestrife	*Lysimachia thyrsiflora L.*	Primulaceae	Ubiquitous	MF
Swamp milkweed	*Asclepias incarnata L.*	Asclepiadaceae	Ubiquitous	FTSS
Swamp privet	*Forestiera acuminata (Michx.) Poiret.*	Oleaceae	Ubiquitous	FTSS
Swamp rosemallow	*Hibiscus muscheutos L.*	Malvaceae	Ubiquitous	MF
Swamp saxifrage	*Saxifraga pensylvanica L.*	Saxifragaceae	Ubiquitous	MF
Swamp white oak	*Quercus bicolor Willd.*	Fagaceae	Ubiquitous	BHT
Sweet flag	*Acorus calamus L.*	Araceae	Ubiquitous	EP
Sweet gum	*Liquidambar styraciflua L.*	Hamamelidaceae	Southern	BHT
Sweet ox-eye	*Heliopsis helianthoides (L.) Sweet.*	Asteraceae	Ubiquitous	MF
Switchgrass	*Panicum virgatum L.*	Poaceae	Ubiquitous	MG
Sycamore	*Platanus occidentalis L.*	Plantanaceae	Ubiquitous	SFT
Tall beggars tick	*Bidens vulgata Greene.*	Asteraceae	Ubiquitous	SAF
Tall bellflower	*Campanula americana L.*	Campanulaceae	Ubiquitous	AWF
Tall dropseed	*Sporobolus asper (Michx.) Kunth.*	Poaceae	Ubiquitous	MG
Tall ironweed	*Vernonia gigantea (Walter) Trel.*	Asteraceae	Southern	MF
Tall meadow rue	*Thalictrum dasycarpum Fisch. and Lall.*	Ranunculaceae	Ubiquitous	MF
Tall white aster	*Aster lanceolatus Willd.*	Asteraceae	Ubiquitous	FTSS
Taper-leaf sedge	*Cyperus acuminatus Torr. & Hook*	Cyperaceae	Ubiquitous	SAG
Three-lobed coneflower	*Rudbeckia triloba L.*	Asteraceae	Ubiquitous	AWF
Three-seeded mercury	*Acalypha rhomboidea Raf.*	Euphorbiaceae	Ubiquitous	TAF
Three-way sedge	*Dulichium arundinaceum (L.) Britt.*	Cyperaceae	Ubiquitous	MG
Tomato	*Lycopersicon esculentum Miller*	Solanaceae	Ubiquitous	TAF
Toothcup	*Ammania coccinea Rottb.*	Lythraceae	Ubiquitous	SAF

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Toothed spurge	*Euphorbia dentata Michx.*	Euphorbiaceae	Ubiquitous	TAF
Torrey's rush	*Juncus torreyi Cov.*	Juncaceae	Ubiquitous	MG
Trumpet flower	*Campsis radicans (L.) Seem.**	Bignoniaceae	Ubiquitous	V
Tuckerman's sedge	*Carex tuckermanii F. Boott.*	Cyperaceae	Ubiquitous	MG
Turnsole	*Heliotropium indicum L.**	Boraginaceae	Ubiquitous	TAF
Tussock sedge	*Carex stricta Lam.*	Cyperaceae	Ubiquitous	MG
Two-leaved miterwort	*Mitella diphylla L.*	Saxifragaceae	Ubiquitous	AWF
Upright carrion flower	*Smilax ecirrhata (Engelm.) S. Wats.*	Smilacaceae	Ubiquitous	V
Velvetleaf	*Abutilon theophrasti Medikus.**	Malvaceae	Ubiquitous	TAF
Vernal water starwort	*Callitriche verna L.*	Callitrichaceae	Ubiquitous	RSA
Virginia creeper	*Parthenocissus quinquefolia (L.) Planch*	Vitaceae	Ubiquitous	V
Virginia water leaf	*Hydrophyllum virginianum L.*	Hydrophyllaceae	Ubiquitous	AWF
Virginiana wild rye	*Elymus virginicus L.*	Poaceae	Ubiquitous	MG
Wahoo	*Euonymus atropurpureus Jacq.*	Celastraceae	Ubiquitous	WS
Water celery (Wild celery)	*Vallisneria americana Michx.*	Hydrophyllaceae	Ubiquitous	RSA
Water cress	*Rorripa nasturtium-aquaticum (L.) Hayek**	Brassicaceae	Ubiquitous	SAF
Water dock	*Rumex orbiculatus Gray*	Polygonaceae	Ubiquitous	MF
Water hemlock	*Cicuta bulbifera L.*	Apiaceae	Ubiquitous	EP
Water hemp	*Amaranthus rudis Sauer*	Amaranthaceae	Ubiquitous	TAF
Water hemp	*Amaranthus tuberculatus (Nutt.) Moq.*	Amaranthaceae	Ubiquitous	TAF
Water horehound	*Lycopus virginicus L.*	Lamiaceae	Ubiquitous	MF
Water horsetail	*Equisetum fluviatile L.*	Equisataceae	Northern	MF
Water lily	*Nymphaea adorata Aiton*	Nymphaceae	Ubiquitous	FP
Water lotus	*Nelumbo lutea (Willd.) Pers.*	Nelumbonaceae	Ubiquitous	FP
Water meal	*Wolffia columbiana Karst.*	Lemnaceae	Ubiquitous	FA
Water meal	*Wolffia papulifera Thompson*	Lemnaceae	Ubiquitous	FA
Water meal	*Wolffiella floridana (J.D. Smith) Thompson*	Lemnaceae	Ubiquitous	FA
Water parsnip	*Sium suave Walt.*	Apiaceae	Ubiquitous	EP
Water pepper	*Polygonum hydropiper L.*	Polygonaceae	Ubiquitous	SAF
Water primrose	*Ludwigia polycarpa Short & Peter*	Onagraceae	Ubiquitous	MF
Water smartweed	*Polygonum amphibium L.*	Polygonaceae	Ubiquitous	EP
Water smartweed	*Polygonum aviculare L.*	Polygonaceae	Ubiquitous	TAF

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Water smartweed	*Polygonum punctatum Ell.*	Polygonaceae	Ubiquitous	MF
Water speedwell	*Veronica anagallis-aquatics L.*	Asteraceae	Ubiquitous	MF
Water stargrass	*Zosterella dubia (Jacq.) Small*	Pontederiaceae	Ubiquitous	RSA
Water starwort	*Callitriche heterophylla Pursh.*	Callitrichaceae	Ubiquitous	RSA
Water tupelo	*Nyssa aquatica (L.)*	Cornaceae	Ubiquitous	SF
Water weed	*Elodea nuttallii (Planch.) St. John*	Hydrophyllaceae	Ubiquitous	RSA
Waxy meadow rue	*Thalictrum revolutum DC.*	Ranunculaceae	Ubiquitous	MF
Wedge grass	*Sphenopholis obtusata (Michx.) scribn.*	Poaceae	Ubiquitous	SAG
Western ironweed	*Vernonia baldwini Torr.*	Asteraceae	Southern	MF
Western poison ivy	*Toxicodendron rydbergii (Small ex Rydb.) Greene*	Anacardiaceae	Ubiquitous	V
White avens	*Geum canadense Jacq.*	Rosaceae	Ubiquitous	AWF
White baneberry	*Actaea alba (L.) Miller*	Ranunculaceae	Ubiquitous	AWF
White dog-tooth violet	*Erythronium albidum Nutt.*	Liliaceae	Ubiquitous	SE
White grass	*Leersia virginica Willd.*	Poaceae	Ubiquitous	WG
White morning glory	*Ipomoea lacunosa L.*	Convolvulaceae	Ubiquitous	TAF
White mulberry	*Morus alba L.**	Moraceae	Ubiquitous	WS
White snake root	*Eupatorium rugosum Houttuyn.*	Asteraceae	Ubiquitous	AWF
White turtlehead	*Chelone glabra L.*	Scrophulariaceae	Ubiquitous	AWF
White vervain	*Verbena urticifolia L.*	Verbenaceae	Ubiquitous	MF
White water crowfoot	*Ranunculus longirostris Godr.*	Ranunculaceae	Ubiquitous	RSA
White water crowfoot	*Ranunculus subrigidus W. Drew*	Ranunculaceae	Northern	RSA
White wild indigo	*Baptisia lactea (Raf.) Thieret*	Fabaceae	Ubiquitous	FTSS
Whorled milfoil	*Myriophyllum verticillatum L.*	Halogaraceae	Northern	RSA
Wild black currant	*Ribes americanum Mill.*	Saxifragaceae	Ubiquitous	WS
Wild garlic	*Allium canadense L.*	Liliaceae	Ubiquitous	MF
Wild geranium	*Geranium maculatum L.*	Geraniaceae	Ubiquitous	SE
Wild ginger	*Asarum canadense L.*	Aristolochiaceae	Ubiquitous	FTSS
Wild honeysuckle	*Lonicera dioca L.*	Caprifoliaceae	Ubiquitous	WS
Wild leek	*Allium tricoccum Ait.*	Liliaceae	Ubiquitous	AWF
Wild lily of the valley	*Maianthemum canadense Desf*	Liliaceae	Ubiquitous	AWF
Wild oats	*Chasmanthium latifolium (Michx.) Yates.*	Poaceae	Ubiquitous	WG
Wild Plum	*Prunus americana Marsh.*	Rosaceae	Ubiquitous	FIPT
Wild pumpkin	*Cucurbita foetidissima HBK*	Curcurbitaceae	Ubiquitous	V

Plant Species Found on Upper Mississippi River Refuge (Continued)

Common Name	Scientific Name	Family	Distrib.	Guild
Wild rice	*Zizania palustris L. var. interior Fassett*	Poaceae	Ubiquitous	EA
Wild sasparilla	*Aralia nudicaulis L.*	Araliaceae	Ubiquitous	FTSS
Wild strawberry	*Fragaria virginiana Duchn.*	Rosaceae	Ubiquitous	MF
Wild water pepper	*Polygonum hydropiperoides Michx.*	Polygonaceae	Ubiquitous	MF
Wild yellow lily	*Lilium canadense L.*	Liliaceae	Ubiquitous	MF
Willowleaf lettuce	*Lactuca saligna L.*	Asteraceae	Ubiquitous	TAF
Winged loosestrife	*Lythrum alatum Pursh.*	Lythraceae	Ubiquitous	MF
Winged-stem	*Verbesina alternifolia (L.) Britt.*	Asteraceae	Ubiquitous	AWF
Wire sedge	*Carex lasiocarpa Ehrh.*	Cyperaceae	Ubiquitous	MG
Wood anemone	*Anemone quinquefolia L.*	Ranunculaceae	Ubiquitous	FTSS
Wood betony	*Pedicularis canadensis L.*	Scrophulariaceae	Ubiquitous	MF
Wood nettle	*Laportea canadensis (L.) Wedd.*	Urticaceae	Ubiquitous	AWF
Wood reed grass	*Cinna arundinacea L.*	Poaceae	Ubiquitous	WG
Woodland lettuce	*Lactuca floridana (L.) Gaertner*	Asteraceae	Ubiquitous	AWF
Wood-sorrel	*Oxalis stricta L.*	Oxalaceae	Ubiquitous	MF
Woolly bulrush	*Scirpus cyperinus (L.) Kunth*	Cyperaceae	Ubiquitous	MG
Woolly sedge	*Carex lanuginosa Michx.*	Cyperaceae	Ubiquitous	MG
Wooly panicum	*Panicum lanigunosum Ell.*	Poaceae	Ubiquitous	MG
Woundwort	*Stachys palustris L.*	Lamiaceae	Ubiquitous	MF
Wrinkled goldenrod	*Solidago rugosa Miller*	Asteraceae	Ubiquitous	MF
Yam	*Dioscorea villosa L.*	Dioscoreaeceae	Ubiquitous	V
Yellow foxtail	*Setaria glauca (L.) P. Beauv.*	Poaceae	Ubiquitous	TAG
Yellow star grass	*Hypoxis hirsuta (L.) Cov.*	Liliaceae	Ubiquitous	MF
Yellow water crowfoot	*Ranunculus flabellaris Raf.*	Ranunculaceae	Ubiquitous	RSA
Yellowtop	*Senecio glabellus Poir.*	Asteraceae	Ubiquitous	AWF
Yerba de tajo	*Eclipta prostrata L.*	Asteraceae	Ubiquitous	AWF

Appendix L: Plan Implementation

Appendix L: Plan Implementation

1. Introduction

This appendix summarizes the actions, funding, coordination, and monitoring to implement Alternative E, the preferred alternative, as presented in the Final EIS/CCP. Modifications, if any, will be made based on the Record of Decision of the Regional Director, Region 3, U.S. Fish and Wildlife Service. This appendix will be incorporated as a separate chapter in the Final CCP which emerges from the EIS. As noted in the inside cover to the Final EIS/CCP, these plans do not constitute a commitment for staffing increases, operational and maintenance increases, or funding for future land acquisition. These decisions are at the discretion of Congress in overall appropriations, and in budget allocation decisions made at the Washington and Regional levels of the Service.

2. A Word about Priorities

In the Refuge Improvement Act of 1997, Congress established a three-tiered hierarchy, or three priorities, for refuge management. As a first priority, every refuge is to be managed to fulfill its purposes and the Refuge System mission, namely conservation of fish, wildlife, and plants. Secondly, refuges are to facilitate wildlife-dependent or "Big 6" public uses, namely hunting, fishing, wildlife observation and photography, and interpretation and environmental education. Of lowest priority is managing other uses and activities such as general recreation.

However, setting priorities in a linear or in-order fashion (e.g. implementing from top to bottom on a list of prioritized actions) is generally not realistic when dealing with the complexities and multi-program nature of managing a national wildlife refuge. In practice, especially on this Refuge given its size, length, interface with multiple states and agencies, and visitation levels for both wildlife-dependent and other recreation, a linear approach is not workable. Below are a few of the reasons why some actions identified in this Implementation Plan must be done simultaneously, or why some general recreation actions are done before other resource-related actions.

- Funding streams from Congress may not follow an established hierarchy. For example, there may be no appropriations for land acquisition or habitat restoration in a given year, but Congress may choose to fund visitor services enhancement packages.
- A high priority such as habitat restoration is costly on a major river and dependent on funding from other sources, such as the Environmental Management Program administered by the Corps of Engineers. Thus, habitat restoration may be the highest priority for the Refuge, but if the funding is lacking, it cannot be accomplished.
- The states or Corps of Engineers may have year-to-year priorities which benefit visitors to the Refuge and meets a Refuge objective. An example would be state funding for recreation enhancement such as access development or beach maintenance which must be spent in a given year or lost. In this case it is an urgent need in a fiscal sense, although a lower priority resource-wise.

The public or other units of government may strongly urge actions which may not be high resource priorities, or staff may be confronted with health, safety, or societal needs which must be addressed. Examples include a right-of-way expansion for a utility or highway project, beach maintenance in a certain pool, boat landings and other accesses, and fish float administration.

Many actions are integrated with other actions. For example, Waterfowl Hunting Closed Areas are designed first and foremost to offer waterfowl resting and feeding areas during the fall migration. These areas also impact hunting, the quality of hunting, and can impact the resource if a firing line develops along a closed area boundary and leads to increased crippling loss of waterfowl. It is also important to limit disturbance to waterfowl using the closed areas, which leads to guidelines or regulations for public entry during critical times. Thus, many actions must be done simultaneously to achieve multiple objectives.

Some actions must be sequenced. For example, Objective 3.7 calls for the Refuge to devise a system for dove-tailing Refuge commercial fishing permitting requirements with the existing states' existing permit systems. Doing this before completing a Fishery and Mussel Management Plan (Objective 3.6) would be premature since the plan would set goals and objectives which would be addressed in permit stipulations.

Given the above, the actions listed below are in two categories: those that can be completed with existing funding and staffing, and those that will take additional resources. Target dates for completion give an indication of the priority and are useful for planning workloads in any given year. Many actions are ongoing as noted, and some of these may also be included in a step-down plan (see list, Section 6). If an action has the date of 2021, this means the action will be done no later than 2021, the 15-year planning horizon for the CCP. It is hoped that many of these actions will be completed well ahead of that date. This list is not all inclusive and details in specific objectives, along with all the strategies, will be used as applicable in implementing the CCP.

3. Actions – Existing Funding and Staffing

The following actions are derived from objectives and strategies in the CCP and represent those actions that can be accomplished with existing resources. Some of these actions reflect current, ongoing efforts, but most require a new initiative and/or redirection of existing Refuge funding and staff effort. This list will help focus annual work planning and performance plan preparation during the 15-year life of the plan. Details of these actions are found in Chapter 2 of the Final EIS/CCP.

Goal 1: Landscape

1. Prepare and print a new Land Use Allocation Plan in cooperation with the Corps of Engineers (2021).
2. Continue modest land acquisition program (ongoing).
3. Explore land exchanges with the states (2021).
4. Continue work with the Department of the Army for land transfers at the Lost Mound Unit (Savanna Army Depot) (ongoing).
5. Complete a management plan for each Research Natural Area (2010).
6. Seek cooperative research/monitoring opportunities in Research Natural Areas (ongoing).
7. Conduct yearly boundary reviews of Research Natural Areas (ongoing).
8. Facilitate nomination package for Wetland of International Importance (2008).

Goal 2: Environmental Health

1. Increase assistance agreements with watershed partners (ongoing).
2. Continue interagency efforts on watershed partnerships and pool drawdowns (2021).
3. Increase emphasis on water quality through habitat projects, support of state and federal initiatives, public information efforts, and interpretive and environmental education programs (ongoing).
4. Increase cooperation and public education to address invasive species (ongoing).

Goal 3: Wildlife and Habitat

1. Implement Pool Plans to extent possible working with Corps of Engineers and states using funding sources such as the Environmental Management Program (2021).
2. Adopt and use guiding principles for habitat projects (2006).
3. Amend the Wildlife Inventory Plan (2008).
4. Establish a Refuge Research Team and conduct formal coordination meetings with U.S. Geological Survey (2008).
5. Complete an Invasive Plant Control and Management Plan (new, 2009)
6. Complete a Habitat Management Plan (2021).
7. Complete a management plan for each federally-listed threatened and endangered species on the Refuge (2010).
8. Update the Refuge Trapping Plan (2007).
9. Complete a Fishery and Mussel Management Plan, including aquatic invasive animals (2008).
10. Conduct public information and education effort about turtles on the Refuge (ongoing).
11. Continue to use fire for habitat management – implement the Refuge's Fire Management Plan (ongoing).
12. Conduct more active grassland management; include in Habitat Management Plan (ongoing and 2021).

Goal 4: Wildlife-Dependent Public Use

1. Update the Refuge Hunting Plan (2007)
2. Establish new administrative No Hunting Zones to avoid user conflicts or address safety issues (2007).
3. Modify the Waterfowl Hunting Closed Area System and regulations; post all areas each year (2007, 2009 and ongoing).
4. Monitor waterfowl use and human disturbance in the Waterfowl Hunting Closed Area System (ongoing).
5. Implement waterfowl hunting regulation changes (2007).
6. Complete plan for Gibbs Lake Area, Lake Onalaska, Pool 7 (2006).
7. Phase-out use of permanent waterfowl hunting blinds in Savanna District (2007 to 2009).
8. Modify the Potter's Marsh managed hunt, Savanna District (2006).
9. Eliminate the Blanding Landing managed hunt, Savanna District (Lost Mound) (2007).
10. Conduct public information campaign (media, leaflets, meetings) and increase law enforcement presence for all hunting-and-fishing-related changes (ongoing).

11. In cooperation with states and Corps of Engineers, and others, develop plan for dove-tailing Refuge permitting requirements for fishing tournaments (2008).
12. Write standards for commercial fish float facilities and operations (2006).
13. Implement consistent process for regulating commercial guiding operations (2008).

Goal 5: Other Recreational Use

1. Implement new policies and regulations related to camping and beach-related uses (2007).
2. Implement new beach maintenance policy and complete beach plans in cooperation with Corps of Engineers and the states (2006 and ongoing).
3. Explore user fee system to off-set maintenance and administrative costs of other recreational uses (ongoing).
4. Establish and post Electric Motor Areas and Slow, No Wake Areas (2007 for most, 2008 for Black River Bottoms and 2009 for Nelson-Trevino).
5. Establish new No Wake Zones (2007 to 2021).
6. Implement new regulation dealing with dogs (2007).
7. Annually review and update as needed public use regulations (ongoing).
8. Conduct public information campaign (media, leaflets, meetings) and increase law enforcement presence for all general recreational use changes (2006 and ongoing).

Goal 6: Administration and Operations

1. Review and update databases for operations and maintenance needs (ongoing).

4. Actions – New Funding and Staff

The following actions are derived from objectives and strategies in the CCP and represent those actions that can be accomplished if new funding and/or staffing is allocated to the Refuge. The completion target for these actions is generally 2021 given the unknown nature of funding. Actions in Goals 1 through 3 are the highest priority since they directly support the protection and enhancement of fish and wildlife and their habitat. However, new staff in Goals 4 through 6 also directly support resource-related work. Details of these actions are identified in Chapter 2 of the Final EIS/CCP.

Costs are estimates and will likely be higher or lower based on detailed project planning and timing of implementation. Staff costs reflect 2005 salary and benefit rates at grades normal for the positions described. These needs will be reflected in key Refuge System databases such as the Refuge Operating Needs System, Maintenance Management System, and Service Assessment and Maintenance Management System which provide information used in budget formulation and allocation. The Refuge will also seek other project funding such as cost share agreements with partners, agency grant programs, grants from non-profit groups, and cost-saving or reprogramming measures within existing budget allocations. Implementing Environmental Pool Plans (Goal 3, Action 1) could be partially accomplished through the Corps of Engineers-administered Environmental Management Program and the Navigation and Environmental Sustainability Program (NESP) if authorized and funded by Congress.

Goal 1: Landscape

Action	Short-term or project-specific costs (thousands)	Recurring cost per year (thousands)
1. Re-survey and post Refuge boundary where problems are greatest in cooperation with the Corps of Engineers		$50
2. Acquire an average of 1,000 acres per year within approved Refuge boundary (Land and Water Conservation Fund funding)		$1,500

Goal 2: Environmental Health

Action	Short-term or project-specific costs (thousands)	Recurring cost per year (thousands)
1. Hire private lands biologist or technician for each of the Refuge's four districts to work in watersheds		$ 280
2. Establish Access Trust Fund for recreational access work to facilitate pool drawdowns	$3,000	
3. Hire temporary, seasonal technicians to complete invasive plant inventory	$ 250	
4. Write invasive plant control and management plan	$ 25	
5. Hire fishery biologist to coordinate invasive animal control and management		$100

Goal 3: Wildlife and Habitat

Action	Short-term or project-specific costs (thousands)	Recurring cost per year (thousands)
1. Implement at least 30 percent of Refuge-priority Environmental Pool Plan actions	$150,000	
2. Hire a biologist for Districts without (2) to coordinate wildlife and habitat monitoring and management		$200
3. Monitor all federally-listed threatened and endangered species, assist with state-listed species		$20

Goal 3: Wildlife and Habitat (Continued)

4. Hire permanent, part-time receptionist/permit specialist at each District to handle inquiries and permits related to both fish and wildlife and various commercial uses		$120
5. Develop cooperative agreements with states for sharing commercial fishing permittee and catch information (fishery biologist responsibility, costs already captured)		N/A
6. Initiate 3-5 year turtle ecology study; complete turtle management plan	$100	
7. Complete, with Corps of Engineers, Forest Inventory of the Refuge	$75	
8. Hire Refuge Forester; complete Forest Management Plan		$100
9. Annual maintenance needs for constructed habitat projects through EMP or other sources		$360

Goal 5: Other Recreational Use

Action	Short-term or project-specific costs (thousands)	Recurring cost per year (thousands)
1. Annual funding needs to support signing, posting, leaflets, Leave No Trace program, law enforcement, permit administration, and other aspects of managing recreation on the Refuge.		$100
2. Hire 4 additional full-time law enforcement officers, one for each District, to enforce Refuge recreation and wildlife regulations	$100 (vehicles/ equip)	$300

Goal 6: Administration and Operations

	Short-term or project-specific costs (thousands)	Recurring cost per year (thousands)
1. Construct offices in support of overall Refuge administration, management, and public use (Winona, La Crosse, McGregor, Lost Mound Unit, and Headquarters)	$10,000	$100
2. Construct maintenance shops and equipment storage buildings at all Districts and Lost Mound Unit	$3,500	
3. Hire 3 maintenance staff for stations either without or to increase District capability for habitat and facility work		$150

Goal 6: Administration and Operations (Continued)

	Short-term or project-specific costs (thousands)	Recurring cost per year (thousands)
4. Construct new boat landing and other accesses and parking areas	$500	
5. Hire public information specialist to improve communication with public and media on Refuge programs and services		$100
6. Hire part-time receptionist at Headquarters to handle public inquiries and assist with permit management		$40
7. Hire additional staff (3) for the new Lost Mound Unit (9,715 acres) to support biological, public use, and maintenance needs		$200

5. Funding Summary

New Funding Summary by Major Category to Fully Implement the CCP

	Short-term or project-specific costs	Recurring cost per year
Land Acquisition within approved boundary		$1.5 million
Environmental Pool Plan habitat restoration and enhancement projects in lieu of other funding such as EMP or pending Navigation/Ecosystem initiative	$150.0 million	
Access Trust Fund for pool drawdowns	$ 3.0 million	
Office and maintenance building construction	$ 13.5 million	$ .1 million
General operations and maintenance	$ 1.9 million	$ 2.36 million
Total	$168.4 million	$ 3.96 million

Total funding needs for the 15-year life of the CCP equals the one-time or project-specific costs plus the recurring costs per year times 15 years, or a total of $227.8 million. Of this total, $177 million or 78 percent is directly related to habitat restoration and maintenance and land acquisition.

6. Summary of Step-Down Plans Needed

Below is a list of step-down plans called for in the Final EIS/CCP or required by Service policy. The planned completion date is in parenthesis, as well as a notation as to whether the step-down plan is new or a revision of an existing plan. These Refuge-specific plans provide the details of implementing the respective program or initiative described in broad terms in the objectives and strategies, and in sections 3 and 4 above. These plans will be developed in consultation with other agencies, states, and partners. The public will be given ample opportunity for plan review and

comment. Environmental assessments or other documentation may also be needed to comply with National Environmental Policy Act or other requirements.

- Land Use Allocation Plan (revise, 2021)
- Research Natural Area Management Plan (new, 2010)
- Wildlife Inventory and Monitoring Plan (revise, 2008)
- Habitat Management Plan, including grasslands (new, 2021)
- Invasive Plant Control and Management Plan (new, 2009)
- Threatened, Endangered and Candidate Species (new)
- Fishery and Mussel Management Plan, including invasive aquatic animals (new, 2008)
- Fire Management Plan (revise as needed)
- Forest Management Plan (new, 2010)
- Hunting Plan (revise, 2007)
- Fishing Plan (new, 2008)
- Visitor Services Plan (new, 2008)
- Trapping Plan (revise, 2007)
- Law Enforcement Plan (new, 2006)
- Plans or guidelines for:
  - Gibbs Lake Area, Pool 7 (new, 2006)
  - Commercial fish floats (new, 2006)
  - Fishing tournaments (new, 2008)
  - Beach management with Corps of Engineers and states (new/revised, 2006 and ongoing)
  - Guides and guiding (new, 2008)

7. Near-term Implementation (3 years)

CY 2006 Actions

- Complete and/or plan drawdowns and EMP projects
- Law Enforcement step-down plan
- Gibbs Lake Area Plan
- Begin drafting Trapping Plan
- Public and media outreach on recreation changes
- Publish new regulations for 2007 recreation changes
- Design new signs for closed areas, electric motor areas, slow, no wake areas, etc.
- Write and design new information leaflets
- Design new kiosk maps
- Outreach for Savanna District hunting changes
- Guidelines for fish float operations and maintenance
- Initiate beach planning on select pools with Corps of Engineers and state

CY 2007 Actions

- Complete and/or plan drawdowns and EMP projects
- Implement new guidelines and regulations dealing with closed areas, electric motor areas, slow, no wake areas, beach use, dogs, permanent blinds, etc.
- Begin process for establishing No Wake Zones with local units of government
- Revise Hunting Plan
- Complete Trapping Plan

CY 2008

- # Complete and/or plan drawdowns and EMP projects
- # Complete a Wetland of International Importance designation package (RAMSAR)
- # Revise Wildlife Inventory Plan
- # Establish Refuge Research Team
- # Complete Fishery and Mussel Management Plan
- # Complete Recreational Fishing Plan
- # Complete fishing tournament guidelines
- # Complete commercial guiding guidelines

8. Monitoring and Evaluation

Objectives and strategies implemented will be continually monitored and evaluated during the 15-year life of the plan. The wildlife inventory and monitoring plan update will be critical since fish and wildlife are important barometers of habitat condition and health. Many of the objectives in the plan deal directly with better monitoring and evaluation, and in this regard, adequate staffing and continued partnerships with the Corps of Engineers, states, U.S. Geological Survey, and others will be important. Many actions inherent in the plan are new directions and monitoring will help understand the effects of the actions on habitat, fish and wildlife populations, and public use patterns and levels. There will also be a growing need to understand the impacts of recreation on fish, wildlife, and habitat as use levels increase and means of use change. In addition, the Mississippi River and its watershed will certainly change, and likely in ways unforeseen. Land use changes, invasive species, floods, disease outbreaks, and climate may alter expected outcomes, and monitoring will be critical to detecting and reacting to such change.

9. Plan Review and Revision

As noted above, environmental change and unforeseen effects may call for changes in the plan. The Refuge will practice adaptive management, using monitoring, evaluation, and experimentation to learn and change aspects of the plan as needed. For example, a change in the size and distribution of Waterfowl Hunting Closed Areas is proposed to achieve a better distribution of feeding and resting areas for fall migrants. Weekly aerial surveys in the fall will provide necessary waterfowl use data to gauge effectiveness of the changes, and along with impacts from human disturbance, form the basis for any needed boundary and regulation modifications.

Since the CCP will be a constant reference and guide for Refuge staff, internal review will be continuous. In addition, it is expected that the public and partners will offer continuous feedback. At least every 3 years, representatives of the Corps of Engineers, states, other agencies, and non-profit and citizen groups will be invited to meet and provide more formal input into what is working, what is not, and possible changes the Refuge should consider. Revisions will be undertaken as needed by amendments to the CCP. There will be an opportunity for public review and comment prior to making any substantive changes. A major plan review and re-write will occur after 15 years.

10. Partnerships

Refuge staff works closely with the departments of natural resources of Minnesota, Wisconsin, Iowa, and Illinois in designing and carrying out projects and programs. The Corps of Engineers is a critical partner due to its dominant role in navigation, water level management, forestry, and the planning and construction of environmental restoration projects. Much of the habitat restoration

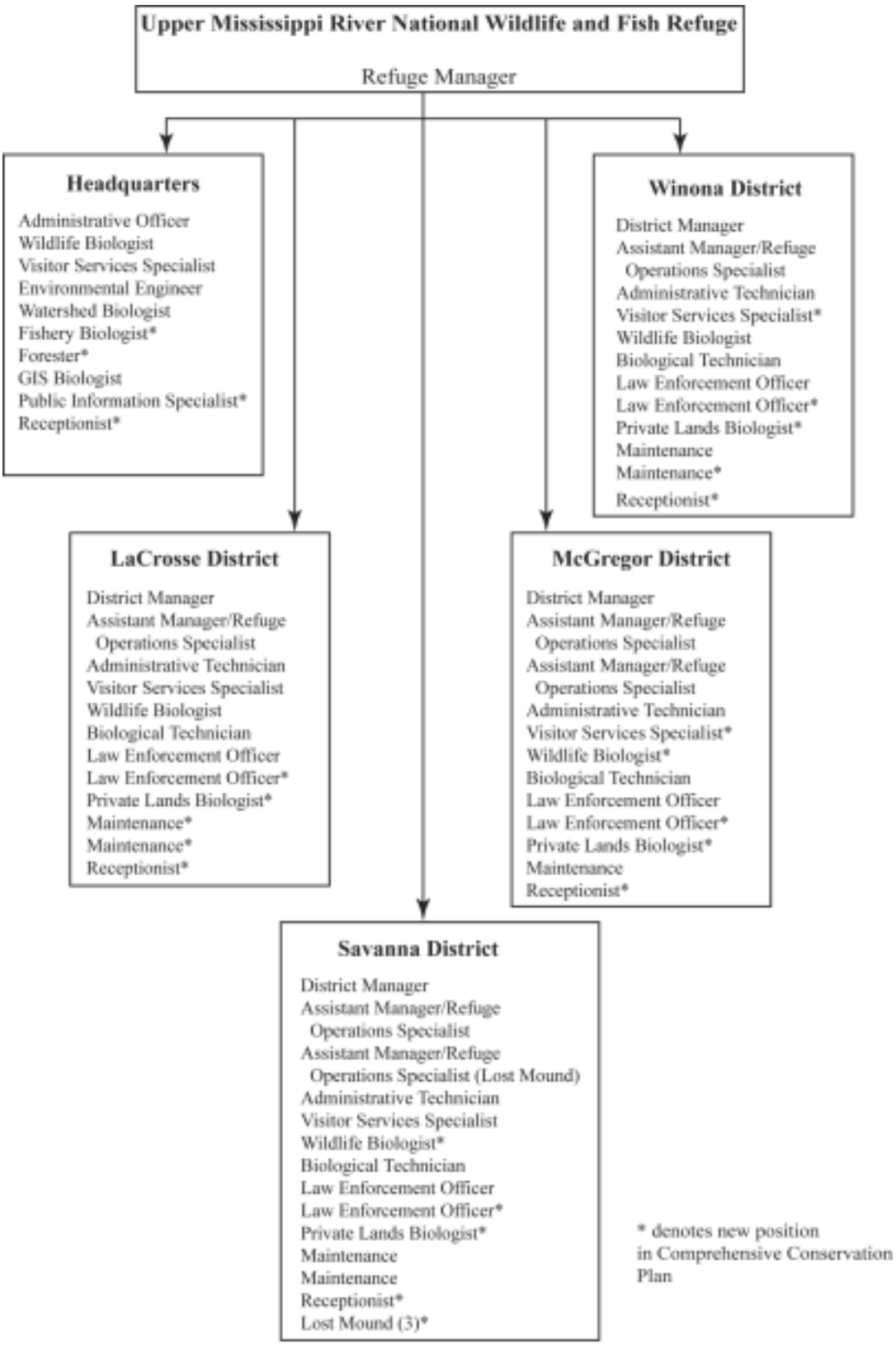
and enhancement work is done through the Environmental Management Program administered by the Corps, and this work could accelerate should Congress approve and fund the Navigation and Environmental Sustainability Program (NESP).

The U. S. Geological Survey, Environmental Protection Agency, Department of Agriculture, and state-level counterpart agencies all play a role in biological monitoring, research, environmental regulation, and policy making on the river, and thus the Refuge. Other U.S. Fish and Wildlife Service programs such as fisheries and ecological services also play a key role, both as leaders for certain projects and programs, and in support. The Service's Partners for Fish and Wildlife Program will continue to play a critical role in working with private landowners to improve the watersheds of the Refuge.

Conservation organizations are active in policy issues and/or land acquisition affecting the Refuge and include Audubon, The Nature Conservancy, Izaak Walton League, and American Rivers. A host of local conservation and sporting organizations like the La Crosse County Conservation Alliance are active. Lastly, many citizen conservationists help the Refuge as volunteers and as members of the Friends of the Upper Mississippi River Refuges, a citizen support group.

The forum for bringing together such a diversity of partners, who often have different missions and agendas, is both formal and informal. Established associations, commissions, committees, and working groups bring people together; plans, planning, and public meetings allow input from everyone. Specific projects and events let citizens lend a helping hand. These partnerships will remain an important part of plan implementation, both in gaining and maintaining public and partner understanding and support, and through the joint funding of specific actions.

Figure 35: Staffing, Upper Mississippi River Refuge



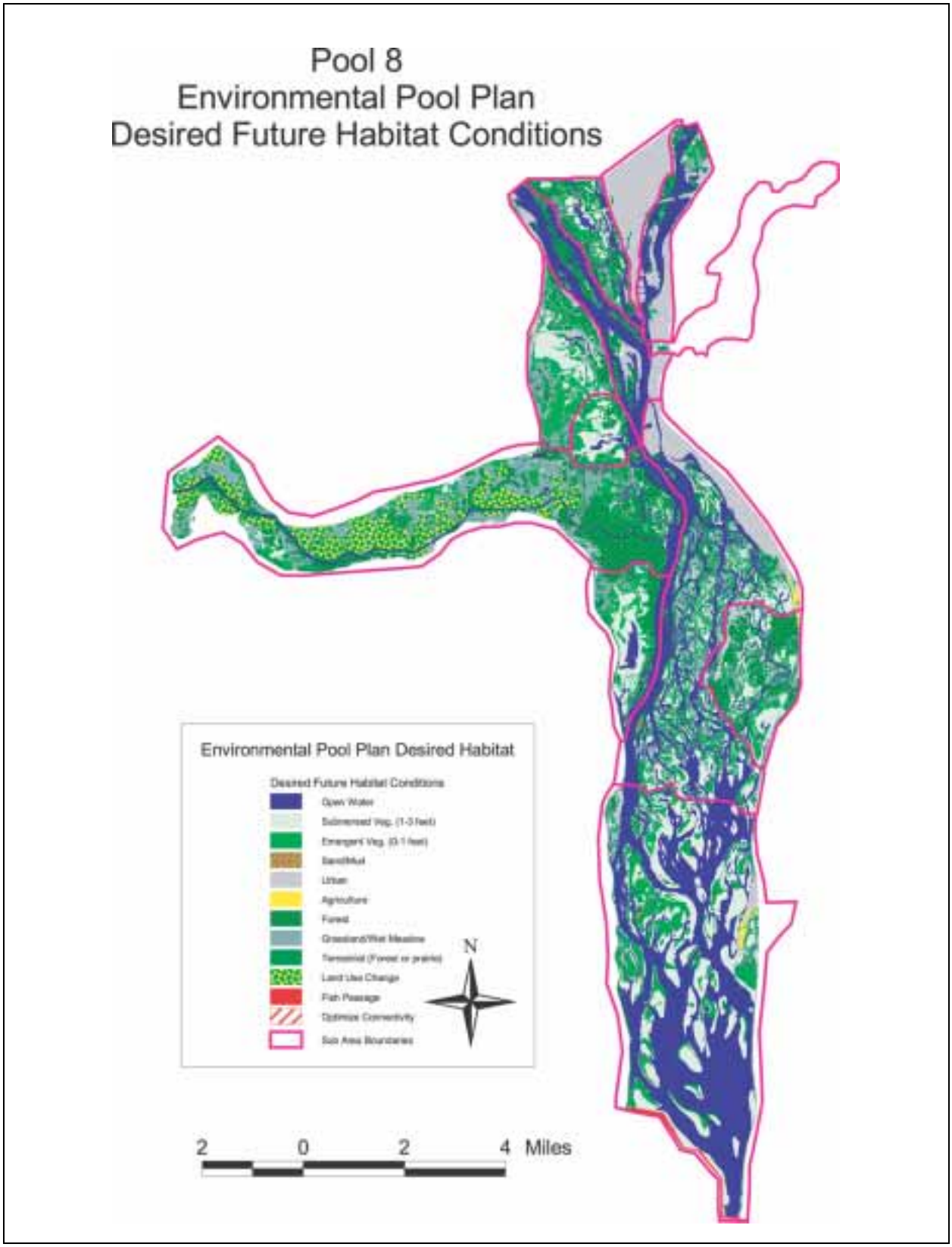
Appendix M: Distribution List

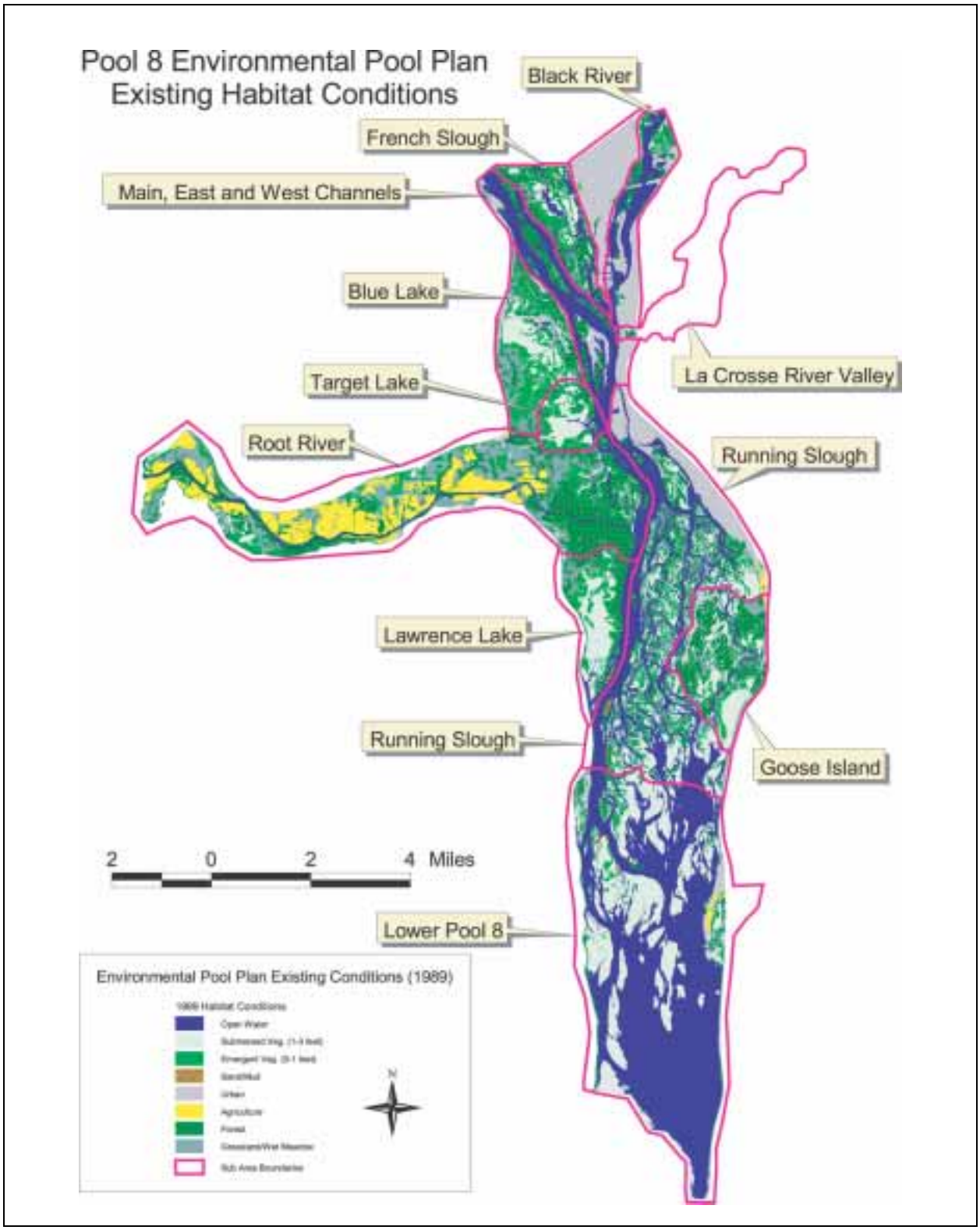
Distribution List

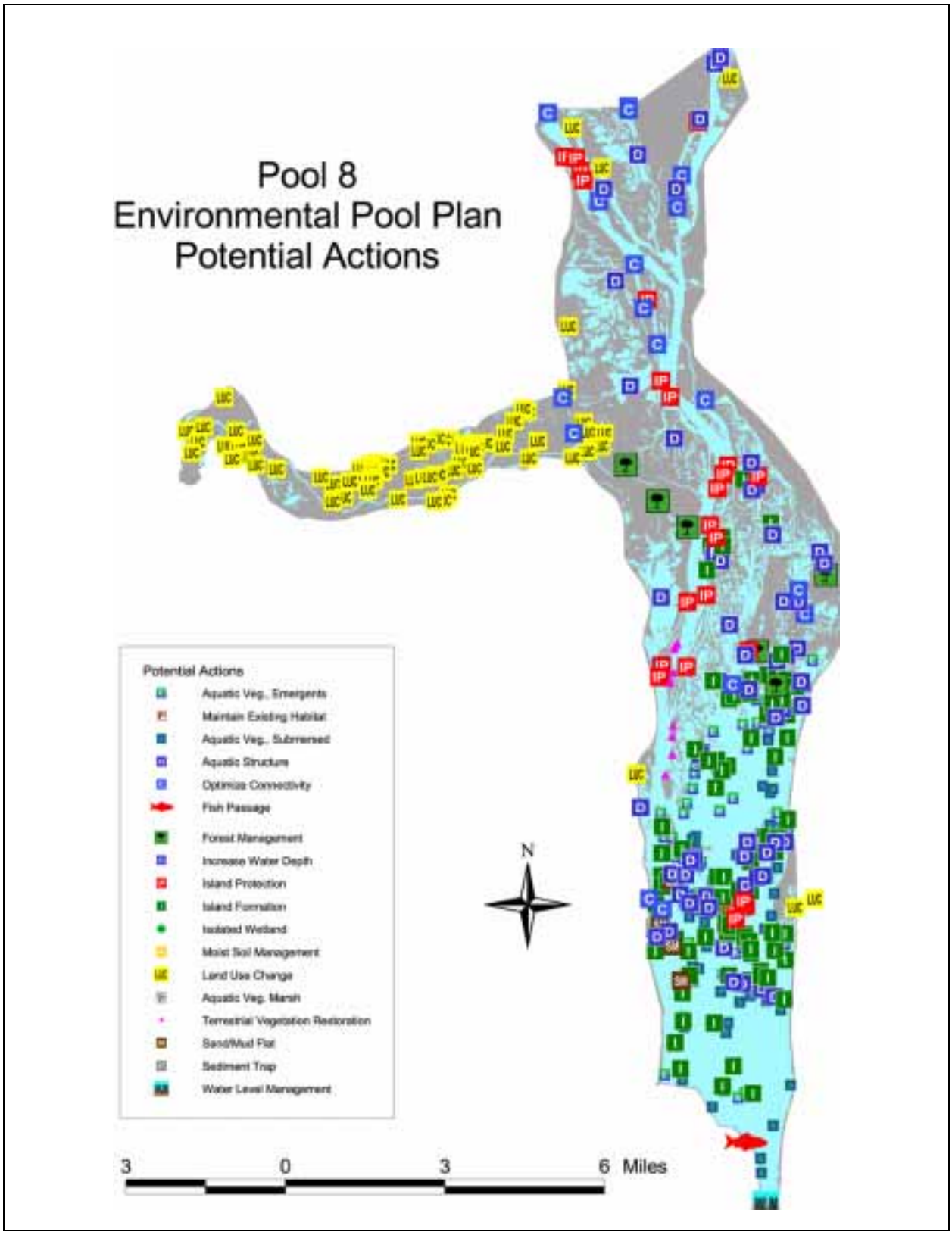
The Draft EIS/CCP for Upper Mississippi River Refuge was distributed to a wide range of citizens, non-government organizations, elected officials, and state and federal agencies. A list of the people, agencies and organizations that received notice that the draft document is available is included in Chapter 6 of the EIS.

Selected elected representatives, federal, state and local agencies, organizations, and interested individuals have received a printed copy of this document.

Appendix N: Example of Environmental Pool Plans


Pool 8
Environmental Pool Plan
Desired Future Habitat Conditions
Environmental Pool Plan Desired Habitat
Desired Future Habitat Conditions
Open Water
Submersed Veg. (1-3 feet)
Emergent Veg. (0-1 feet)
Sand/Mud
Urban
Agriculture
Forest
Grassland/Wet Meadow
Terrestrial (Forest or prairie)
Land Use Change
Fish Passage
Optimize Connectivity
Sub Area Boundaries
N
2 0 2 4 Miles


Pool 8 Environmental Pool Plan
Existing Habitat Conditions
Black River
French Slough
Main, East and West Channels
Blue Lake
Target Lake
La Crosse River Valley
Root River
Running Slough
Lawrence Lake
Running Slough
Goose Island
2 0 2 4 Miles
Lower Pool 8
Environmental Pool Plan Existing Conditions (1989)
N


Pool 8
Environmental Pool Plan
Potential Actions
Potential Actions
Aquatic Veg., Emergents
Maintain Existing Habitat
Aquatic Veg., Submersed
Aquatic Structure
Optimize Connectivity
Fish Passage
Forest Management
Increase Water Depth
Island Protection
Island Formation
Isolated Wetland
Moist Soil Management
Land Use Change
Aquatic Veg. Marsh
Terrestrial Vegetation Restoration
Sand/Mud Flat
Sediment Trap
Water Level Management
N
3
0
3
6 Miles

Appendix O: Vegetation Classification System Reference and Sample

Vegetation Classification System, Upper Mississippi River Refuge

Upper Mississippi River CODE	Upper Mississippi River Class	Upper Mississippi River Class Description	Hydrolocial Description	Habitat Needs Assessment CROSSWALK	National Vegetation and Information Standard (NVCS Code)	NVCS_DESCRIPTION
AG	Agriculture	All obviously cultivated fields. This category may include transitional fallow fields that show evidence of tilling.	Infrequently Flooded Non-Forest	Agriculture	V.C.2.N.b.	Annual row-crop forbs or grasses
CN	Conifers	All natural or semi-natural evergreen communities. Typically Pine, but occasionally Cedar.	Infrequently Flooded Forest	Mesic Bottomland Hardwood Forest	I.A.8.N.b.	Rounded-crowned temperate or subpolar needle-leaved evergreen forest
DMA	Deep Marsh Annual	Dominated by Wild Rice, but may include floating-leaf species, submergents, or deep marsh perennials.	Semipermanently Flooded Non-Forest	Semi-permanently Flooded Emergent Annual	V.A.5.N.l.	Semipermanently flooded temperate or subpolar grassland
DMP	Deep Marsh Perennial	Persistent emergents that prefer lots of water. Dominated by Arrowhead, Bur-reed, and Cattail and may include Pickerelweed, Giant Reed Grass, and Bulrush.	Semipermanently Flooded Non-Forest	Semi-permanently Flooded Emergent Perennial	V.A.5.N.l.	Semipermanently flooded temperate or subpolar grassland
DMS	Deep Marsh Shrub	Shrubby vegetation >25%, dominated by Buttonbush and Water Willow, frequently growing in standing water. May include RFA, SV, and deep marsh perennials.	Semipermanently Flooded Shrubs	Scrub/Shrub	III.B.2.N.f.	Semipermanently flooded cold-deciduous shrubland

Vegetation Classification System, Upper Mississippi River Refuge

DV	Developed	Areas that are predominantly artificial in nature such as cities/towns, large farmsteads, and industrial complexes.	Infrequently Flooded Non-Forest	Developed	n/a	Developed; Default to Anderson Classification
FF	Floodplain Forest	Softwood forests growing on saturated soils near the main channel and in floodplain backwaters. These forest are predominantly Silver Maple, but also include Elm, Cottonwood, Black Willow, and River Birch.	Seasonally Flooded Forest	Wet Floodplain Forest	I.B.2.N.e.	Seasonally flooded cold-deciduous closed tree canopy
GR	Grassland	Drier upland grass or grass/forb fields. May include fallow fields, sand prairies, and shrubby vegetation < 25%.	Infrequently Flooded Non-Forest	Grassland	V.A.5.N.a.	Tall sod temperate grassland
LF	Lowland Forest	Lowland Forest - More common on southern reaches of the UMRS. These forests grow along the river banks on sites that are drier than FF sites. Typical species include many Hickories, Pecan, River Birch.	Temporarily Flooded Forest	Wet Floodplain Forest	I.B.2.N.d.	Temporarily flooded cold-deciduous closed tree canopy
LV	Levee	All continuous dikes or embankments designed for flood protection. More common on southern reaches of the UMRS and typically covered with mixed grass and forbs.	Infrequently Flooded Non-Forest	Grassland	V.A.5.N.a.	Tall sod temperate grassland

Vegetation Classification System, Upper Mississippi River Refuge

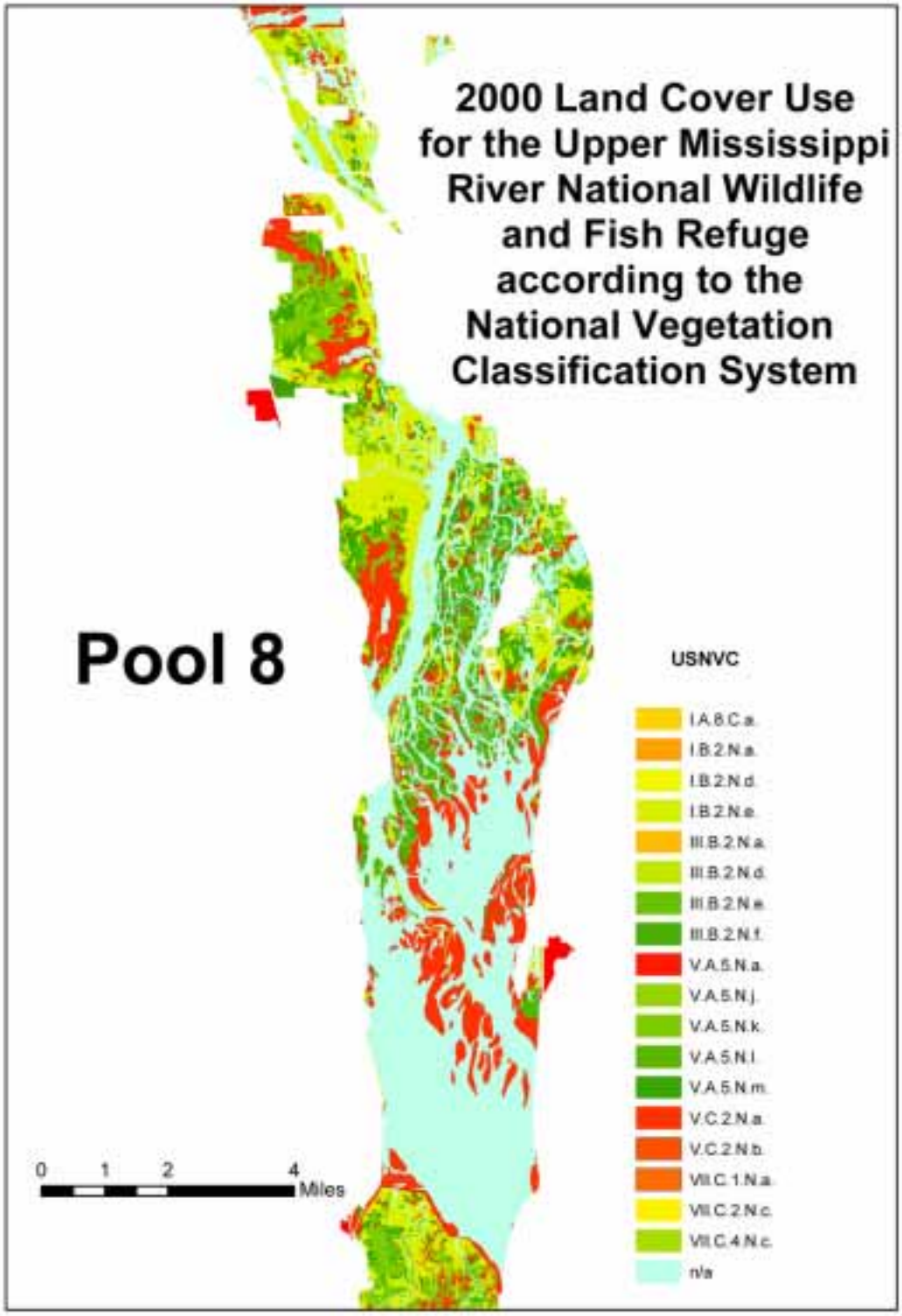
MUD	Mud	Exposed, non-vegetated mudflats. May occur near the main channel or in backwaters.	Seasonally Flooded Non-Forest	Sand/Mud	VII.C.4.N.c.	Seasonally/Temporarily flooded mudflats
NPC	No Photo Coverage	Gaps in photo coverage. May include areas obscured by clouds or shadows.	No Photo Coverage	No Photo Coverage	n/a	No Photo Coverage
OW	Open Water	All non-vegetated open bodies of water.	Permanently Flooded Non-Forest	Open Water	n/a	Open Water; Default to Anderson Classification
PC	Populus Community	Predominantly Cottonwood (>50%) but may include willow and other floodplain forest species.	Seasonally Flooded Forest	Populus Community	I.B.2.N.e.	Seasonally flooded cold-deciduous closed tree canopy
PN	Plantation	All commercially-grown evergreen plantations, large nurseries, and orchards. Typically will be Red or White Pine.	Infrequently Flooded Forest	Mesic Bottomland Hardwood Forest	I.A.8.C.a.	Plantation
PS	Pasture	All grass fields used for the production of livestock.	Infrequently Flooded Non-Forest	Grassland	V.A.5.C.a.	Perennial Grass Crops
RD	Roadside Grass/ Forbs	Grass/forb-covered right-of-ways along side of roads, highways, and railroads.	Infrequently Flooded Non-Forest	Grassland	n/a	Roadside Grass/Forbs; Default to Anderson Classification
RFA	Rooted Floating Aquatics	Typically Lotus and Lily, but may include Water Shield and Water Primrose. Frequently grows with submergent vegetation when RFA density is < 90%.	Permanently Flooded Non-Forest	Floating-Leaved Aquatic Bed	V.C.2.N.a.	Permanently flooded temperate or subpolar hydromorphic rooted vegetation

Vegetation Classification System, Upper Mississippi River Refuge

SB	Sand Bar	Exposed sand bars typically found in and near the main channel, and often associated with wing dams and islands.	Temporarily Flooded Non-Forest	Sand/Mud	VII.C.2.N.c.	Temporarily flooded sand flats
SC	Salix Community	Predominantly Willow (>50%) but may include Cottonwood and other floodplain forest species.	Seasonally Flooded Forest	Salix Community	I.B.2.N.e.	Seasonally flooded cold-deciduous closed tree canopy
SD	Sand Dunes/Spoil	Sand spoil banks, beaches, and other sparsely-vegetated sandy areas.	Infrequently Flooded Non-Forest	Sand/Mud	VII.C.1.N.a.	Dunes with sparse herbaceous vegetation
SM	Sedge Meadow	Dominated by mixed Sedges but may include perennial emergents and moist soil grass/forbs.	Temporarily Flooded Non-Forest	Wet Meadow	V.A.5.N.j.	Temporarily flooded temperate or subpolar grassland
SMA	Shallow Marsh Annual	Typically Wild Millet and Beggarsticks and other annual species that favor mudflats and shallow basins.	Seasonally Flooded Non-Forest	Seasonally Flooded Emergent Annual	V.A.5.N.k.	Seasonally flooded temperate or subpolar grassland
SMP	Shallow Marsh Perennial	The transition zone between deep marsh and wet meadow that is dominated by Bulrush, and to a lesser extent Cattail, Arrowhead, Bur-reed, Giant Reed Grass, Smartweed, and other moist soil species.	Seasonally Flooded Non-Forest	Seasonally Flooded Emergent Perennial	V.A.5.N.k.	Seasonally flooded temperate or subpolar grassland
SMS	Shallow Marsh Shrub	Mixed shrubs >25%, but typically Sandbar Willow growing near the main channel and in backwaters along with mixed emergents, grasses, and forbs.	Seasonally Flooded Shrubs	Scrub/Shrub	III.B.2.N.e.	Seasonally flooded cold-deciduous shrubland

Vegetation Classification System, Upper Mississippi River Refuge

SS	Shrub/Scrub	Shrubby vegetation > 25% on drier soils with a mixed grass/forb understory.	Infrequently Flooded Shrubs	Scrub/Shrub	III.B.2.N.a.	Temperate cold-deciduous shrubland
SV	Submerged Aquatic Vegetation	All submersed aquatic vegetation.	Permanently Flooded Non-Forest	Submersed Aquatic Bed	V.C.2.N.a.	Permanently flooded temperate or subpolar hydromorphic rooted vegetation
UF	Upland Forest	Forests growing at the edge or out of the UMRS floodplain. Species include Red/White Oak, Hickories, Elm, and other deciduous trees.	Infrequently Flooded Forest	Mesic Bottomland Hardwood Forest	I.B.2.N.a.	Lowland or submontane cold-deciduous closed tree canopy
WM	Wet Meadow	Dominated by moist soil grasses such as Reed Canary Grass and Rice Cutgrass. Also includes Loosestrife, Smartweed, and small inclusions of other mixed emergents, grasses, and forbs.	Saturated Soil Non-Forest	Wet Meadow	V.A.5.N.m.	Saturated temperate or subpolar grassland
WMS	Wet Meadow Shrub	Mixed shrubby vegetation > 25%, typically Alder, Elder, False Indigo, Dogwood and/ or Willow with a sedge/grass/ forb understory.	Temporarily Flooded Shrubs	Wet Floodplain Forest	I.B.2.N.f.	Semipermanently flooded cold-deciduous closed tree canopy
WS	Wooded Swamp	Most common in southern reaches of UMRS. Includes Bald Cypress, Water Tupelo, Sourgum, and Black Ash.	Semipermanently Flooded Forest	Wet Floodplain Forest	I.B.2.N.f.	Semipermanently flooded cold-deciduous closed tree canopy


2000 Land Cover Use for the Upper Mississippi River National Wildlife and Fish Refuge according to the National Vegetation Classification System
Pool 8
USNVC
I.A.8.C.a.
I.B.2.N.a.
I.B.2.N.d.
I.B.2.N.e.
III.B.2.N.a.
III.B.2.N.d.
III.B.2.N.e.
III.B.2.N.f.
V.A.5.N.a.
V.A.5.N.j.
V.A.5.N.k.
V.A.5.N.l.
V.A.5.N.m.
V.C.2.N.a.
V.C.2.N.b.
VII.C.1.N.a.
VII.C.2.N.c.
VII.C.4.N.c.
n/a
0 1 2 4 Miles

Appendix P: Maps of Management Alternatives

Due to the size and length of the Refuge, maps showing various features for each alternative present a challenge in formatting and printing as part of this document. Thus, all maps were assembled in a separate appendix in a large format. These map booklets are available for viewing at Refuge offices, at 58 public libraries in communities along the Refuge, and on the planning website at http://www.fws.gov/midwest/planning/uppermiss. Compact discs or CDs with the entire Final EIS/CCP and maps are also available upon request by calling (507) 452-4232, or leaving a message at the toll-free number (888) 291-5719.

A series of smaller maps depicting the changes made to Alternative E, the preferred alternative in the Final EIS/CCP, are included in a special Planning Update mailed to more than 4,000 persons on the CCP mailing list. Copies of this update are also available on the website or by calling the numbers above.

Appendix Q: Waterfowl Hunting Closed Areas, History, Description, Background and Rationale for Alternative E

Waterfowl Hunting Closed Areas, History, Description, Background and Rationale for Alternative E

(With descriptions of the Wisconsin River Delta Special Hunt Area (Pool 10) and the Lower Pool 11 No Open Water Hunting Area)

This appendix provides background information and rationale for modifications of the Refuge closed area system presented in Alternative E of the Environmental Impact Statement and Comprehensive Conservation Plan. Descriptions, backgrounds, and rationales for each closed area are included. Also included are descriptions of the Wisconsin River Delta Special Hunt Area (Pool 10) and the Lower Pool 11 No Open Water Hunting Area. Additional information on closed areas is provided in Chapter 3 (section 3.2.7.1) of the EIS/CCP, with specific locations, objectives, and rationale provided in Objective 4.2 Waterfowl Hunting Closed Areas in Alternative E of the EIS/CCP. Location maps are presented in Appendix P. Attachment 1 of this appendix provides discussion on waterfowl disturbance thresholds and other waterfowl hunting closed area issues raised during the comment period for Alternative E, Supplement to the Draft EIS/CCP.

Background

National wildlife refuges play a crucial role in providing breeding, migrational, and wintering ground habitat for waterfowl. Over the past 75 years, the U.S. Fish and Wildlife Service has strategically established many of its refuges to help meet widely held waterfowl conservation goals.

A feature common to refuges is the inclusion of closed areas, which provide waterfowl the opportunity to feed and rest without disturbance during migration and at wintering locations. Without disturbance, waterfowl are provided opportunity for molting, preening, pair bonding and fat storage, all of which help build healthier populations. Closed areas also help keep regional populations in and around refuges, providing hunting opportunity on adjacent public and private lands. The value of closed areas to waterfowl declines if they are frequently altered or rotated. The purpose of the Upper Mississippi River National Wildlife and Fish Refuge closed area system is to provide migrating waterfowl a network of relatively secure feeding and resting areas, and to disperse waterfowl hunting opportunities on the Refuge. Existing closed areas are defined as follows:

> "Closed to all migratory bird hunting; other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons."

Refuge closed areas are generally open for other uses, including recreational boating and sport and commercial fishing. The only exceptions are the Spring Lake closed area (Pool 13) which is a sanctuary and closed to all public entry October 1 to the end of the state duck hunting season, and the Goose Island No Hunting Zone (Pool 8) which is closed to hunting at all times. In addition, a portion of the Lake Onalaska (Pool 7) closed area has been designated a Voluntary Waterfowl Avoidance Area since 1986 where the public is asked to remain out of the area October 15 to mid-November to minimize disturbance of feeding and resting waterfowl.

Closed Area Milestones

- # 1924 – Refuge established by Congress
  - N Entire Refuge closed to waterfowl hunting until the early 1930s

- # 1930s to 1956 – system of 20 closed areas, totaling 34,150 acres
  - N Some closed areas established out of convenience of Refuge ownership rather than on areas with best food sources (carrying capacity) or reduced disturbance; established only on Fish and Wildlife Service-acquired fee title lands
  - N Disturbance by boaters a problem;
  - N Maintenance of boundaries difficult, required constant brushing;
  - N "Firing lines" developed

- # 1957-58 – system of 14 closed areas, totaling 41,600 acres
  - N After 10 years in development, this is the core of the current system which now has 15 units, covering 44,544 acres. Two units do not have standard closed area regulations:
    - 3) Spring Lake in Pool 13 is a sanctuary from October 1 to the end of the duck hunting season.
    - 4) Goose Island in Pool 8 is closed to all hunting year-round. Trempealeau National Wildlife Refuge, next to Pool 6, functions as a closed area with special regulations but is not included in this analysis. When first established, this system generally met goals of providing secure feeding and resting areas and dispersing hunting opportunities. Closed areas are located on Refuge-acquired and Corps of Engineers-acquired fee title lands.

- # 1978 and 1985 – Wildlife Technical Section of the Upper Mississippi River Conservation Committee
  - N Section recognized that some closed areas were not functioning as intended and proposed changes to the closed area system but none were implemented.

- # 1986 – establishment of the Lake Onalaska Voluntary Waterfowl Avoidance Area (Pool 7).
  - N Other than at Spring Lake and Goose Island (see above), this is the only tool currently being used by the Refuge to address human-caused disturbance during fall migration. This program, developed in cooperation with state agencies and local sportsman and conservation groups, asks the public (mostly boaters) to avoid entry into this area. It has been operational each year, from October 15 through mid-November, since 1986. Studies conducted in 1986-88, 1993, 1997, and 2004 revealed that the voluntary avoidance area was effective in maintaining constant levels of boater intrusions and disturbance of birds despite increased levels of boating activity throughout the Pool.

- # 1987 – Refuge's Master Plan
  - N During development of the Plan, changes to the closed area system were considered but none were included in the final, pending further study on human disturbance and effectiveness of the voluntary avoidance area.

- # 2005 – release Draft EIS/ CCP in May
  - N Initial preferred alternative (D) proposes a closed area system of 21 units, covering 43,704 acres. Areas would retain the standard closed area definition and add proposed regulations of no fishing and the use of no motors during the state duck hunting season.

- # 2005 – release Supplement to the Draft EIS/CCP in December
  - N New preferred alternative (E) proposes a system of 22 units, covering 45,755 acres. Areas retain standard closed area definition with proposed regulations of voluntary

avoidance on all large closed areas October 15 to the end of the state duck hunting season and use of no motors and voluntary avoidance on small closed areas (~1000 acres or less) October 15 to the end of the state duck hunting season. A threshold for disturbance is also established under Alternative E.

2006 – release of EIS/CCP with final preferred Alternative E that includes a closed area system comprised of 23 units covering 43,764 acres. Same entry regulations and threshold as Supplement (see above).

Definitions

Waterfowl Hunting Closed Area, current definition:

"Closed to all migratory bird hunting; other hunting and trapping is only allowed beginning the day after the close of the state duck hunting season, until season closure or March 15, whichever comes first, except turkey hunting is allowed during state seasons."

"Large" and " Small" Closed Areas: Alternative E

Waterfowl hunting closed areas under Alternative E will continue to be defined with the current definition, see above.

In addition, closed areas will be classified (with exceptions) as either "Large" or "Small," as described below:

Under Alternative E, the public will be asked to practice Voluntary Avoidance (limiting entry) on all closed areas ("Large" and "Small") October 15 to the end of the respective state duck hunting season and in addition there will be a "no motor" restriction on "Small" closed areas October 15 to the end of the regular state duck hunting season. "Large" closed areas are greater than 1,000 acres and "Small" closed areas are ~1,000 acres or less. "No motors" means the use of motors on watercraft is not allowed, although possession of a motor is allowed in these areas.

Disturbance Threshold: Alternative E

One major disturbance per day based on a season-long average. This is based on results of human disturbance monitoring and research on Pools 7 and 8, 1980 – 2004. A major disturbance is defined as a human intrusion which displaces 1,000 waterfowl or 50 percent of the waterfowl present, whichever is less. The disturbance threshold would not include commercial fishing (handled through permitting process) or government entities engaged in monitoring, research, or law enforcement.

Sanctuary: all alternatives

A waterfowl sanctuary is defined as follows: "No entry October 1 to the end of the regular state duck hunting season."

Voluntary Waterfowl Avoidance Area or Voluntary Avoidance Area

Under Alternative E, closed areas will be posted to encourage boaters to practice Voluntary Avoidance (limited entry) October 15 to the end of the state duck hunting season to reduce disturbance of waterfowl. Moving the effective date from October 1 in Alternative D to October 15 in Alternative E for these entry regulations reflects public concern about the loss of fall fishing and survey data which shows that the major influx of migrating waterfowl occurs after October 15 each year. The existing Voluntary Waterfowl Avoidance Area on Lake Onalaska in Pool 7 will continue as implemented, with effective dates of October 15 to mid-November.

Closed Area System Goals

After nearly 50 years, changes from within and outside the closed area system have altered how waterfowl utilize the Refuge during migration. Changes include the amount and quality of habitat available, the number and species of waterfowl using the system, and the size and number of closed areas available. Refuge-wide, fewer islands and acres of vegetation are generally available to provide shelter, food, and cover. More diving ducks, Tundra Swans, and Canada Geese are now present, but fewer puddle ducks.

As a result of these changes, not all closed areas in the system are providing waterfowl with the habitat components required to meet their biological needs. Waterfowl are now concentrated in a few functioning closed areas rather than being dispersed throughout the system.

The overall Refuge closed area system goals and some strategies to achieve them are as follows:

1) Provide migrating waterfowl a more balanced and effective network of feeding and resting areas.
   - Add closed areas in gaps between stepping stones of habitat.
   - Align closed areas over existing preferred food sources.
   - Construct islands to restore habitat, protect vegetation beds from currents, wind and wave action, and sedimentation, and provide thermal and visual barriers for waterfowl.
   - Promote growth of aquatic vegetation using water level drawdowns.
2) Minimize disturbance to feeding and resting waterfowl in closed areas.
   - Establish Voluntary Waterfowl Avoidance Areas.
   - Restrict use of motors.
   - Restrict fishing.
   - Establish waterfowl sanctuaries (no entry).
3) Provide waterfowl hunters with more equitable hunting opportunities over the length of the Refuge.
   - Add new closed areas to hold birds in new areas.
   - Eliminate or reduce the size of existing closed areas to provide more area open to
   - hunting.
   - Establish hunter spacing limits (Illinois only).
   - Eliminate use of permanent blinds.
4) Reduce hunter competition and waterfowl crippling loss along some closed area boundaries.
   - Consider managed hunts (include hunting public in the development of these hunts).
   - Adjust the closed area boundary
   - Modify hunting regulations.
5) Stabilize boundaries where island and/or shoreline loss or gain creates a fluctuating boundary.

Background and rationale for each of the 20 closed areas and 3 sanctuaries included in Alternative E for the Refuge closed area system address one or more facets of these goals. A description of each closed area by Refuge District, Pools 4 through 14, is presented in the following pages.

Closed Area Descriptions

Winona District

Pool 4, Big Lake,Wisconsin, 2,461 acres

General Description

The Big Lake closed area encompasses 2,461 acres of Big Lake in a line roughly bordering the main channel to the west, shoreline to the east, Indian Slough to the north and Grand Encampment dredge material placement site to the south. This closed area is classified as “large” and will be designated a voluntary avoidance area October 15 to the end of the state duck hunting season. A travel corridor is included on the northeast corner to facilitate boat traffic from a resort and private docks to and from the main channel with minimal disturbance to migrating waterfowl. The closed area will not take effect before the start of the 2009 waterfowl hunting season. This delay will allow waterfowl hunters the opportunity to locate new hunting locations and allow the refuge to further study the availability of vegetation and other food sources in Big Lake and Nelson-Trevino and evaluate waterfowl use on Lake Pepin (Pool 4) and within Nelson-Trevino.

The Big Lake closed area is located in the general area of an historic (1930s to mid 1950s) closed area that was dropped in 1957. The area will be closed to waterfowl hunting because of the availability of abundant waterfowl foods and open water habitat. Big Lake represents the only location this type of habitat is available for an approximate 50-mile stretch of river upstream of Lock and Dam 6 (Winona District). The only exception is the habitat found on Trempealeau NWR in Pool 6. The lack of protected high-quality waterfowl habitat has lead to a skewed distribution of migrating birds over the length of the Refuge.

The closed area alignment within Pool 4, beginning no sooner than the opening of the waterfowl season in 2009, includes; Big Lake, Wisconsin (2,461 acres), Rieck’s Lake/Buffalo River, Wisconsin (608 acres), and Peterson Lake, Minnesota (677 acres) for a pool-wide total of 3,746 acres. Since 1957, the closed area acreage in Pool 4 has been 6,884 acres, the new alignment provides a net gain of 3,138 acres open to hunting within the pool.

Background

Big Lake was a closed area from the mid-1930s through 1954 (named the Beef Slough closed area) totaling 1,319 acres. Evaluation of the area in 1954 determined that due to land ownership at the time, the eastern boundary was difficult to maintain as it traversed through deep, open water. The north and south boundaries were through marsh which resulted in the creation of firing lines and it was determined that elevated levels of boat traffic through the closed area were causing disturbance of the birds. Based on this evaluation, the closed area configuration was changed in 1957 which included Nelson-Trevino, Wisconsin (3,773 acres) and Peterson Lake (including Rieck's Lake and Buffalo River), Minnesota/Wisconsin (3,111 acres). In the following year, 1958, reports indicate that waterfowlers requested the Big Lake closed area be re-established as they witnessed a decline in waterfowl hunting success in Robinson Lake, Minnesota. However, no changes to the alignment were made.

The Big Lake area has seen a decline in aquatic vegetation and a loss of depth diversity caused by sedimentation from the Chippewa River. The bed-load from the Chippewa, primarily sand, not only influences backwater features and water quality, but also the main channel where it affects channel maintenance activities extending through Pool 7. In an attempt to reduce sand loading to Big Lake, two major inflows, Indian Slough and Catfish Slough, were modified. The Indian Slough closure incorporates features to improve fisheries habitat via tree drops and riffle-pool complexes. The

Indian Slough structure was not engineered to be a sand-trap but is instead a closure to reduce the flow of water, thus reducing the amount of sand entering Big Lake.

Future habitat improvement activities proposed for Big Lake include island construction, maintaining/increasing water depths in approximately three percent of the aquatic area for fishery habitat, re-vegetation of historic dredged material placement sites to increase the area and diversity of forests and increasing emergent vegetation by approximately 14 percent. Other features will be considered to stabilize shorelines and reduce island dissection..

Rationale

The Big Lake closed area will substantially increase the amount of food available to migrating waterfowl in a relatively secure environment. Big Lake, one of the last, and the best, puddle duck and diving duck habitat areas on the Winona District (Pools 4-6), will play a vital role in achieving a more even distribution of waterfowl, primarily puddle ducks, but some divers as well, on the entire Refuge. Energetic studies (Slivinski, 2004) indicate an expected 104 percent increase in gross energy available to migrating and staging waterfowl by developing Big Lake as a closed area.

In conjunction with the closing of Big Lake, Nelson–Trevino, Wisconsin (3,773 acres), Buffalo (Beef) Slough, Wisconsin (788 acres), and portions of Peterson Lake closed area will be opened to hunting providing new opportunities for duck hunters as well as deer and small game hunters. These changes will not occur before the 2009 waterfowl hunting season.

Winona District

Pool 4, Rieck's Lake/Buffalo River, Wisconsin, 608 acres

General Description

The Rieck's Lake/Buffalo River closed area includes the existing boundary around Rieck's Lake and a small section of water west of Hwy. 35 to the east bank of the railroad tracks and south to the main cut below the Rieck's Lakeside Park. A travel corridor is included to allow access from the Buffalo River Landing to the main channel. At 608 acres, this area is classified as a "small" closed area (less than 1000 acres) and is closed to the use of motors and is a Voluntary Avoidance area from October 15 to the end of the state duck hunting season. Under this designation, the use of motors will not be allowed and the public will be asked to voluntarily avoid entering the area during the stated time period to minimize disturbance to waterfowl. This new configuration will not take effect before the start of the 2009 waterfowl hunting season to coincide with implementation of the Big Lake closed area (see above).

Background

Rieck's Lake is most widely known as the location for the Alma Tundra Swan Watch. This closed area is located north of Alma, Wisconsin and was traditionally renowned as a site that held concentrations of up-to 6,000 migrating tundra swans within close proximity of the road. An observation deck was built through the cooperation of the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers and City of Alma, and is staffed by volunteers during the fall migration period. The notoriety of Rieck's Lake has grown with over 20,000 people from around the world annually visiting the observation deck for close-up views of swans.

The greatest threat to Rieck's Lake is sedimentation from surrounding lands and the heavy growth of bur-reed which has overgrown the marsh eliminating open water. Waterfowl counts from 2004 showed a peak of only 300 Tundra Swans and counts from 2005 showed only 65 swans utilizing the

closed area. The Swan Watch organization, working with Buffalo County and a grant from the Federal Scenic Byways Program, contracted to have 35,000 cubic yards of sediment dredged during the early-fall of 2005. The material was removed in a mosaic pattern to create large open-water "fingers" that will provide attractive resting and feeding areas for swans and other waterfowl. First year results are inconclusive because a combination of late-arriving swans and a relatively early freeze-up of Rieck's Lake pushed swans to larger, open water areas. It is anticipated that until changes can be made within the watershed of Rieck's Lake, sedimentation will continue to pose a threat to the area.

Rationale

Rieck's Lake is separated from Pool 4 by Highway 35 making it an easy boundary to maintain. It provides moderate waterfowl food resources for migrating waterfowl and offers educational benefits to the public by providing one of the few opportunities to see waterfowl close-up. It also provides economic benefit to the surrounding towns through the increased tourism brought by the Swan Watch.

Winona District

Pool 4, Peterson Lake, Minnesota, 677 acres

General Description

The Peterson Lake closed area includes a boundary change which reduces the size of the closed area from 3,111 acres in both Minnesota and Wisconsin to 677 acres in Minnesota only. It is classified as a "small" closed area (less than 1,000 acres) and is closed to the use of motors and is a Voluntary Avoidance area from October 15 to the end of the state duck hunting season. Under this designation, the use of motors will not be allowed and the public will be asked to voluntarily avoid entering the area during the stated time period to minimize disturbance to waterfowl. A travel corridor will be established from the Peterson Lake Landing to the main channel to facilitate motorboats during the hunting season. This new configuration will not take effect before the start of the 2009 waterfowl hunting season to coincide with implementation of the Big Lake closed area (see above).

Background

The existing configuration of the Peterson Lake closed area includes Peterson Lake, Minnesota, Buffalo (Beef) Slough, Wisconsin, Rieck's Lake, Wisconsin and the main channel for a total of 3,111 acres. This closed area configuration was developed in 1958 in response to the opening of Beef Slough (Big Lake) closed area to hunting.

Over the years, Peterson Lake has suffered from significant erosion of the islands that bordered its eastern side resulting in a decrease in aquatic and terrestrial habitat diversity which has negatively affected the waterfowl use of the lake. In 1992, three culverts were placed through the Lock and Dam 4 embankment to move water to the Finger Lakes area of Pool 5. The culverts were installed in an effort to improve the fisheries of the Finger Lakes. In 1995, as part of the Peterson Lake Habitat Rehabilitation and Enhancement Project (HREP), many of the remaining islands were protected by rip-rap. At the same time, some of the islands were "replaced" using rock structures to reduce sedimentation and velocities in Peterson Lake.

Proposed habitat improvement projects for Peterson Lake include island formation through both construction and sedimentation (seed islands). A 500 percent increase in emergent vegetation is proposed based on the cumulative effects of the proposed island construction. The U.S. Army Corps of Engineers is proposing the addition of two islands in Peterson Lake along the Lock and Dam 4

embankment to protect the embankment from erosion through means other than rip-rap. These islands are tentatively scheduled to be completed during the summer of 2007.

Rationale

The Peterson Lake closed area had been proposed for removal in the initial release of Alternative E. However, comments received in writing and made at public meetings by waterfowl hunters suggested that Peterson Lake remain a closed area. In response to these comments, a smaller closed area that encompasses Peterson Lake was developed and will take effect in conjunction with the other closed area changes in Pool 4 (establishment no earlier than the waterfowl hunting season 2009). It is anticipated that the potential for improved waterfowl habitat exists in Peterson Lake over the next 15 years if funds become available to implement the recommended island construction and enhancement projects.

Winona District

Pool 5, Weaver Bottoms/Lost Island, Minnesota/Wisconsin, 3,508 acres

General Description

Weaver Bottoms (Minnesota)/Lost Island (Wisconsin) is an existing closed area that has minor boundary adjustments under the final Alternative E. The size has been increased by 369 acres to include the main channel travel corridor and a slight adjustment to the east boundary near river mile 743 to include the area which is proposed for future channel maintenance island construction. The Draft Alternative E had included the channel maintenance islands constructed during 2005-2006 within the closed area, however, public comment received indicated that this would pose a navigation burden to the people of Buffalo City, Wisconsin due to sedimentation dictating where they could access the main channel. The intention is to have any future channel maintenance islands constructed as part of this cluster be located within the closed area boundary. This closed area is classified as “large” (greater than 1000 acres) and has voluntary avoidance area designation from October 15 to the end of the state duck hunting season. The main channel is the only travel corridor located in the closed area.

Background

Weaver Bottoms (Minnesota) was historically significant for migrating waterfowl and wintering fish. This was due to extensive beds of emergent and submersed vegetation and a series of main channel border islands that protected the area from inflows from the main channel. Weaver Bottoms has been negatively impacted by inflows from the main channel and the Whitewater River which delivers large amounts of sediment, impacting water quality. Since the late-1960s, the area had degraded to a large, windswept lake with minimal vegetation. However, 58 – 96 percent of annual waterfowl use on Pool 5 still occurs within Weaver Bottoms, most likely because of reduced disturbance inherent in closed areas.

Extensive studies concluded that to improve conditions in Weaver, a two-tiered approach was needed. First, side-channels needed modifications to restrict sediment and reduce velocities. Second, islands should be constructed to reduce wind fetch and the re-suspension of bottom sediments. Phase I was completed in 1987 when partial or complete closures were constructed across most of the secondary channels leading into Weaver Bottoms and two islands were constructed. Phase II, construction of additional islands and/or other measures, was not implemented pending results of monitoring the effects of Phase I. To date, monitoring has not shown significant improvements in aquatic vegetation from Phase I projects.

Pool 5 was the site of a pool-wide water-level drawdown in 2005. Preliminary monitoring found over 1,000 acres of exposed sediment with good to excellent annual and perennial plant growth. Planning is under way to conduct a second drawdown during the summer of 2006 which would enhance the growth of perennial plants that were established during the 2005 drawdown. Aquatic vegetation in Weaver Bottoms has the potential to improve over the next several years due to the effects of the drawdowns.

The Lost Island (Wisconsin) portion of the closed area contains several forested islands and shallow backwater lakes. This section has a minor boundary adjustment along the east side near river mile 743 to facilitate the inclusion of any future channel maintenance islands which are constructed. If funding becomes available, there is the potential for more channel maintenance islands to be constructed as part of this "island cluster."

Rationale

The Weaver Bottoms/Lost Island closed area is remaining intact due to the historic waterfowl use of the area and the potential for improved habitat (including both submersed and emergent plants) and increased waterfowl use in the future. Planned habitat improvement projects include island construction and additional water-level management through drawdowns. With improved habitat for both puddle ducks and diving ducks, Weaver Bottoms/ Lost Island will play a crucial role in achieving a more even distribution of waterfowl on the upper reaches of the Refuge.

Winona District

Pool 5, Spring Lake, Wisconsin, 243 acres

General Description

Spring Lake is a new closed area encompassing 243 acres is classified as "small" (less than 1,000 acres) and is closed to the use of motors and is a Voluntary Avoidance area from October 15 to the end of the state duck hunting season. Under this designation, the use of motors will not be allowed and the public will be asked to voluntarily avoid entering the area during the stated time period to minimize disturbance to waterfowl. Because there is no public access directly affected by the closed area, a travel corridor is not included. The area contains a portion of the islands built through the Environmental Management Program (EMP) in 2004-2006. The southeastern boundary of the closed area terminates at the downstream toe of the Lock & Dam 5 dike.

Background

The Spring Lake area was once a diverse complex of islands and deepwater areas which contained abundant vegetation providing excellent fish and wildlife habitat. Today, the habitat has declined due to losses in bathymetric and topographic diversity from sedimentation and island loss. Spring Lake was the site of a 1995 EMP project designed to reduce flow and sedimentation by placing a rock sill on the north end of the lake.

A second EMP project which will be completed in late-May 2006, includes an extensive island complex designed to stabilize habitat conditions and improve sediment transport and distribution. The islands will also provide environmental conditions for establishment and continued growth of aquatic vegetation. These improvements are anticipated to increase the coverage of emergent vegetation by over 200 percent and maintain the coverage of submersed vegetation. While the fall 2005 waterfowl surveys were inconclusive, waterfowl hunters and spring birdwatchers commented on the noticeable increase of birds using the area.

Rationale

The Spring Lake closed area, though relatively small, has the potential to provide significant food resources for migrating waterfowl in future years. EMP projects and water level drawdowns should have a significant impact on the food resources available in the area. With improved habitat, mainly for puddle ducks, the Spring Lake closed area will play an important role in achieving a more even distribution of waterfowl on the entire Refuge. Energetic studies (Slivinski 2004) indicate that the Spring Lake closed area will increase the food availability to waterfowl by 69 million Kcals. This amount should be even higher with the habitat improvements brought on by water level drawdowns.

As a secondary benefit, the proximity of this closed area to a land source (Lock & Dam 5 dike) will provide a wildlife observation opportunity often difficult to provide on a large river system.

Pool 5 was the site of a pool-wide water-level drawdown in 2005. Preliminary monitoring found over 1,000 acres of exposed sediment with good to excellent annual and perennial plant growth. Planning is under way to conduct a second drawdown during the summer of 2006 which would enhance the growth of perennial plants that were established during the 2005 drawdown. Spring Lake vegetation has the potential to improve considerably over the next several years following the construction of islands and the water-level drawdowns.

Winona District

Pool 5A, Fountain City Bay, Wisconsin, 24 acres

General Description

The Fountain City Bay closed area is a 24 acre parcel located at the southern-most tip of the Wisconsin Department of Natural Resources' Merrick State Park. The closed area is classified as "small" (less than 1,000 acres) and will be closed to motor use and be a voluntary avoidance area from October 15 to the end of the regular state duck hunting season.

Background

The Fountain City Bay closed area was requested by Merrick State Park as a means to avoid confusion to waterfowl hunters who use the Fountain City Bay area. The State Park is closed to all waterfowl hunting, but due to the proximity and open water between the State Park and the Refuge property, it was confusing to users and difficult to maintain signage to clearly define the areas.

Both agencies, Fish and Wildlife Service and Wisconsin Department of Natural Resources, will work together over the coming years to complete a land transfer that would give the State Park the 24-acre parcel in exchange for a parcel of equal value elsewhere on the river, thus eliminating the closed area from the Refuge.

Rationale

The Fountain City Bay closed area is being instituted to alleviate hunter confusion caused by the proximity of Fish and Wildlife Service land to Merrick State Park. Open water and differing agency signs and regulations have created confusion for waterfowl hunters in this area. The creation of a closed area will provide consistency of regulation within the entire bay.

Winona District

Pool 5A, Polander Lake, Minnesota/Wisconsin, 1,907 acres

General Description

Polander Lake is an existing closed area which includes Polander Lake (Minnesota) and Betsy Slough (Wisconsin). A boundary change on the northwest edge increases the closed area 318 acres. This acreage includes Pap Slough (Minnesota) on the southern boundary and extends to the downstream bank of Honeymoon Slough (Minnesota) as the western boundary, the main channel forms the eastern boundary of the addition. Polander closed area, at 1,907 acres is classified as "large" and is a voluntary avoidance area from October 15 to the end of the state duck hunting season. Two travel corridors are included in the closed area, the main channel and a corridor which will connect boat traffic from the Minnesota City Boat Club to the main channel (just upstream of the Polander HREP project islands) with minimal disturbance to migrating waterfowl.

Background

Habitat diversity and quality have been degraded within Pool 5A from island loss and sedimentation, especially in the lower portions of the pool. Island dissection and erosion continue to occur and contribute to declines in aquatic vegetation and floodplain forests. Sedimentation has most impacted the Betsy Slough backwaters which have also experienced island erosion and island dissection. The majority of sediment in the pool is transported from the Zumbro River in Pool 5 and the Chippewa River in Pool 4.

Polander Lake has been impacted by erosion which has eliminated many of the islands. This has caused the loss of terrestrial habitat and played a role in the loss of submersed and emergent aquatic vegetation. The Polander Lake HREP (completed in 2002) protected the remaining islands, closed an island breach in Pap Slough, re-vegetated a historic disposal site, and constructed three islands. The desired future condition for Polander Lake includes a 40 percent increase in emergent vegetation and a 10 percent increase in submersed vegetation from 1989 conditions.

Rationale

The full potential of the Polander Lake project has yet to be realized although the area is showing good response by submersed aquatic vegetation. Slivinski's report (2004) indicates that the inclusion of the additional 318 acres north of Polander Lake will increase available waterfowl food resources within the closed area by 44 percent (161 million Kcal), a substantial gain through a relatively small addition. With improved habitat, mainly for puddle ducks, and a few divers, the Polander Lake closed area should play an important role in achieving a more even distribution of waterfowl on the upper reaches of the Refuge.

La Crosse District

Pool 7, Lake Onalaska Closed Area, Wisconsin, 7,369 acres

General Description

No change is being made in entry regulations for this existing closed area. The existing Lake Onalaska Voluntary Waterfowl Avoidance Area remains in effect. Boundary adjustments are being made in three locations:

Adjust the line in Gibbs Chute where the boundary "splits" a small island vegetated predominately with reed canarygrass. The new boundary will be along the south shoreline of Gibbs Chute resulting in an estimated closed area reduction of 1.6-acres beginning in 2007.

Continue to make adjustments in the closed area boundary near Proudfoot Slough. When established in 1957, the closed area boundary in this location was defined as the east or left descending bank of the Mississippi River. Sand accretion, followed by rapid colonization by woody plants, continues to add to the barrier island complex in this area. This is the only site along the main channel portion of the closed area where this is occurring. Previous boundary adjustments occurred in 1999 (+5.7 acres added to the closed area) and 2001(+2.0 acres). Closed area addition in 2007 of about 14 acres.

Stabilize a section of the closed area boundary along the "old channel." As island erosion has occurred, sign placement through an area dotted with small, scattered islands and emergent plant beds, has resulted in an uneven boundary. This uneven boundary allows hunters to setup "ahead" of other hunters. According to Refuge staff, a straight-line boundary was the norm in this area until the early 1980's when the current practice was instituted. Boundary adjustment in 2007 will add less than 10 acres to the closed area.

In 1986, the 3,356-acre Lake Onalaska Voluntary Waterfowl Avoidance Area (VWAA) was established within part of the Lake Onalaska Closed Area to reduce boating disturbance to migratory waterfowl. Monitoring boater compliance with the VWAA will continue.

Background

This closed area was established as a conventional closed area in 1957. Prior to 1957, the one closed area in Pool 7 was located near Hammond Chute and was known as the Hammond Chute Closed Area (1,660 acres). Known initially as the "La Crosse Closed Area," a number of adjustments have been made to the boundary of the Lake Onalaska Closed Area since establishment, particularly along the northern boundary near Gibbs Lake and the Brice Prairie Barrier Islands.

With the exception of the southeast corner, much of Lake Onalaska is part of the Lake Onalaska Closed Area. This major backwater includes open water, interior islands, barrier island complexes with associated marsh, and flowing channels that convey water from the main channel into the lake. The arrangement of habitat types supports large concentrations representing each of the four main groups of waterfowl: diving and puddle ducks, swans, and geese, along with a variety of other marsh, waterbirds, and raptors. Peak waterbird counts in recent years include 140,000 ducks, geese, swans, coots, and White Pelicans on October 23, 2002 and 145,000 on October 27, 2003. No other closed area within the Refuge's existing Closed Area System likely provides as much habitat for all groups of waterfowl. Wildcelery is the dominant submersed aquatic plant in the lake and provides habitat for aquatic invertebrates and panfish, and food for migrating waterfowl. Lake Onalaska also supports one of the premier panfish fisheries on the Upper Mississippi River.

Three crescent-shaped islands were constructed within the closed area in 1989-90 as part of the Lake Onalaska EMP project. Follow-up stabilization maintenance on these islands occurred in 1993 and 1998. Habitat protection projects have also been completed within the closed area. In 1986, a section of shoreline near the midpoint of the lower Brice Prairie Barrier Island was stabilized with riprap. Additional work occurred in 1992 on the southeast tip of the lower barrier island when a rock mound, rock wedge, and terminal groin were constructed. Construction work on the latest project to protect sections of the lower Brice Prairie Barrier Island and the tip of the upper barrier island was initiated in 2005 and completed in 2006. In 1988, riprap was placed along the shorelines of four small islands in the lake near Red Oak Ridge Island. "Old Cormorant" Island received shoreline protection in 1993 after a tiny remnant of the island remained. Both ends of Red Oak Ridge Island, the second largest island in the lake, were stabilized with riprap in 1995. Because of the importance

of barrier islands in protecting vegetation beds, nearly 1,400' of eroding shoreline on two barrier islands located next to the main channel in the southwest corner of the lake was stabilized in 1998. Other habitat protection projects have also been completed just outside the closed area boundary. Among the tools being considered for use in future habitat projects within or next to the closed area includes island construction and stabilization, backwater dredging, and water level management.

Commercial and sport anglers, hunters, sailors, and pleasure boaters are among the user groups recreating on Lake Onalaska in the fall. Boating disrupts feeding activities of diving ducks and other waterfowl on the lake and could reduce the quality of the closed area as a staging site (Korschgen et al. 1985). In response, the Lake Onalaska Voluntary Waterfowl Avoidance Area (VWAA) was established. When established, the VWAA included most of the high-quality wildcelery beds in the lake at the time. VWAA boundaries permit boating along principal corridors and allow access to all areas of the lake and the main channel of the river. Boaters are encouraged to avoid entering the VWAA, which is marked with buoys, from October 15 through mid-November. Boater compliance with the program was monitored in 1986-88, 1993, 1997, and 2004. In 2004, even with increased boater activity on Lake Onalaska, the proportion of lakeside boating events that resulted in disturbance to waterfowl was lower than in previous years. Many boaters also made an obvious effort to comply with the VWAA by boating around concentrations of waterfowl. During the 31 days the VWAA was monitored, 29 intrusions were noted that resulted in major disturbances (more than 1,000 birds disturbed).

The La Crosse Municipal Airport is located adjacent to the closed area on French Island. Many waterbirds using the closed area are concentrated on the south end of the lake, or under the approach to Runway 13/31. An extension to Runway 13/31 is identified as a future need in the airport master plan, which would place aircraft directly over thousands of migratory birds each spring and fall.

One of the management problems with the former Hammond Chute Closed Area were firing lines. Firing lines can be crowded, resulting in competition and confrontations between hunters, and skybusting, which often leads to an increase in the number of crippled waterfowl. In 1954, boundaries for the new Lake Onalaska Closed Area, and other Refuge closed areas, were set with the goal of eliminating firing lines. In the 1954 report recommending the current Closed Area System, Refuge Biologist "Doc" Green, justifying the boundary of the Lake Onalaska Closed Area, cautioned, "….The only possible firing line will be along the slough which forms the north boundary, and since this does go through marsh, there should not be a well developed firing line even there."

Unfortunately, a firing line did develop along a section of Gibbs Chute, which forms the northern boundary, and remains today. Preferred hunting sites along this firing line have colorful local names, e.g., Barrel Blinds, Golden Chair, Minnesota Point, and others. Within the Comprehensive Conservation Plan, addressing this issue is found in Objective 4.4 Firing Line – Pool 7, Lake Onalaska.

Rationale

Under Alternative E, no change was made in entry regulations for the Lake Onalaska Closed Area to provide a benchmark for measuring long-term voluntary avoidance effectiveness and compliance as presented in the existing Lake Onalaska VWAA. This exception also recognizes the unique location of this closed area amidst heavy residential shoreline development, numerous boat launching facilities, proximity to nearby population centers, and a sailing club. This access translates into considerable boating traffic on Lake Onalaska during fall migration. Three adjustments are being made. Specific rationales include:

Sign maintenance and public recognition will be simplified by moving the boundary to the south side of Gibbs Chute and eliminating the "split" boundary through the small island. This change will also increase hunting opportunity.

Near Proudfoot Slough, the closed area boundary will continue to be the east or left descending bank of the Mississippi River. Recognizing the public desire for continued waterfowl hunting opportunity in this area, future boundary adjustments will be made with the goal of keeping the small embayment open to hunting. Any future adjustments are dependant on the rate of fill deposition and subsequent colonization by woody vegetation. Maintaining the closed area boundary near the developing shoreline is consistent with boundary management elsewhere along the main channel, reduces maintenance needs associated with establishing and maintaining a clear line through dense vegetation, and lessens safety concerns by eliminating a hunting/no hunting line in a limited visibility situation.

The section of boundary bordering the "old channel," is subject to annual change from erosion and/or change in aquatic vegetation beds. In effect, the boundary over time has been moving into what was always intended as closed area. This fluctuation in perceived left descending bank also leads to continual difficulty in annual posting, confusion and concern with hunters on where the boundary is from year to year, and ambiguity for Refuge and state enforcement personnel. This situation will be corrected by adjusting the line to provide a better defined boundary visible to waterfowl hunters and law enforcement personnel alike. Alternative E seeks to strike a balance between these various needs and the desires of waterfowlers. This adjustment will result in an enlargement of the closed area of less than 10 acres.

A fourth adjustment identified in Alternative D, moving the closed area boundary to include an entire island near the former Red Sails Resort on the east side of the lake, was removed from further consideration in response to public concerns about limiting available hunting areas. It was originally proposed due to the proximity of the area to residences and potential conflicts with anglers and other water users.

La Crosse District

Pool 8, Goose Island No Hunting Zone, Wisconsin, 986 acres

General Description

The Goose Island No Hunting Zone is an existing small closed area that will be expanded by about 110 acres along the south boundary (total area of 986 acres after expansion). Although designated a no hunting zone due to proximity to Goose Island County Park, this area is part of the Refuge's Closed Area System. The Goose Island No Hunting Zone is a small closed area (~1,000 acres or less). As a result, beginning in fall 2007, the use of motors on watercraft will not be allowed from October 15 to the end of the state duck hunting season to reduce human-caused disturbance to migratory birds. To further reduce disturbance, the public is also being asked to voluntarily refrain from entering the area from October 15 to the end of the state duck hunting season. Habitat consists of a backwater complex complete with a flowing slough, shallow lakes, a mix of submersed and emergent plants, and mini-deltas formed where breakouts occurred in the natural levee along Running Slough.

An additional expansion of 235 acres to the north, proposed in Alternative D, was dropped in Alternative E in favor of a special hunt area. Due to public concern and comment, the special hunt area has been dropped.

Background

The following background material concerning the origins of the current Goose Island No Hunting Zone was obtained from annual La Crosse District narrative reports, the 1954 Closed Area Recommendations Report, and the follow-up 1957 Closed Area System Evaluation. Although details are sketchy, the Goose Island No Hunting Zone evidently began in response to a need to buffer hunters from "live decoys" present because of a Mallard propagation project. In the early 1950s, the Badger State Sportsmen's Club (BSSC) was permitted by the U.S. Fish and Wildlife Service to propagate and release Mallards at their facility on Goose Island. In 1955, the sanctuary around the "duck project" was expanded to legally described locations and posted accordingly. This increased the size of the sanctuary from 100 to about 650-700 acres. Due to the presence of Mallards serving as live decoys, the entire area was closed to hunting. As a result, the "duck project" served as a de facto closed area, but was not recognized as such in the pre-1954 Refuge Closed Area System. When the Refuge's Closed Area System was being revised beginning in 1954, the BSSC began moving their Mallard breeding stock off the island due to enforcement problems. Views varied on how the "duck project" fit in to the revised Closed Area System. BSSC members wanted to continue releasing mallards, and began raising and releasing wood ducks, so their preferred option was to maintain the hunting ban. Refuge personnel thought the hunting prohibition could be abandoned provided the BSSC continue to remove their breeding stock of ducks, thus eliminating the live decoy problem. Otherwise, a sizeable area would have to be posted to prohibit hunting. In the end, the area remained closed to hunting and became part of the revised Refuge Closed Area System. In addition to Mallards and Wood Ducks, Canada Geese were later propagated and released at the site. The BSSC facilities were removed from Goose Island in 1983 ending more than 30 years of waterfowl propagation at the site.

In 1972, the size of the Goose Island Closed Area expanded and hunting on the island was prohibited. This action resulted in the new designation as the Goose Island No Hunting Zone. Expansion occurred when the area south of the entrance road was added to the no hunting zone. At the same time, a 82-acre parcel west of Hunters Point Road in Vernon County was also closed to hunting. Although closed to hunting, this area is not part of the Goose Island No Hunting Zone because it offers minimal waterfowl habitat and is separated by Hunters Point Road. When open to hunting, both areas were "trouble spots" because of their proximity to the adjacent Goose Island County Park and the BSSC's propagation project. Rifles aimed carelessly were a source of danger to park visitors, park and Refuge signs were vandalized, and geese were destroyed at the propagation project.

In recent years, the Goose Island No Hunting Zone has been one of the most heavily used puddle duck concentration areas on a per acre basis in the Refuge's Closed Area System. The peak count of 14,820 puddle ducks occurred on November 19, 2001 and included 12,820 mallards. Canada Geese and Tundra Swans also use the area. The "mini-deltas" (particularly the upper delta) and areas protected by emergent plants or woody vegetation provide thermal cover and are important habitat features. As the hunting season progresses and food in the no hunting zone becomes limiting, the birds generally use the area for protection during daylight hours and fly out at night to feed in areas subject to too much disturbance to be used by day. When this pattern is broken, usually by inclement weather, waterfowlers in Pool 8 benefit.

The Shady Maple/Beiers Lake area, which is part of the no hunting zone, at one time supported overwintering habitat for panfish. Use of this site for overwintering fish has been diminished as a result of flow changes and sedimentation. The public has expressed an interest in restoring panfish habitat. Balancing habitat requirements for puddle ducks, geese, and swans, with those of panfish will require careful consideration. Increased human disturbance is also a concern.

Rationale

The Goose Island No Hunting Zone is being expanded by 110 acres along the south boundary. This adjustment is being made to accomplish the following:

- Add additional puddle duck habitat to the no hunting zone. Tundra Swans and Canada Geese will also benefit.
- Eliminate the established firing line along the current south boundary. Hunting currently takes place from several islands located along this boundary. Moving the south boundary to the edge of the Running/Wigwam Slough channel reduces the opportunities to stand along the boundary and shoot.
- Eliminating the firing line should increase the effective size of the no hunting zone. Currently, the disturbance created by hunting pressure along the south boundary further reduces the area available to waterfowl to feed and rest.
- An expanded no hunting zone will also increase wildlife observation viewing opportunities available to the public from pullouts along Highway 35.

To reduce disturbance to waterfowl in this small no hunting zone (<1,000 acres), a no motor regulation will be in effect from October 15 to the end of the duck hunting season. The public is also being asked to voluntarily refrain from entering the no hunting zone during this same timeframe. Hikers using the Goose Island Interpretative Trail, located within the no hunting zone, will not be affected. A section of the Goose Island Canoe Trail is also located within the no hunting zone. A "voluntary closed period," from October 1 to November 15, has been in effect since the canoe trail was established. The dates of this "voluntary closed period" will be adjusted to match the no motor and voluntary avoidance area dates. The trail brochure will also be rewritten to reflect the changes. Periodic monitoring will be conducted to determine how well voluntary avoidance is working.

The proposed 235-acre expansion of the no hunting zone to the north, proposed in Alternative D, was dropped in Alternative E due to public comment and concern about the loss of hunting opportunity, especially for youth, and the possible impacts of no hunting in an area with an already high deer population. In Alternative E, the Goose Island Special Hunt Area was proposed for the 235-acre area. The focus of the special hunt area was to provide young waterfowl hunters, age 16 or younger, with a dedicated site close to La Crosse. Deer hunting was also allowed during the state seasons. The public showed little support for the special hunt area and it has been dropped.

La Crosse District

Pool 8, Wisconsin Islands Closed Area, Wisconsin and Minnesota, 6,510 acres

General Description

Wisconsin Islands Closed Area is an existing closed area located in the lower part of the pool. As islands in lower Pool 8 have disappeared, open water has become a more dominant feature in the closed area. Remnant and restored islands in the upper part of the closed area protect beds of submersed and emergent aquatic plants. In the recent past, submersed plants such as wildcelery have recolonized areas within the lower part of the area. Under this plan, the closed area boundaries will remain the same. The public is being asked to voluntarily avoid entering the Wisconsin Islands Closed Area beginning October 15 each year to the end of the state duck hunting season. Within the closed area and voluntary avoidance area, a travel corridor is being implemented in a section of Raft Channel, from the upper closed area boundary to the five boathouses. To minimize disturbance to waterbirds adjacent to the travel corridor, the Raft Channel Slow No Wake Zone will be in effect each fall from October 15 to the end of the state duck hunting season.

Background

The Wisconsin Islands Closed Area was implemented in 1957 after lengthy study. When established, this closed area offered excellent habitat for both puddle and diving ducks. The lower end was widely used by diving ducks. Puddle ducks generally used the upper reach of the area, where the water was fairly shallow and filled with aquatic plants. Islands present at the time also provided thermal cover for the birds during stormy weather. In the 1950s, the dominant submersed aquatic plants were sago pondweed, American pondweed, and flatstem pondweed. Wildcelery, another important submersed plant, was common to locally abundant, especially at the mouths of cuts leading off the main channel. During the 1957 fall migration, the peak population of ducks recorded in this closed area was 44,620 on a November 20 aerial survey. Nearly 1.85 million duck use days (1 duck per day = 1 use day) were recorded in the closed area from late September through early December 1957. Although no species breakdown was provided for either the peak population or use days in the closed area, for the La Crosse District (Pools 7 and 8) as a whole in 1957, mallards ranked first in number of use days followed in order by wigeon, scaup, Ring-necked Ducks, Pintails, and Blue-winged Teal.

Since the 1950s, there has been an observed decline in fish and wildlife habitat conditions in lower Pool 8 and the Wisconsin Islands Closed Area due to the loss of islands and the shelter they provide plants, a decline in aquatic plants, and a decline in depth diversity. The loss of aquatic plant beds and aquatic invertebrates resulted in fewer ducks using the closed area. In 1997, for example, fewer than 100,000 duck use days were recorded during fall migration!

Beginning with the completion of Phase I/Pool 8 Islands EMP Project in 1992, habitat restoration efforts in the lower part of the pool and closed area are producing positive results. In 1995, the shorelines of several islands, both in and out of the closed area, were protected with riprap. Two “seed islands” were also constructed in the closed area. Phase II/Pool 8 Islands EMP Project, or the Stoddard Bay Project, was completed in 1999. As part of the project, an additional six “seed islands” were constructed within the closed area. Moreover, a drawdown of water levels in lower Pool 8 in 2001 and 2002 was conducted to promote the growth and establishment of aquatic plants, particularly emergent plants such as arrowhead. Planning for the next large restoration project (Phase III/Pool 8 Islands EMP Project) is under way and when completed will have restored more than 100 acres of islands in the upper part of the closed area. One of the project goals is to restore puddle duck habitat in an area along Raft Channel. Additional habitat projects are also being considered.

In response to improved habitat conditions, duck use in the Wisconsin Islands Closed Area increased dramatically beginning in fall 1998. Peak counts from aerial surveys included 112,300 Canvasbacks on November 23 and 22,025 scaup, 7,175 Common Goldeneyes, and 4,500 Buffleheads on December 2. Nearly 4.5 million diving duck use days were recorded. Puddle duck numbers also rebounded in 1998, but lagged far behind diving ducks. Large numbers of ducks, primarily diving ducks, continue to concentrate in the closed area. In fall 2005, the peak count of 109,785 occurred on November 8. Diving ducks (primarily Canvasbacks, scaup, and Ring-necked Ducks) accounted for 101,115 of the total observed while 5,730 puddle ducks were counted, mostly Mallards and Gadwall.

When the Wisconsin Islands Closed Area was established, the focus was on providing migration habitat and protection for ducks. Few geese and Tundra Swans used the Upper Mississippi River in the 1950s and those that stopped remained only a short time. For example, the peak combined population of Canada Geese and Snow/Blue Geese observed on Pools 7 and 8 was about 300 in 1957. That year the peak tundra swan count in the Wisconsin Islands Closed Area was 13. Today, peak Canada Goose counts are about 2,500 in the closed area, while Tundra Swans typically exceed 10,000. Snow/Blue Geese are rarely observed.

In the 1950s, human use in the Wisconsin Islands Closed Area was a concern, just as it is today. One of the reasons for proposing this location as a closed area in the 1950s was to minimize human

disturbance to waterfowl. This area was of sufficient size to afford sanctuary to the birds. Further, in the 1950s, few small boats were expected to travel into the area except in calm weather. Now, larger boats and changing propulsion technology and availability (e.g., airboat, go-devil, beavertail, hovercraft, etc.) result in access in all kinds of weather. Monitoring human entry into the closed area was conducted in fall 2001. Ninety-one of 468 (19 percent) boating events documented during 132 hours of observation intruded into the closed area.

Rationale:

No change was made in the size of the Wisconsin Islands Closed Area. In recent years the cumulative impact of habitat projects has resulted in an increase in the density and distribution of aquatic plants and invertebrates. Waterfowl are responding. Future habitat projects, beginning with Phase III/Pool 8 Islands EMP Project, are expected to restore additional acres of waterfowl habitat.

The public is being encouraged to voluntarily avoid entering this closed area from October 15 each year to the end of the state duck hunting season to reduce disturbance to staging waterfowl. Periodic monitoring will be conducted to determine how well the voluntary avoidance is working. A travel corridor is being established in the upper end of the closed area in a section of Raft Channel to provide access to a commercial business and five boathouses that are located adjacent to or within this reach of the closed area. To minimize disturbance adjacent to the travel corridor, the Raft Channel Slow No Wake Zone is being established within the travel corridor and will be in effect each fall from October 15 to the end of the state duck hunting season. Buoys will be placed in Raft Channel to mark the boundaries.

The proposed 32-acre expansion of the closed area along Raft Channel in the upper corner of the closed area, identified in Alternative D, was dropped in response to public concerns about limiting available hunting areas.

Mc Gregor District

Pool 9, Pool Slough, Minnesota-Iowa, 1,112 acres

General Description

Pool Slough closed area was established as a conventional closed area in September 2003. Proposed actions under Alternatives D and E change that designation to a sanctuary, no entry October 1 to the end of the state duck hunting season. The area includes the majority of the Winnebago Creek delta and portions of the former backwater channel of the Upper Iowa River known as Pool Slough and its associated delta. The area lies adjacent to the Pool Slough EMP project scheduled for completion in 2007 on land owned and managed by the State of Iowa.

Background

Pool Slough is a flowing former backwater channel of the Upper Iowa River. The proposed Pool Slough sanctuary includes portions of this former channel and the deltas associated with this slough and the Winnebago Creek.

Rationale

This closed area is needed to provide a balanced and effective network of feeding and resting areas for waterfowl, particularly puddle ducks, the length of the Refuge. Energetic studies (Slivinski, 2004) indicate that this closed area will secure an additional 429 million Kcals of estimated gross energy for waterfowl in the area.

The change to "Sanctuary" classification will help optimize the effectiveness of the new moist soil units to be constructed on the adjacent Iowa DNR lands and coincide with their management. The original closed area was established in support of the Pool Slough EMP project. When completed this EMP project and associated sanctuary will help shorten the large gap (25.3 miles) between the Wisconsin Islands Closed Area and Harpers Slough Closed Areas.

Closure to all public use during the proposed period coincides with the sanctuary status on adjacent lands managed by the State of Iowa to minimize disturbance during the duck season and support and optimize water bird use of the marsh management units. Reduced human caused disturbance within Pool Slough closed area would also enhance wildlife viewing opportunities along the Army Road east of New Albin, and perhaps from the overlook platform adjacent to Highway 26, north of New Albin.

Mc Gregor District

Pool 9, Harpers Slough, Iowa-Wisconsin, 5,209 acres

General Description

Harpers Slough is a large open water area in the lower part of the pool interspersed with emergent and submergent aquatic vegetation and small wooded islands. This existing closed area would be classified under Alternative E as a "large" closed area (greater than 1,000 acres) with a voluntary avoidance area designation from October 15 to the end of the state duck hunting season. Under this proposal the public will be asked to voluntarily avoid entering the area during the stated time period to minimize disturbance of waterfowl.

Background

The existing Harpers Slough Closed Area was established in 1957 and 1959. At that time it was predicted to hold high numbers of waterfowl and it has ever since. The abundance of aquatic vegetation and wooded islands that provide birds protection from strong winds has remained somewhat intact or is being restored through EMP projects.

Rationale

Harpers Slough is a critical feeding and resting area for waterfowl during the fall migration, often having more use than any closed area on the Refuge. It plays a critical role in minimizing disturbance to waterfowl utilizing both the closed area and the open water area in front of Sugar Creek. This area is one of the most important migratory rest stops on the Refuge for canvasback ducks and tundra swans. During peak migration periods up to one quarter of the world's Canvasback population has been observed resting and feeding in this area. Large concentrations of puddle ducks and additional diving duck species are commonly recorded as well during both fall and spring migration periods. The current closed area boundaries have undergone only slight modification since 1958. Pool 9 is the most productive (Kcal) pool on the Refuge (Slivinski, 2004).

Harpers Slough Closed area protects 14 percent of the pool's estimated 16,810 million Kcal production for use by migrating waterfowl. The Harpers Slough EMP project is in the planning stages. This project will protect and enhance island habitat and aquatic plant communities, and improve fisheries habitat within the closed area.

Mc Gregor District

Pool 10, Sturgeon Slough, Wisconsin, 340 acres

General Description

Sturgeon Slough closed area encompasses 340 acres of backwater sloughs, channels, and forested islands in an area north of the Highway 18 bridge. Most waterfowl use is by wood ducks and mallards. Sturgeon Slough is classified as a "small" closed area (less than 1000 acres) and is closed to the use of motors and is a Voluntary Avoidance area from October 15 to the end of the state duck hunting season. Under this designation, the use of motors will not be allowed and the public will be asked to voluntarily avoid entering the area during the stated time period to minimize disturbance to waterfowl.

There is a hiking trail within the closed area that starts just north of the Highway 18 bridge. It then extends to the old road causeway and loops back. The trail is surrounded by a 66-acre no hunting zone established under Alternative E (first proposed in Alternative D) to prevent conflicts between hikers and hunters. This no hunting zone remains active throughout the entire hunting season under Alternative E.

Background

Prior to 1957, Pool 10 had two closed areas, one at McGregor Lake and one at Sny Magill. Both areas were designated on the basis of Refuge ownership alone and were not very desirable for waterfowl. These closed areas were dropped because of lack of aquatic vegetation and lack of waterfowl use. The Bagley Bottoms area, south of the Wisconsin River delta, was recommended as a new closed area but was never so designated. Since 1957, Pool 10 has had only one closed area (12-Mile Island, 540 acres) in the lower part of the pool. It is contiguous with the 12-Mile Island closed area in Pool 11. However, it is 33 miles south of the Harper's slough closed area in Pool 9. This distance creates a large gap in the network of stepping stones of habitat that provide resting and feeding areas for migrating waterfowl.

The first draft of Alternative E proposed to establish the McGregor Lake closed area (852 acres), located north and south of the Highway 18 bridge. This area was to be closed to waterfowl hunting from the beginning of the state duck season through October 31 and then open to hunting from November 1 through the remainder of the state duck season. McGregor Lake closed area was paired with the Wisconsin River Delta closed area, which was to open early season and close November 1(see below), as a dual function area to provide a continually active closed area throughout the season within this portion of the pool.

Citizen concerns received during the public comment period indicated confusion with the "dual function" concept presented by the McGregor Lake/Wisconsin River Delta "flip-flop" proposal. In response, the final Alternative E establishes a standard "small" closed area north of the Highway 18 bridge. This new area is called the Sturgeon Slough closed area. The portion of the McGregor Lake area south of the Highway 18 bridge is now dropped from any closed area designation, due to marginal waterfowl habitat and its importance to sport fishing, and remains open to public use under Alternative E.

Sturgeon Slough closed area is primarily used by wood ducks. Although not heavily used by waterfowl at this time, it will provide the birds a relatively secure resting area during the duck hunting season .

The Wisconsin River Delta closed area proposed under the draft Alternative E is now a special hunt area (see below).

Rationale

Sturgeon Slough closed area and the Wisconsin River Delta Special Hunt area are established in response to public concerns over the confusion of "dual function" closed areas and the retention of early season hunting in this section of Pool 10. This action will provide continuous closed area conditions during the duck hunting season within this portion of Pool 10 and shortens the long distance, 31 miles, between Harper's Slough and 12-Mile Island closed areas. Sturgeon Slough is 11.4 miles south of Harper's Slough closed area. The Sturgeon Slough closed area will primarily serve for local birds, particularly wood ducks, and early migrants.

Mc Gregor District

Pool 10, Wisconsin River Delta Special Hunt Area, Wisconsin, 1376 acres

General Description

The Wisconsin River Delta special hunt area contains excellent waterfowl habitat that includes small backwater wetlands and areas of open water interspersed with sloughs and wooded islands. One larger lake, Gerndt Lake, contains the best waterfowl habitat and receives the most hunting activity. Both submersed and emergent vegetation are present.

The Wisconsin River Delta Special Hunt Area is closed to all hunting and trapping November 1 to the end of the State duck hunting season. It is designated a voluntary avoidance area during those same dates when the public is asked to voluntarily avoid entering the area minimize disturbance of waterfowl. This designation allows for early season hunting. The size of the Wisconsin River Delta closed area is reduced 169 acres from earlier proposals to keep boat access channels outside the closed area.

Background

In the draft Alternative E, the Refuge proposed to create a new "large" closed area (greater than 1,000 acres) just north of the confluence of the Wisconsin and Mississippi Rivers called the Wisconsin River Delta. This would have been a dual function closed area with the McGregor Lake closed area to the north. Comments received during the public comment period indicated some confusion with the "dual function" concept presented by the McGregor Lake/Wisconsin River Delta "flip-flop" proposal, therefore, the Wisconsin River Delta closed area has been modified as a special hunt area. See above for additional background presented for Sturgeon Slough.

The Wisconsin River Delta closed area was proposed in Alternative D to satisfy two critical waterfowl management needs of this portion of the Refuge:

1) It would establish a mid-pool closed area in Pool 10, halving the existing distance (31 miles) between closed areas and
2) It would provide good dabbling duck habitat in a closed area. Both purposes contribute to management goals of achieving a more optimal distribution of waterfowl throughout the Refuge.

Rationale

Under Alternative E, the closed area configuration is changed to a special hunt area. As such, it continues to address management goals, but to a lesser degree. Changes were made in response to public input that acknowledged the need for closed areas but wanted continued early season hunting opportunities in the proposed Wisconsin River Delta area. There were several suggestions to establish a closed area in the McGregor Lake area rather than the delta. Thus, the establishment of the Sturgeon Slough closed area and the Wisconsin River Delta special hunt areas meet management objectives and public concerns. This configuration allows hunters to take advantage of opening weekend and early migrants while still filling a gap for relatively secure resting and feeding areas for the bulk of dabbling duck migrants later in the season. Allowing early hunting opportunity also alleviates any economic impacts from this new closed area. The Sturgeon Slough area serves as closed area for local birds, especially wood ducks, and other migrants.

Wisconsin River Delta and Sturgeon Slough provide the best combination of spacing, food, and habitat in order to fill the 31-mile gap between stepping stones of secure migration habitat at Harpers Slough in Pool 9 and 12-Mile Island in lower Pool 10. The Delta also provides greater potential gross energy (plant foods) than other potential closed areas in Pool 10 (Slivinski, 2004). See further discussion of the topic in Chapter 2, Alternative E, Objective 4.2.

Mc Gregor District

Pool 10. 12-Mile Island, Iowa, 540 acres

General Description

Under Alternative E, this existing closed area is classified as a “small” closed area (less than 1,000 acres) and therefore, is closed to the use of motors and designated a Voluntary Avoidance Area October 15 to the end of the regular state duck hunting season. Under this proposal the use of motors would not be allowed and the public will be asked to voluntarily avoid entering the area during the stated time period to minimize disturbance of waterfowl.

The area is bounded by the main channel on the west and another channel on the east. The area consists of forested narrow island chains that support and protect an extensive marsh complex with both emergent and submergent plant communities. Water depths throughout the area are shallow.

Background

This closed area was established as part of a larger (12 Mile Island, Pool 11) closed area in 1957. Fall waterfowl (diving ducks, puddle ducks, swans, and Canada Geese) use within the closed area is greater then any place within Pool 10. The area is bordered to the east by Ferry Slough which is the site of the most concentrated hunting pressure in Pool 10. Because of the open nature of the area, and the arrow head configuration of the landmasses, disturbances from boaters or other intrusions result in birds leaving the area. There is intense hunting pressure surrounding the area. In recent years thousands of mallards have used the closed area to stage each evening before feeding in the surrounding agricultural fields. Given the shallow nature of the area little fishing occurs within it.

Rationale

This existing closed area is needed to provide waterfowl a more balanced and effective network of feeding and resting areas. The “small” classification designation that includes voluntary avoidance and no motors designation after October 15, will prevent unnecessary disturbances to waterfowl in

this small and narrow closed area. This closed area, like the Pool 11 component to the south will also provide an undisturbed loafing and staging location for birds utilizing the adjacent moist soil units.

Mc Gregor District

Pool 11, 12-Mile Island, Iowa, 1145 acres

General Description

Under Alternative E, this existing closed area is classified as a "large" closed area (greater than 1,000 acres) and includes travel corridors (Skimmer Horn Slough and Ackerman's Cut). The 12-Mile Island closed area is designated a voluntary avoidance area October 15 to the end of the state duck hunting season. Under this proposal the public is asked to voluntarily avoid entering the area during the stated time period to minimize disturbance of waterfowl. Habitat within 12-Mile Island is characterized by timber-lined back water sloughs and lakes, with some small emergent and submersed vegetation marshes.

Background

This closed area was established as part of a larger conventional closed area in 1957. The area receives its greatest waterfowl use late in the migration season and usually as a response to surrounding hunting pressure. The closed area also holds migrants on a daily basis that utilize the Guttenberg Ponds moist soil units bordering it to the north. Guttenberg Ponds is designated as a sanctuary within this closed area under Alternative E (see below). Little fishing occurs within the area except along the two proposed travel corridors.

Rationale

This existing closed area remains a closed area. It is needed to provide waterfowl a balanced and effective network of feeding and resting areas, and to continue to provide an undisturbed loafing and staging location for birds utilizing the adjacent moist soil units.

Mc Gregor District

Pool 11, Bertom McCartney, Wisconsin, 2,384 acres

General Description

Under Alternative E, the Bertom McCartney closed area retains its existing conventional closed area regulations with no changes. The current area includes islands and water from river mile 599 on the south, to river mile 603.5 on the north. The area's best waterfowl habitat with both emergent and submersed aquatic vegetation is located in the northern portion (Hay Meadow Lake) of the closed area. The remaining area contains pockets of emergent vegetation, open water areas, and timber lined sloughs.

Background

This closed area was established as a conventional closed area in 1957. For the last 20 years the most southerly boundary of this closed area has moved south each season following any new sediment deposition on the island that forms its southerly boundary. The Refuge's newly renovated Bertom McCartney Boat Landing is within the closed area. The closed area was also the site of the District's

first EMP project, constructed in 1994, to rehabilitate backwater sloughs primarily for the benefit of winter fish. The area has traditionally had an excellent fishery and continues as a result of the EMP project.

Rationale

This existing closed area remains a conventional closed area. It is needed to provide migrating waterfowl a balanced and effective network of feeding and resting areas. Originally under Alternative D the southern portion of the closed area was proposed to be removed. This proposal, however, is now dropped in lieu of the food resources report (Slivinski, 2004) that indicated there would be a significant net loss in available food within the Pool with this action, (despite adding the John Deere Marsh Closed Area). Waterfowl use remains highest within the northern part of the closed area; however, the smaller pocket marshes in the remainder of the closed area receive considerable waterfowl use later in the fall. Diving ducks also utilize the open water portions of the area, especially during days when strong Northwest winds drive the birds from the open water stretches elsewhere in the Pool. The continued use of existing closed area regulations in this area is important to maintain because of the fisheries resources within its boundary and the presence of a Refuge boat landing within the area. Given the size and inaccessibility of the northern portion of the area, fishing pressure should not disturb birds. In addition, most of the waterfowl use occurring within the southern portion of the closed area occurs after the traditional bass fishing season has ended.

Mc Gregor District

Pool 11, Guttenberg Ponds, Iowa, 252 acres

General Description

Under Alternative E. Guttenberg Ponds is designated a waterfowl sanctuary (no entry October 1 to the end of the state duck hunting season). It is located within the existing 12-Mile Island closed area. The specific area includes the Guttenberg Ponds moist soil units and Big Pond located to the south and adjacent to the moist soil units. Water levels in the 50-acre moist soil units are managed seasonally for migrating water birds, primarily waterfowl in the fall. Typically thousands of waterfowl utilize the area each fall feeding on moist soil plants within the flooded units.

Background:

The entire proposed area was originally part of the Guttenberg National Fish Hatchery which was abandoned and turned over to the Refuge. The proposed sanctuary area is within a conventional closed area established in 1957. The moist soil units were constructed in 1994 during the Bussey Lake EMP project. Big Pond currently has water control structures on it; however, they have not been functional since the 1960s. Big Pond is well known for pan fishing but is not accessible except during periods of high water in the spring. Prior to this proposal the Refuge sought and received concurrence from Iowa DNR to establish a “No Entry Area” at this location.

Rationale

The proposed sanctuary is needed to minimize disturbance to feeding and resting waterfowl. The current berm structures surrounding the two ~25 acre moist soil units are insufficient to buffer waterfowl from individuals walking on the berms or in the area. Birds are flushed with each disturbance and forced to relocate in areas open to hunting or leave the area. The Big Pond area functions with the moist soil units to allow open water loafing and a staging area for migrants prior to their arrival within the units each day.

Mc Gregor District

Pool 11, John Deere Marsh, Iowa, 405 acres

General Description

Under Alternative E, John Deere Marsh closed area is established at the confluence of the Little Maquoketa and Mississippi Rivers. The south portion of the area contains a developing emergent plant community extending into the open water expanses of lower Pool 11. The northern portion of the closed area consists of a well established emergent community forming a rich wetland band along the shore line. Both areas contain significant submersed vegetation communities in some years, depending on river conditions. It is classified as a "small" closed area (less than 1,000 acres) and therefore, is closed to the use of motors and designated a Voluntary Avoidance Area October 15 to the end of the regular state duck hunting season. Under this proposal the use of motors would not be allowed and the public will be asked to voluntarily avoid entering the area during the stated time period to minimize disturbance of waterfowl.

"Walk-in" hunting will be encouraged in an area between the two sections of this closed area.

Background

The south portion of this closed area has expanded from a few small spoil placement sites into an ever-expanding emergent marsh over the last 25 years. The forces driving this development are a result of sediment within the Little Maquoketa River watershed and are expected to continue. The northern wetland component within this closed area has remained fairly stable over the same time period. The deflective berms associated with the Mud Lake EMP project (completed 2006) just upriver from this location should provide additional benefits to this marsh as time passes. Because the area is close to Dubuque, Iowa it receives considerable hunting pressure, especially during opening weekend. However, the birds that utilize the area soon leave due to the fact that there are no protected areas to harbor them. The John Deere Marsh area is one of three wetland complexes (Sunfish Lake, Wisconsin. Mud Lake, Iowa.) within the open water area of lower Pool 11. Hunting is permitted in both of these other two locations.

Rationale

This new closed area is needed to shorten the 29.7-mile gap between Bertom McCartney Lake closed area to the north and the proposed Kehough Slough closed area to the south. In addition the other more heavily hunted locations in the lower portion of Pool 11 will benefit because birds will remain in the area, having a relatively secure location for waterfowl to feed, rest and meet other life requirements. This should provide hunters in the area a more quality hunt over the course of the season. The closed area proposed in Alternative D included all lands within the Refuge at John Deere Marsh. After receiving public comments about the lack of walk-in hunting areas in proximity to Dubuque, the proposal was altered. The new configuration allows hunting in the area bordered to the south by the John Deere intake channel, and to the north by the Little Maquoketa River on all lands within the Refuge east of the railroad. This adjustment allows the hunting public to use one of the few walk-in areas in lower Pool 11, and not jeopardize the functionality of the remaining closed area.

Mc Gregor District

Pool 11, Lower Pool 11 No Open Water Hunting Area, Wisconsin, 4000 acres

General Description

The Lower Pool 11 No Open Water Hunting Area is located as follows (see map, Appendix P): All waters within the state of Wisconsin on the Mississippi River from river mile 586.3 to river mile 592.1 as described: **North** boundary (RM 592.1) is formed by a line between Specht's Ferry located on the Iowa shoreline NE across the main channel to the Potosi Point jetty on the Wisconsin shoreline. **East** boundary is the Wisconsin shoreline. **South** boundary (RM 586.3) is formed by a line from the John Deere deflection dike on the Iowa shoreline east across the main channel to Fenley Bluff on the Wisconsin shoreline. **West** boundary formed by State boundary between Wisconsin and Iowa.

Under Alternative E, open-water waterfowl hunting is prohibited in the described area in accordance with general Wisconsin open-water hunting regulations/definitions summarized as follows:

> No person may hunt waterfowl in open water from, or with the aid of, any blind including any boat, canoe, raft, contrivance, or similar device. Open water is defined as any water beyond a natural growth of vegetation rooted to the bottom and extending above the water surface of such height as to offer whole or partial concealment to the hunter. Dead stumps and dead trees in the water do not constitute a natural growth of vegetation. Hunting is permitted in any open water area provided the hunter is standing on the bottom without the aid of a blind. Blinds include, but are not limited to, any boat, canoe, raft, or similar device that provides any concealment for the hunter.

Background

Until the 1980s the area was an important staging and feeding area for diving ducks, primarily Scaup, which fed on fingernail clams and aquatic insects. During the 1980s, the fingernail clam population crashed, and waterfowl use of the area virtually ceased. In recent years, submersed vegetation, such as wild celery, has become established in portions of the area and once again Canvasback, scaup, and Ring Necks are using the area, for example, 47,000 Lesser Scaup and 5,000 Canvasback in November 2004. Other than lower pool 9, this area receives the second highest diving duck use in the entire McGregor District. It also provides the only major staging and feeding area for divers between Pools 9 and 13, a distance of 125 river miles.

Rationale

In the Grant County portion of Pool 11, open water hunting is allowed through a special exemption to the Wisconsin regulations. The prohibition of open-water hunting in the designated a portion of the Refuge limits disturbance of thousands of Canvasback and Lesser Scaup that migrate through the Refuge, two species of management concern due to relatively small or declining populations. This action represents a scaling-back of proposals in earlier alternatives based on public input, and to ensure the action targets the current area of need versus potential need triggered by any state open water regulation changes, which may, in fact, never materialize.

Savanna District

Pool 12, Kehough Slough, Illinois, 343 acres

General Description

Under Alternative E, Kehough Slough is classified as a "small" closed area (less than 1,000 acres) that will be closed to the use of motors and designated a voluntary avoidance area October 15 to the end of the state duck hunting season. Under this proposal the use of motors would not be allowed and the public will be asked to voluntarily avoid entering the area during the stated time period to minimize disturbance of waterfowl.

The area is characterized as a backwater lake that contains extensive emergent vegetation surrounded by floodplain forest. Water levels are dependent upon Mississippi River levels and average 6-18 inches deep. Kehough Slough is an isolated area with only one primary entry/exit channel, it is located in the middle of a chain of seven backwater lakes, and is protected from river currents, as well as wind and wave action.

Background

There are no historic closed areas in Pool 12. Kehough Slough is currently used by waterfowl hunters and fishermen, but minimal recreational boating or commercial fishing occurs in the area due to shallow water levels. There is an EMP project planned for Kehough Slough, with funding proposed for 2010. The EMP project includes the deepening of 6 backwater lakes for overwintering fish habitat. The EMP project will minimally impact the use of this area by waterfowl, but will encourage other recreational use, especially fishing.

Rationale

Pool 12 has no existing closed areas. Kehough Slough is located in about the middle of Pool 12 and will be important in the stepping stone concept of providing closed areas for waterfowl by decreasing the existing 46 mile gap between closed areas. It is 18 miles south of the proposed John Deere Marsh closed area in Pool 11 and 15 miles north of the existing Pleasant Creek closed area in Pool 13.

Although Kehough Slough is small is size, it contains a diversity of preferred waterfowl foods and habitat. Energetic studies by Slivinski (2004) show that other areas south of Kehough Slough (Wise Lake) would provide significantly more gross energy for waterfowl. However, Kenough Slough was selected because it is more centrally located within Pool 12 and the Wise Lake area, now with moderate levels of hunting pressure, is within 5 miles of the bottomland east of Crooked Slough on the Lost Mound unit in Pool 13, closed to human entry due to the presence of contaminants. In effect, this part of Lost Mound functions as a closed area, further meeting waterfowl management goals of the Refuge. Kehough Slough lake is isolated from other nearby lakes and will provide undisturbed resting and feeding areas. Due to its isolated location in a forested backwater area, a firing line situation should not develop. There are other backwater lakes located above and below Kehough Slough that will remain open to public access. Waterfowl hunting opportunities in these adjacent backwater lakes should improve due to an increase in waterfowl concentrations in Kehough Slough.

Savanna District

Pool 13, Pleasant Creek, Iowa, 2,067 acres

General Description

Pleasant Creek is an existing closed area and in Alternative E it is classified as "large" (greater than 1,000 acres) closed area and thus designated a voluntary avoidance area October 15 to the end of the state duck hunting season. Under this proposal the public will be asked to voluntarily avoid entering

the area during the stated time period to minimize disturbance of waterfowl. The 536-acre reduction in size of the closed area proposed in Alternative D continues in Alternative E. The area is characterized by a wetland complex of five backwater lakes and a moist soil impoundment located adjacent to the lakes. The entire area is surrounded by floodplain forest. There is restricted boat access into this backwater complex due to shallow sloughs and a low levee surrounding the area.

Background

Pleasant Creek is an existing closed area that was established in 1957. It is a management unit in which all of the backwater lakes have water control structures and are surrounded by a 5-mile long perimeter levee with two concrete spillways. A 49-acre moist soil unit was completed in 2003 under an EMP project and provides water level management capabilities to promote emergent vegetation. The area receives significant waterfowl use by providing undisturbed resting and feeding areas.

Rationale

Pleasant Creek is a management unit that has been developed specifically to control water levels for the production of wetland plants, especially waterfowl foods. The extensive low levee system with water control structures and pump station provide capabilities for habitat management. In addition, the isolation of this backwater complex provides an undisturbed area for resting and feeding. Due to its isolation, firing lines have not developed. Pleasant Creek is a successfully functioning management unit that provides valuable habitat for waterfowl. It is important in the stepping stone concept of providing closed areas for waterfowl, with Kehough Slough located 15 miles to the north and Spring Lake located 12 miles to the south. Pleasant Creek has consistently attracted puddle ducks, making it one of the largest puddle duck concentration areas on the Refuge.

The reduction in acreage of the closed area is the result of eliminating a forested tract on the south boundary that contains small pothole areas, but has no sizeable water areas for waterfowl. This opens a significant area to upland game hunting without influencing the effectiveness of the closed area.

Savanna District

Pool 13, Spring Lake, Illinois, 3,686 acres

General Description

Under Alternative E, Spring Lake will continue to be a waterfowl Sanctuary, no entry October 1 to the end of the regular state duck hunting season. The lake is a large backwater complex that is divided into Upper Spring Lake and Lower Spring Lake. Upper Spring Lake includes about 600 acres divided into three moist soil units that are intensively managed with water control structures and a primary pump station. Lower Spring Lake includes about 3,000 acres, water levels are dependent upon river stages, and the average water depth is about 12-18 inches with extensive emergent vegetation present; a 28-acre levied moist soil unit is within Lower Spring Lake that contains a water control structure and a pump station for water level manipulation. A 12-mile perimeter levee surrounds Spring Lake with boat access into Lower Spring Lake, but the cross dike prohibits boat access into Upper Spring Lake.

Background

Spring Lake is an existing waterfowl Sanctuary that was established in 1957. An EMP project was completed in 1998 that rehabilitated the extensive levee system, constructed four moist soil units, and replaced the deteriorated water control structures and pump station. Water levels in the moist

soil units are intensively managed for emergent vegetation production primarily for the benefit of waterfowl. Spring Lake continues to provide excellent habitat and attracts large concentrations of waterfowl. A firing line is established on the southern boundary of Spring Lake, but has not been a significant problem.

Rationale

Spring Lake is a successfully functioning waterfowl sanctuary. The extensive levee system, with water control structures and pump stations, provide capabilities for intensive habitat management. The production of waterfowl foods has consistently attracted puddle ducks making it one of the largest fall puddle duck concentration areas on the Refuge. Average annual puddle duck use-days on Pool 13 (the bulk of which are at Spring Lake) for the period 1997-2002 reached 1.5 million use-days, about equal to total puddle duck use on Pools 7, 8, and 9 during the same period. Spring Lake is also an important in the stepping stone concept of closed areas with Pleasant Creek closed area located 12 miles north and Elk River closed area located 1 mile southwest.

Savanna District

Pool 13, Elk River, Iowa, 1,237 acres

General Description

Elk River is an existing closed area and is classified as “large” (greater than 1,000 acres) closed area under Alternative E. It will be designated a voluntary avoidance area October 15 to the end of the state duck hunting season. Under this proposal the public will be asked to voluntarily avoid entering the area during the stated time period to minimize disturbance of waterfowl. This area contains extensive open water and sand bars with minimum submergent or emergent vegetation present. The area is primarily used by waterfowl as loafing habitat. Elk River is not a highly visited recreation area or a travel corridor due to shallow water levels.

Background

Elk River was established as a closed area in 1957. The area has no habitat management capabilities and water levels are dependent upon Mississippi River levels and range from 6-18 inches deep. Due to shallow water levels, the area is not a popular commercial fishing area or recreation area. The area has consistently attracted puddle ducks and Canada Geese over the years. Hunters tend to concentrate on the eastern boundary of Elk River, but this has not developed into a significant firing line problem.

Rationale

Elk River continues to attract concentrations of waterfowl, especially dabblers and Canada Geese. The area is important in the stepping stone concept of closed areas with Spring Lake located 1 mile north and Beaver Island located 12 miles south. Although there are no habitat management capabilities, the extensive open water and sand bars provide excellent undisturbed loafing habitat. The concentration of waterfowl in Elk River has benefited hunting in adjacent areas.

Savanna District

Pool 14, Beaver Island, Iowa, 717 acres

General Description

Under Alternative E, Beaver Island is established as a new "small" closed area (less than 1,000 acres) and therefore, will be closed to the use of motors and be designated a Voluntary Avoidance Area October 15 to the end of the regular state duck hunting season. Under this configuration the use of motors would not be allowed and the public will be asked to voluntarily avoid entering the area during the stated time period to minimize disturbance of waterfowl.

The area is characterized by a backwater lake containing emergent vegetation surrounded by floodplain forest. The area has no habitat management capabilities and water levels are dependent upon Mississippi River levels and range from 6-12 inches deep. Beaver Island is an isolated area with one primary entry/exit channel and is protected from Mississippi River currents and from wind and wave action.

Background

There are no closed areas in Pool 14. Beaver Island is currently used by waterfowl hunters and anglers, but minimal recreational boating or commercial fishing occurs in the area due to shallow water levels. At this time, no EMP projects have been funded for Beaver Island.

Rationale

Beaver Island is a new closed area to be established within Pool 14, which has no existing closed areas. It is located in about the middle of Pool 14 and will be important in the stepping stone concept of closed areas with Elk River located 12 miles to the north. There are no other Refuge closed areas in Pool 14 and Beaver Island will be the last downriver closed area on the Refuge.

Although Beaver Island is small is size, it contains a diversity of habitat, and is isolated to provide undisturbed resting and feeding areas. Due to its isolated location in a forested backwater area, a firing line situation should not develop. There are adjacent backwater areas located west of Beaver Island that will remain open to public access. Waterfowl hunting in these adjacent backwater lakes should improve due to an increase in waterfowl concentrations within the closed area.

Attachment 1, Appendix Q

Comments and Response on Waterfowl Disturbance Threshold and Related Waterfowl Hunting Closed Area Issues

The following comments are paraphrased from written comments received via e-mail during the public comment period (December 5, 2005 to March 6, 2006) on Alternative E, Supplement to the Draft Comprehensive Conservation Plan and Environmental Impact Statement for the Upper Mississippi River National Wildlife and Fish Refuge. The comments provided a useful basis for a more detailed discussion of the science behind some of the proposals in Alternative E.

Specifically, the comments were in response to the proposed human-caused disturbance threshold described in Objective 4.2 Waterfowl Hunting Closed Areas contained in Alternative E: Modified Wildlife and Integrated Public Use (pages 20-22 of the full supplement).

Refuge staff developed responses for each comment with important contributions and review by Kevin Kenow of the U.S. Geological Survey. Comments are numbered and in bold, followed by the collective refuge and USGS response.

1) *Food is by far the most important factor that attracts and holds birds in an area. If adequate food is available, birds will tolerate moderate to heavy levels of disturbance.*

   Response: In a study of three migration areas along the Illinois River that afforded varying degrees of protection, Bellrose (1954, Jour. Wildl. Mgmt, 18:160-169) concluded that security was the factor governing the relative degree of use made of the areas by waterfowl. Jahn and Hunt (1964, Duck and Coot Ecology and Management in Wisconsin) suggested that even the best habitats will be lightly, if at all, used by migrant ducks if human disturbance is excessive. On the Upper Mississippi River National Wildlife and Fish Refuge, Green (1954, Closed Area Recommendations Report) wrote:

   > "Wildlife habitat conditions in the Goose Island and Crosby Slough Closed Areas (both were located west of Goose Island, Pool 8) are satisfactory, and when we could control boat travel they were widely used by birds. There is ample marsh and aquatic growth to accommodate the ducks, but heavy use by boaters and fishermen militate against use by waterfowl to the extent previously experienced. It is therefore felt that an exchange should be made in order to find a closed area where the birds will not be molested. We feel that Wisconsin Island will fulfill these needs."

2) *The threshold of one major disturbance per day based on a season-long average is not relevant to any sort of scientifically measurable impact for most waterfowl using the Upper Miss Refuge. In Alternative E, a major disturbance is defined as a human intrusion which displaces 1,000 waterfowl or 50 percent of the waterfowl present in a closed area, whichever is less.*

   Response: As summarized in the full text of Alternative E, the new policy on setting a threshold of disturbance to guide future entry and use regulation decisions was based on state and public comments received during the first comment period. However, given the food and rest needs of waterfowl in migration, it is recognized that no human disturbance is optimum. Thus, the disturbance rate of one major human-caused disturbance per day is not intended to represent a purely biologically-accepted threshold of disturbance, but a balance between the needs of

waterfowl and the realities of a large open river system, various authorities, different user groups, abundant access points, and the level of surrounding development.

Waterfowl using the Upper Miss Refuge in fall include puddle ducks, diving ducks, geese, and Tundra Swans. According to Korschgen and Dahlgren (1992, Fish and Wildlife Leaflet 13.2.15), not all waterfowl are equally sensitive to disturbance. Among those most vulnerable include diving ducks, especially canvasbacks and lesser scaup. Also, large flocks of waterfowl are more susceptible than small flocks.

We used results from the last three monitoring episodes for the Lake Onalaska Voluntary Waterfowl Avoidance Area (VWAA) in setting the threshold. Although the VWAA benefits many species of waterfowl, diving ducks, including canvasbacks, likely benefit the most. Each year, observations were conducted from 15 October through 14 November, **or 31 days**. Boats intruded into the VWAA in 1993 on 74 occasions and resulted in disturbance to waterfowl present in the VWAA in 44 instances (17 minor and **27 major disturbances**). A minor disturbance is defined as <1000 birds and a major as >1,000 birds. In 1997, boats intruded into the VWAA on 53 occasions and disturbed waterfowl in 51 instances (22 minor and **29 major disturbances**). In 2004, boats intruded into the VWAA on 71 occasions and resulted in disturbance to waterfowl present in the VWAA in 41 instances (12 minor and **29 major disturbances**). These data represent conservative disturbance estimates as boating activity and disturbances to waterfowl were not monitored before sunrise or after sunset (Kenow et al. 2003, Waterbirds 26(1): 77-87 and Kenow et al. 2005, USGS Report to Region 3, USFWS).

Conversely, how many disturbances per day will negatively impact waterfowl? Havera et al. (1992, Wildl. Soc. Bull. 20:290-298) studied human disturbance and its effects on diving ducks in Keokuk Pool, Navigation Pool 19. During daylight hours, they found waterfowl were likely disturbed at all sites in their study area an average of 5.7 and 4.0 times/day in fall 1986 and fall 1987, respectively. Their conclusion: this level of disturbance affects feeding and resting behavior and can influence the ability of the birds' to accumulate the necessary energy and nutrient reserves.

3) ***Waterfowl and other birds have a need to keep their flight muscles in top shape through exercise flights. Each and every bird needs to exercise during every 24-hour period. They cannot allow their flight muscles to atrophy since flying is their most precious attribute. This is an important drive that has not received much study, especially on fall migration areas.***

Response: A review of the literature and discussions with other scientists yielded no published accounts that specifically addressed the need of waterfowl (or other birds) to maintain flight capabilities through daily exercise flights. There is evidence to suggest that capacity of flight muscle is primarily under hormonal control (Bishop et al. 1995, Am. J. Physiol. 269:R64-R72; Bishop et al. 1998, Physiol. Zool. 71:198-207); even under the extreme situations of initial development of flight muscles in juveniles and muscle recovery following extended flightless periods (i.e., molt). Muscle hypertrophy occurs prior to migration in both the pectoralis muscles and cardiac muscles of birds (Butler and Bishop 2000, pp. 391-435 in Sturkie's Avian Physiology, 5th ed.) and is largely independent of exercise (Bishop et al. 1998, op. cit.). Work conducted on flight muscle development in Barnacle Geese (Bishop et al. 1998, op. cit.) and flight muscle recovery in molting Eared Grebes (Gaunt et al. 1990, Auk 107:649-659) suggest flight muscle capacity does not seem to require prolonged or high-load exercise, but rather infrequent wing-flapping may suffice. In the case of grebes, individuals engaged in wing-flapping for a total of only about 5 minutes per day (in 3-10 sec bursts).

According to one rather dated source, a perceived need or "drive" to fly is perhaps confused with "Zugunruhe," a twice yearly cycle of nocturnal restlessness, which occurs in migratory birds during the migration season. It is tied to the neuro-endocrine system stimulated by day length (photoperiod) and cold (or warm) weather, and also coincides with increased fat deposition and enlargement of gonads of migrants in the spring (Welty, C. 1962. The life of birds. W.B. Saunders Co., Philadelphia. 546 pp.)

Regardless, at migration stopover sites, waterfowl likely fly many times during the day. In addition to responding to human-caused disturbances, waterfowl also fly back and forth to feeding sites, to escape predators, or move to more protected habitat in response to weather.

4) *Within the Upper Miss Refuge, most areas (open and closed) are no more than an hour's flight away for most if not all waterfowl species. If birds face intolerable disturbance in one area they can easily find a better location after a brief flight.*

Response: Waterfowl select sites based on many factors, among them are habitat structure, water depth, food availability, low risk of predation, thermal cover, and protection from human disturbance (Fredrickson and Reid, 1988, Fish and Wildlife Leaflet 13.2.1 and Jahn and Hunt, 1964, op. cit.). The presence of an individual at a particular site suggests that the individual selected the site and it meets its particular needs at given point in time. It is unknown whether a 'better location' is available that meets the needs of that individual, if intolerable disturbance moves the bird. The move becomes energetically costly to the bird both in terms of time loss from acquiring or conserving energy reserves and in terms of energy expended in flight to locate another area (flight is energetically costly at 12-15x basal metabolic rate).

Fall survey data clearly show that ducks, swans, and geese are not evenly distributed on the Refuge. Between 1997-2002, most of the waterfowl use days occurred in Pools 7, 8, 9, and 13; a trend that continues today. Revising the Refuge's Closed Area System in CCP is being proposed, in part, to provide the habitat necessary to better distribute waterfowl along the entire length of the Refuge. Along with providing habitat, addressing human disturbance concerns is part of that effort.

A variety of strategies exists within and among waterfowl species to meet their needs and not all individuals or species require the same resources simultaneously (Frederickson and Reid, 1988, Fish and Wildlife Leaflet 13.1.1). As a result, providing a diverse habitat base in closed areas is critical to meeting the needs of many different species of waterfowl during the hunting season. Because of their habitat preferences, some species of puddle ducks (e.g., Mallards and Wood Ducks) may be better suited to find alternative locations outside of closed areas in off-Refuge locations. But are these alternative sites a 'better location?'

For Canvasbacks and Tundra Swans, few migration areas exist in the Mississippi Flyway during fall migration that provides adequate resources to meet the birds' needs. Further, it has been well documented by Korschgen (1989, pp. 157-180 in Habitat Management for Migrating and Wintering Waterfowl in North America) and Thorson (2002, Masters Thesis) just how important the Upper Mississippi River is to Canvasbacks and Tundra Swans during fall migration. Thorson identified Tundra Swan site preferences as part of his project. During the 1998 and 1999 fall migrations, Tundra Swans used sites with an abundance of aquatic vegetation in shallow water depths (<1.2 m) interspersed with small islands (<5 ha) within large open aquatic area, protected from human disturbance. The occurrence of this preferred situation is rather limited on the UMR. Similar work has also been done for Canvasbacks by Korschgen (1989, op. cit.).

5) *Single disturbances in all probability have no significant affect on birds and negative results will be difficult to scientifically demonstrate. Even multiple daily disturbances, especially within larger closed areas, are not likely to have any measurable affect.*

Response: It is generally accepted that disturbance can increase existence energy requirements and reduce feeding time (Fredrickson and Drobney 1979, in T. A. Bookhout, ed., Waterfowl and wetlands – an integrated review). Determining the energetic costs of a single disturbance to waterfowl activities in the field is difficult to document. However, we do know that there are real costs associated with disturbance that results in flight. Flight is the most expensive daily activity in terms of energetic costs (12-15x basal metabolic rate). Temperatures are also a factor, with colder weather requiring birds to conserve energy by flying less (Fredrickson and Reid, 1988, op. cit.).

Fredrickson and Reid (1988, op. cit.) estimated that a duck with a body mass the size of a Mallard or Canvasback would require 3 days to replenish endogenous fat reserves feeding in good quality habitat after undergoing an 8-hour flight. With disturbance resulting in 2-hours of flight per day, that same Mallard or Canvasback would require an additional 2 days of feeding to replenish its reserves. In poor quality habitat, estimates are that it would require that Mallard or Canvasback 5 days to replenish fat reserves without disturbance, and 8 days if disturbances result in flight of 2 hours per day. Korschgen et al. (1985, Wildl. Soc. Bull. 13:290-296) estimated that human–caused disturbance may have caused Canvasbacks staging on Lake Onalaska to fly 1 hour/day. This extra flight caused Canvasbacks to consume an additional increment of food, perhaps as much as 75 kcal/day above their estimated 400 kcal for maintenance (Korschgen. unpubl. data). Kahl (1991, Wildl. Soc. Bull. 19:242-248) reported that the energetic cost to Canvasbacks by boating disturbances on Lake Poygan, Wisconsin averaged 14-42 kcal/day for flight plus incremental feeding activity to compensate for this flight. Temperatures are also a factor, with colder weather requiring birds to conserve energy by flying less (Fredrickson and Reid, op. cit.).

The observed distribution and patterns of daily use on the UMR are likely the result of multiple daily disturbances and representative of a collective 'measurable effect'. With multiple daily disturbances occurring in a given area, waterfowl respond by changing food habits, feeding only at night, losing weight, or deserting the area entirely. Repeated disturbances may even limit waterfowl use in a given area (Korschgen and Dahlgren, 1992, op. cit.). On Pools 7 and 8, we have documented that waterfowl respond to human disturbance by avoiding areas when disturbed during the day and returning to feed at night, usually beginning in November after food in the closed areas is exhausted. Less well-documented are the energy costs to individual birds engaged in this activity.

6) *Rather than using a season-long average of one major disturbance per day in any given closed area as the threshold, the main measure of too much disturbance should be determined by comparing bird numbers in any given year for that closed area with past use, the total number of birds using the Refuge, and the quality and distribution of food resources in that closed area. If waterfowl use of the closed area changes over time while habitat quality remains comparable, then disturbance may need to be reduced.*

Response: The metric you suggest we use to determine when disturbance may need to be reduced in a given closed area is complicated by a number of extrinsic variables that vary annually, and dictate how many birds eventually migrate down the Mississippi Flyway. Among them are continental waterfowl populations, number of birds using the flyway, chronology of the season, weather conditions, and habitat availability elsewhere. On the Upper Miss River, there is also annual variability in food availability and quantity in individual closed areas. These many variables make a direct comparison difficult.

The metric we propose to use, an average of one major human-caused disturbance per day through the fall season, requires us to continue monitoring each closed area. As noted earlier, we have multiple years of data available for the Lake Onalaska VWAA. In the La Crosse District, we also have baseline data for the Goose Island No Hunting Zone and the Wisconsin Islands Closed Area. In addition to recording details of each disturbance, we also record waterfowl numbers and

note the location of waterfowl concentration areas. This information has been used, and will continue to be used, to measure how well individual closed areas are meeting expectations.

7) *Efforts to reduce disturbance within closed area using voluntary avoidance and education are endorsed.*

Response: In Alternative E we are proposing a revised Refuge Closed Area System of 22 areas totaling 45,755 acres. Three of the units (Pool Slough, Pool 9; Guttenberg Ponds portion of the 12 Mile Sanctuary; and Spring Lake Sanctuary, Pool 13) would be closed to all entry and use from October 1 to the end of the respective state duck hunting season.

The existing Lake Onalaska Closed Area (Pool 7) and associated Voluntary Waterfowl Avoidance Area would not be affected and current entry and use regulations for the existing Bertom/ McCartney Closed Area (Pool 11) would also remain the same.

In each of the remaining 17 units, the public will be asked to practice voluntary avoidance from October 15 to the end of the regular state duck hunting season. In addition, in small closed areas (1,000 acres or less), there will be a "no motor" restriction beginning October 15 through the end of the regular duck hunting season.

Awareness and education will be an important part of the campaign to minimize human disturbance in each of these areas, just as it has since the inception of the Lake Onalaska Voluntary Waterfowl Avoidance Area.

Periodic closed area monitoring will be conducted to determine how well the program is working. As noted in No. 2, if the disturbance exceeds the threshold level, the Refuge will, in coordination with other agencies, move to implement more restrictive regulations such as no motors, no fishing, or no entry on an individual closed area basis.

8) *Most large closed areas have multiple inaccessible areas that waterfowl can use to escape disturbance.*

Response: Each closed area is different and species reaction to human disturbance varies. As noted above in our response to No. 2, diving ducks are the most vulnerable to disturbance. On Lake Onalaska, we have documented that a single boat crossing the open water of the Lake Onalaska Closed Area/VWAA in late October can flush thousands of diving ducks off the lake. Depending on the duration of the disturbance, these birds may settle back on the water after a brief flight, climb high and remain in the air for some time, or completely leave the pool. Havera (1992, op. cit.) found similar responses by diving ducks to disturbance using Keokuk Pool during fall migration. When feeding birds are disturbed, they may be flushed from preferred habitat and relocate to less desirable habitat. The same birds must also replenish energy used to escape the disturbance.

Another example: In the Wisconsin Islands Closed Area, we have documented that two boats entering this closed area simultaneously down Raft Channel and through Benover Slough flushed nearly every duck, Tundra Swan, and Canada Goose using the upper section of the closed area. When flushed from this area, comparable habitat does not exist elsewhere in the closed area, especially on cold days with strong winds.

Given the small size of the Goose Island No Hunting Zone (876 acres), when waterfowl (puddle ducks, Tundra Swans, and Canada Geese) are flushed as a result of human disturbance, finding suitable escape sites within this protected area may be limited.,

Conversely, those puddle ducks, Tundra Swans, and Canada Geese concentrated in the embayments and protected marshes found along the barrier islands in the larger Lake Onalaska Closed Area have the best chance of finding suitable protected habitat to relocate to when disturbed.

9) *September through November is the least stressful time of year for birds using the upper Midwest and Upper Mississippi River. They have two objectives: maintenance of adequate body condition and maintenance of their flight muscles so they can survive and continue their migration at a later date. Some fat reserves are added but not enough for the birds to become fat.*

Response: Fat deposition is essential to meeting the energetic requirements associated with migration and survival (Fredrickson and Reid, 1988, op. cit.). This is just as true for juvenile Blue-winged Teal migrating down the Upper Mississippi River in September as it is for the juvenile Tundra Swans that use the Wisconsin Islands Closed Area in November.

> From J. Takekawa (1987, PhD dissertation): "In many waterfowl species, including canvasback, body weight is highest when individuals arrive on the wintering grounds and gradually decreases through the winter until resources improve immediately before spring migration. Canvasbacks which are heaviest upon arrival on wintering areas are most likely to survive through the winter and through the following year (Haramis et al. 1986). Canvasbacks may gain more than 170 g during fall staging (J. Serie, USFWS, unpubl. data). … Adult canvasbacks may increase their body weight by 10 percent, and immature ducks may add 15 percent of their body weight on Lake Onalaska. …Thus, fall staging areas serve as crucial habitats where canvasbacks can develop energy reserves that may enhance survival through the next year."

10) *Birds do not feed continuously each day during the period September through November and need adequate exercise to maintain body/flight muscle tone. Loafing and resting are other daily activities.*

Response: Waterfowl spend an appreciable amount of time feeding. Canvasbacks spent 19 percent of the time foraging (underwater) on Lake Onalaska (Takekawa, 1987, op. cit.). However, the true proportion of time foraging is higher than this when one accounts for the period between dives. Also, upper GI tract capacity and food passage rate limit food intake as canvasback require 3.2 hours to digest winter buds of wildcelery. In addition, most of the remaining time was spent in energy-conserving behaviors such as resting and sleeping

Requirements for exercise to maintain body/flight muscle tone are addressed in No. 3.

Appendix R: Electric Motor Areas and Slow, No Wake Areas: Background, Descriptions, and Rationale for Alternative E

Electric Motor Areas and Slow, No Wake Areas

This appendix provides background information, specific descriptions, and rationale for the establishment of Refuge Electric Motor Areas and Slow, No Wake Areas described in Alternative E of the Environmental Impact Statement and Comprehensive Conservation Plan. Additional information on these areas is provided in Chapter 1 (section 1.4.5.5) of the EIS/CCP, with objectives and rationale provided in Objective 5.2 in Alternative E.

Background

When the Refuge was established in 1924, the Mississippi River floodplain was a braided maze of backwater channels and sloughs. Much of this unique habitat disappeared when the locks and dams went into operation. However, in the upper reaches of many pools, this unique bottomland habitat remains and offers fish, wildlife, and people a refuge from the sights and sounds of a modern and mechanized world. Many backwater areas are preferred breeding and nesting areas for species sensitive to certain human disturbance. Also, these more remote areas of the Refuge are an important component of the river experience to many. Technology in the form of jet skis, bass boats, shallow water motors such as Go-Devils™, airboats, and hovercraft has made the shallow backwaters of the Refuge accessible to more and more people, and introduced more and more noise, wildlife disturbance, and user conflict. The declining opportunity to experience the quiet and solitude of the backwaters was cited by many citizens during scoping meetings.

The single existing electric motor area on the Refuge is located at Mertes Slough, near Winona MN in Pool 6. This area was established in 1990 with the primary purpose to minimize disturbance of the Mertes Slough (St. Mary's) Great Blue Heron colony. The colony continues to be active today. Under Alternative E, the Refuge will establish a total of 5 Electric Motor Areas on the Refuge encompassing 1,852 acres, and 8 Slow, No Wake Areas encompassing 9,720 acres. These areas are defined as follows:

- Electric Motor Areas. Areas closed year-round to all motorized vehicles and watercraft except watercraft powered by electric motors or non-motorized means. The possession of other watercraft motors is not prohibited, only their use. For example, anglers could switch to an electric trolling motor when entering these areas.
- Slow, No Wake Areas. From March 16 through October 31 in these areas, watercraft must travel at slow, no-wake speed and no airboats or hovercraft are allowed. Respective state definitions for what constitutes "slow, no/wake" speed or operation will apply as appropriate.

Electric Motor Areas and Slow, No Wake Areas will help reduce disturbance to backwater fish nurseries and sensitive backwater wildlife such as raptors, Black Terns and other colonial nesting birds, and furbearers in keeping with the wildlife mission of the Refuge. It will also address the need to provide areas of quiet and solitude sought by many users of the Refuge, and thus provide a balanced approach in line with the focus of this alternative. This balancing of needs and desire of user groups, and within user groups, is becoming more important as visitation grows, technology advances, and the use of such technology increases (for example jet skis, mud motors, airboats, and

hovercraft). The seasonal prohibition of airboats and hovercraft in the Slow, No Wake Areas recognizes the innate and virtually unavoidable noise levels produced by these types of watercraft. The seasonal approach also allows the use of airboats and hovercraft during the trapping season and for about half of the waterfowl hunting season when it is 60 days or longer. Due to the size and scope of the Refuge, space and time restraints are deemed a fair approach to watercraft use on the Refuge in keeping with the overall goal of providing high quality and sustainable wildlife-dependent recreation and opportunities for other recreation.

Electric Motor Areas and Slow, No Wake Area designations only affect the means of navigation in these areas, and all current uses would be allowed (fishing, hunting, camping, wildlife observation, etc.) in accordance with current regulations or those included elsewhere in Alternative E. These reflect the substantial public comment received about electric motor areas and suggestions to use slow, no wake designations versus electric motor areas to meet concerns of wildlife disturbance and user conflict while not unduly restricting public access and use. Three areas originally proposed in Alternative D and one proposed in the draft of Alternative E were dropped from any designation after further review and consideration of public comment.

Descriptions and rationales, concerning natural resource values and public use values, for establishing electric motor areas and slow, no wake areas are provided in the following sections.

Electric Motor Areas

Pool 5 - Island 42 Electric Motor Area

Minnesota, RM 749.8 - 747.6, 459 acres, Winona District

Background

Island 42 was proposed as an electric motor area in Alternative D and remains as such in Alternative E.

Resource Rationale
The Island 42 Electric Motor Area is a complex of braided islands and shallow backwater sloughs that provides important habitat for puddle ducks, wading birds, beaver, and muskrat. An active Bald Eagle nest is present. Quiet motors and associated slow speeds of electric motors reduce disturbance of wildlife.

Public Use Rationale
The area can be accessed easily from Halfmoon Landing (about 1.5 miles) or the new Upper West Newton Chute Landing (0.1 miles). The area provides quiet hunting, fishing and boating away from the busy areas of the main channel and West Newton Chute.

Pool 5A - Snyder Lake Electric Motor Area

Minnesota, RM 735.0 - 734.0, 182 acres, Winona District

Background
Snyder Lake was proposed as an electric motor area in Alternative D and remains as such in Alternative E.

Resource Rationale
From a natural resource standpoint, this area is typical of other marsh and backwater areas of the Refuge and provides habitat for a variety of fish and wildlife species that benefit from reduced disturbance afforded by an electric motor area.

Public Use Rationale
The Snyder Lake Electric Motor Area includes a relatively small protected backwater that provides potential off-channel camping experiences for persons using the adjacent canoe trail established in 2005. The area also provides quiet opportunities for duck hunting, trapping and ice fishing.

Pool 6 – Mertes Slough Electric Motor Area

Wisconsin, RM 727.0 - 726.0, 222 acres, Winona District

Background

The existing Mertes Slough Electric Motor Area continues as such in Alternative E. This is the only existing electric motor area on the Refuge. The area was purchased from St. Mary's University of Minnesota in 1986 and the electric motor provision was established in 1990 under Refuge fishing regulations published in the Federal Register in 1990 (50 CFR Chapter 1, 33.53) that permitted fishing on the condition that "only hand powered boats or boats with electric motors are permitted on Mertes' Slough in Buffalo County, Wisconsin." A major purpose of this regulation was to minimize disturbance of the Mertes Slough (St. Mary's) Great Blue Heron colony. The colony continues to be active today.

Resource Rationale

Mertes Slough Electric Motor Area was established in 1990 to minimize disturbance to the Mertes Slough (St. Mary's) rookery which remains active today. Quiet motors and associated slow speeds of electric motors already reduce disturbance of wildlife in this area.

Public Use Rationale

The area provides quiet opportunities for hunting, fishing, trapping, ice fishing, cross-country skiing and wildlife observation. There is a Refuge boat landing at Mertes Slough.

Pool 7 – Browns Marsh Electric Motor Area

Wisconsin, RM 708.0 - 711.0, 827 acres, La Crosse District

Background
The Brown's Marsh Electric Motor Area was first proposed in Alternative D and covered 966 acres. Under Alternative E, the size is reduced to 829 acres to accommodate boat access by gas powered motors to private land.

Resource Rationale

A protected shallow backwater along the Black River, the Browns Marsh Electric Motor Area provides important habitat for puddle ducks, wading birds, beaver, and muskrat. One active Bald Eagle nest was found in 2005. Quiet motors and associated slow speeds of electric motors reduce disturbance to wildlife.

Public Use Rationale

This area is located within 0.1 mile to a small canoe access (Lytles) with nearby shallow water amenable to paddle or electric motor watercraft. Designating this isolated wetland as an electric motor area maintains the integrity of a canoeing/kayaking experience to those who value relatively secluded/quiet conditions for hunting, fishing, trapping, and wildlife observation.

Pool 10 – Hoosier Lake Electric Motor Area

Wisconsin, RM 624.8 – 624.0, 162 acres, McGregor District

Background

Under Alternative E, the Hoosier Lake Electric Motor Area replaces the Bagley Bottoms Electric Motor Area proposed in Alternative D. The Glass Lake sector (627 acres) was dropped from the Bagley Bottoms Electric Motor Area and only Hoosier Lake is retained. Glass Lake was excluded because it is extremely shallow and receives little use at this time.

Resource Rationale

The Hoosier Lake area is important habitat for puddle ducks, geese, beaver and muskrat. Habitat values of this area are adversely affected by disturbance due to changing watercraft propulsion technology and increased human activity, and direct habitat damage by watercraft. Quiet motors and associated slow speeds of electric motors reduce disturbance of wildlife.

Public Use Rationale

Hoosier Lake Electric Motor Area is close to a small boat landing with nearby shallow water amenable to paddle or electric motor watercraft. It provides an opportunity to use the Refuge by those who value relatively secluded/quiet conditions for hunting, fishing trapping and wildlife observation.

Slow, No Wake Areas

Pool 4 - Nelson-Trevino Slow, No Wake Area

Wisconsin, RM 762.5 - 760.0, 2,626 acres, Winona District

Background

This area was proposed as an Electric Motor Area in Alternative D and is designated a Slow No Wake Area in Alternative E to provide more balance between the needs and desires of user groups (see introduction background above). The Slow, No Wake Area status will not go into effect until March 16, 2009. Implementation is delayed to 2009 to reduce public use variables (frequency, type, and level of public use) during 3 years' of waterfowl monitoring planned for the area prior to making any changes in Pool 4 Waterfowl Hunting Closed Areas scheduled for 2009 (see Objective 4.2 and Appendix Q, Closed Area Descriptions, Winona District).

Resource Rationale

Nelson-Trevino is a designated Research Natural Area, one of four on the Refuge, where management objectives are to preserve examples of major ecosystem types, to provide research and educational opportunities for scientists, and to contribute to the national effort to preserve a full range of genetic and behavioral diversity for native plants and animals, including endangered and threatened species. Bald Eagles nest in the area and is home to the massasauga rattlesnake, a candidate species for the Endangered Species List. Slow speeds and restricting loud motorized access for much of the year, especially during the sensitive spring and summer seasons, will reduce disturbance of wildlife.

Public Use Rationale

This large area offers unique possibilities for quiet activities such as canoeing, kayaking, wildlife observation, snowshoeing, cross-country skiing and quiet hunting and fishing. The area is currently a Refuge closed area (closed to hunting during the state duck season), but under Alternative E, will be an area open to duck hunting, thus providing duck hunters a quiet area for the first 30 days of the duck season which traditionally opens around October 1 (see definition of Slow, No Wake Area above). Deer and small game hunting and trapping will also be allowed during the state seasons in the Nelson –Trevino area after the closed area designation is removed in 2009.

Pool 5A – Denzers Slough Slow, No Wake Area

Minnesota, RM 733.0 - 732.0, 83 acres, Winona District

Background

This area was proposed as an Electric Motor Area in Alternative D and is designated a Slow No Wake Area in Alternative E to provide more balance between the needs and desires of user groups (see introduction background above).

Resource Rationale

Denzer's Slough provides important habitat for puddle ducks, geese, beaver and muskrat. Slow speeds and restricting loud motorized access for much of the year, especially during the sensitive spring and summer seasons, reduce disturbance of wildlife.

Public Use Rationale

Although camping will be rustic and limited, the area provides a place for canoeists to quietly explore and view wildlife. The area is along a new canoe trail and also provides quiet hunting and trapping opportunities.

Pool 7 – Black River Bottoms Slow, No Wake Area

Wisconsin, RM 708.8 - 711.0, 1,165 acres, La Crosse District

Background

This area was proposed as an Electric Motor Area in Alternative D and is designated a Slow No Wake Area in Alternative E to provide more balance between the needs and desire of user groups (see introduction background above). The Black River Bottoms Slow, No Wake Area will not be implemented until 2008. During the public comment period on the supplemental EIS, a group of citizens suggested an alternative Slow, No Wake Area in the Big Marsh/Mud Lake area of Pool 7 to replace the Black River Bottoms area. The proposal had several conditions which made it unsuitable. However, since the proposal has merit based on resource values, ease of access, and existing adjacent facilities, the implementation of the Black River Bottoms Slow, No Wake Area is being delayed one year to allow further exploration of the proposal. However, the Black River Bottoms Slow, No Wake Area will be implemented in 2008 unless further consultation with citizens and a decision by the Refuge Manager dictates another course.

Resource Rationale

The Black River Bottoms is important to a wide variety of wildlife using floodplain forest and a backwater channel/wetland community complex, including: ducks and geese, Sandhill Cranes, wading birds, nesting Bald Eagles, otter, beaver, muskrat, and deer. Four Bald Eagle nests are

located in this area; three were active in 2005. Bald Eagles, an Endangered Species, are listed as a Resource Conservation Priority for the U.S. Fish and Wildlife Service in Region 3. Slow speeds and restricted loud motorized access for much of the year, especially during the sensitive spring and summer seasons, reduce disturbance of wildlife.

Public Use Rationale

In the past, access into this area was limited. As a result, waterfowl found refuge in the numerous "potholes" within the area during the open hunting season. Waterfowl hunters willing to invest the time/effort required to access the area generally found birds and few other hunters. With recent advances in propulsion technology and availability (airboat, go-devil, beavertail), more people are finding this area accessible. With increased hunting pressure, daytime use of the area by waterfowl during fall migration appears to have changed. Now, fewer birds use the area by day except on those days when new migrants arrive or when new feeding sites become available due to a raise in water levels. Waterfowl have also adjusted by moving into the area at night to feed. Restricting loud motorized access for part of the season will provide a quality hunting experience to those willing to spend the time/effort to access the area. Further, this designation enhances the quality and opportunity for wildlife observation in this area through much of the annual cycle.

Pool 8 – Blue/Target Lake Slow, No Wake Area

Minnesota, RM 696.0 - 699.0, 1,834 acres, La Crosse District

Background

This area was proposed as an Electric Motor Area in Alternative D and is designated a Slow No Wake Area in Alternative E to provide more balance between the needs and desire of user groups (see introduction background above).

Resource Rationale

The main habitat components include emergent marsh, rooted floating aquatic plants such as water lilies, and wet meadow. This area provides excellent wetland habitat for migratory birds and furbearers. Three Bald Eagle nests are located in the area and one was active in 2005. One of the largest nesting colonies of Black Terns on the Upper Mississippi River is located on Blue Lake. Black Terns are listed as a Resource Conservation Priority for the U.S. Fish and Wildlife Service in Region 3. Puddle and diving ducks, geese, and swans use the area during migration. Wood Ducks, another species listed as a Resource Conservation Priority, use the area for brood rearing, molting, and as an evening roost site. Ruddy Duck ducklings, a rare summer occurrence on the Refuge, were observed on Blue Lake in August 2004. Ruddy Ducks typically nest near the water in emergent vegetation. In the recent past, concentrations of Hooded Mergansers have been observed using Blue Lake as an evening site in mid-June. Hooded Mergansers are listed in the Partners in Flight Bird Conservation Plan for Dissected Till Plains. American Bitterns, another species listed as a Resource Conservation Priority, have been observed in the recent past during migration. Least Bitterns, American Coots, Common Moorhens (Resource Conservation Priority), and Virginia and Sora Rails use the area during migration and for nesting. Yellow-crowned Night Herons and Black-crowned Night Herons (Resource Conservation Priorities) are also present. In the past, a Yellow-crowned Night Heron nesting colony was found in the area. Increased use of Blue/Target Lakes by Sandhill Cranes has been observed. Slow speeds and restricted loud motorized access for part of the season reduces disturbance of wildlife especially during the critical spring and summer season.

Public Use Rationale

In the past, access into this area was generally by smaller boats and skiffs moving at relatively slow speeds. Now, changing propulsion technology and availability (airboat, go-devil, beavertail, personal

watercraft) is increasing use of the area by such craft. Slow speeds and restricting loud motorized access for part of the season would reduce disturbance to the public. The area provides an opportunity to use the Refuge by those who value relatively secluded/quiet conditions for hunting, fishing, trapping, wildlife observation, and cross country skiing. Access is provided at a number of nearby locations.

Pool 8 – Root River Slow, No Wake Area

Minnesota, RM 694.0 - 696.0, 695 acres, La Crosse District

Background

This area was proposed as an Electric Motor Area in Alternative D and is designated a Slow No Wake Area in Alternative E to provide more balance between the needs and desires of user groups (see introduction background above).

Resource Rationale

The habitat in this area is bottomland forest and marsh bisected by numerous channels. The area provides excellent wetland habitat for waterfowl, wading birds, shorebirds, beaver, and muskrats. Wood Ducks have used the area as an evening roost site in the past. There are four eagle nests in the area; two were active in 2005. A heron rookery is no longer active. Slow speeds and restricting loud motorized access for much of the year, especially during the sensitive spring and summer seasons, reduce disturbance to wildlife.

Public Use Rationale

In the past, access into this area was generally by smaller boats moving at relatively slow speeds. Now, changing propulsion technology and availability (airboat, go-devil, beavertail, personal watercraft) is increasing use of the area by such craft. Safety and general use conflicts with power craft, especially high power craft, appear to be increasing within the wider channels within the area. The Slow, No Wake designation provides those who value relatively secluded and quiet conditions for hunting, fishing, trapping, and wildlife observation with an opportunity to use the Refuge through much of the year. The distance to the nearest boat landing is about 0.5-mile.

Pool 9 – Reno Bottoms Slow, No Wake Area

Minnesota, RM 679.2 - 681, 2,536 acres, McGregor District

Background

This area was proposed as an Electric Motor Area in Alternative D and is designated a Slow No Wake Area in Alternative E to provide more balance between the needs and desire of user groups (see introduction background above). The size of this area is now 866 acres less than originally proposed, after dropping the designation on Pickerel Slough and the land and water east of it to the main channel. This modification is in response to suggestions from some of the hunting and fishing public to address concerns about access to upper areas of Reno Bottoms, while still maintaining a reasonable size to the Slow, No Wake area.

Resource Rationale

Reno Bottoms is one of the largest remaining examples of what approximates pre-lock and dam habitat conditions within the Refuge. The area includes the northern portion of the Reno Bottoms

Research Natural Area, one of four on the Refuge, where management objectives are to preserve examples of major ecosystem types, to provide research and educational opportunities for scientists, and to contribute to the national effort to preserve a full range of genetic and behavioral diversity for native plants and animals, including endangered and threatened species.

The area is important to a wide variety of wildlife using the upland forest, backwater channel/ wetland community complex; including: ducks, swans, Sandhill Cranes, nesting Bald Eagles, beaver, muskrat and deer. The habitat values of this relatively isolated area are adversely affected by disturbance due to changing watercraft propulsion technology and increased human activity, and direct habitat damage by watercraft. Slow speeds and restricting loud motorized access for much of the year, especially during the sensitive spring and summer seasons, reduce disturbance of wildlife.

Public Use Rationale

Reno Bottoms was suggested by some of the public as a motorless area during CCP scoping meetings. It is one of the largest remaining areas with reduced motor boat traffic because of reduced accessibility. Access to the area by hand carried small craft is easily available via Dam 8, and the area provides good conditions for paddle powered craft. Safety and general use conflicts with power craft, especially high speed power craft, are increasing within the few flowing channels within the area. The Slow, No Wake designation provides those who value relatively secluded and quiet conditions for hunting, fishing, trapping, and wildlife observation with an opportunity to use the Refuge through much of the year.

Pool 12 – Nine Mile Island Slow, No Wake Area

Iowa, RM 571.7 - 574.5, 454 acres, Savanna District

Background

This area was proposed as an Electric Motor Area in Alternative D and is designated a Slow No Wake Area in Alternative E to provide more balance between the needs and desire of user groups (see introduction background above). The size of the proposed Slow, No Wake area has been reduced from 567 acres to 454 acres to accommodate public concerns about use of beach areas on the upper end of the island complex.

Resource Rationale

From a natural resource standpoint, this area is typical of other marsh and backwater areas of the Refuge and provides habitat for a variety of fish and wildlife species that would benefit from reduced disturbance afforded by a slow, no wake area. Public Use Rationale: This area is a fairly shallow area where larger boats cannot access and is offset from main channel or main slough areas to avoid conflicts with other users. It is a destination point, located adjacent to, but not within a travel corridor. In addition, it is large enough in size to allow a quality experience. The Slow, No Wake designation provides those who value relatively secluded and quiet conditions for hunting, fishing, trapping, and wildlife observation with an opportunity to use the Refuge through much of the year.

Pool 14 – Princeton Slow, No Wake Area (formerly Rock Creek)

Iowa, RM 506.0 - 506.7, 327 acres, Savanna District

Background

This area was proposed as an Electric Motor Area in Alternative D and is designated a Slow No Wake Area in Alternative E to provide more balance between the needs and desire of user groups (see introduction background above). The name was changed because the area is not directly associated Rock Creek; Princeton is a more appropriate designation.

Resource Rationale

From a natural resource standpoint, this area is typical of other marsh and backwater areas of the Refuge and provides habitat for a variety of fish and wildlife species that would benefit from reduced disturbance afforded by a slow, no wake area.

Public Use Rationale

This area is a fairly shallow area that larger boats cannot access and is offset from the main channel and major slough areas to avoid conflicts with other users. It is a destination point, located adjacent to, but not within a busy travel corridor. In addition, it is large enough in size to allow a quality experience. The Slow, No Wake designation provides those who value relatively secluded and quiet conditions for hunting, fishing, trapping, and wildlife observation with an opportunity to use the Refuge through much of the year.

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