

# Ottawa National Wildlife Refuge

## Comprehensive Conservation Plan Approval

### U.S. Fish and Wildlife Service, Region 3

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# Summary

Located east of Toledo, Ohio, on the southwestern shore of Lake Erie, the Ottawa National Wildlife Refuge Complex provides critical wetland habitats for a diversity of wildlife, fish and plants. As a major migration corridor, the area is vital to migratory birds including waterfowl, shorebirds, raptors and songbirds that need rest and food either after crossing Lake Erie on their way south or before they head back north over the water. As much as 70 percent of the Mississippi flyway's population of black ducks use Lake Erie marshes for migration.

The Ottawa Refuge Complex consists of three national wildlife refuges: Ottawa, Cedar Point and West Sister Island. This Comprehensive Conservation Plan (CCP) identifies the role each refuge will play in supporting the mission of the National Wildlife Refuge System. The plan articulates long-term management goals and specifies objectives and strategies that will achieve those goals. The plan also meets the requirements of the National

Wildlife Refuge System Improvement Act enacted in 1997. The CCP for the Ottawa Refuge Complex is meant to be a guide for refuge managers, visitors, nearby community leaders and others interested in the wildlife resources of Ohio's coastal marshes. The CCP will be of value to anyone wishing to chart the course for action on these three refuges for the next 10-15 years.

In accordance with the National Environmental Policy Act, the Draft CCP included an Environmental Assessment (EA) that presented four alternatives for future management of the Ottawa Refuge Complex. Each alternative was designed to contain a reasonable mix of fish and wildlife habitat prescriptions and

wildlife-dependent recreational opportunities. The environmental consequences of each alternative were described and compared in the EA. The planning team chose an alternative that called for improving the quality of services to refuge visitors and shifting habitat emphasis to include more wooded wetlands, natural marsh and scrub/shrub lands. The EA is included as Appendix A in this document.

The CCP planning process began in July 1997 with informal discussions among refuge staff and a 2-day scoping session with local residents and representatives of groups concerned with the future of the Ottawa Refuge Complex. Members of the public were invited to attend two local open house events in November 1997. In addition to the open house events, the planning team sought input from technical experts, including a group of regional migratory bird biologists and others. The public was also invited to comment



Photo by Sharon Cummings



on a concept newsletter distributed in January 1999 and on the Draft CCP when it was available in June-July 2000.

Goals, objectives and strategies were developed individually for Ottawa, Cedar Point and West Sister Island National Wildlife Refuges even though they share many similar goals. Goals were developed under three major categories: Wildlife, Habitat and People. The following are the goals for the Ottawa Refuge:

- Wildlife:* Maintain native wildlife populations in balance with the habitat available while decreasing and limiting exotic plant and animal species. Surveys based on sound scientific methods for fish and wildlife populations will be conducted to determine viable habitat prescriptions to enhance the attractiveness of the refuge for optimum numbers of species and peak populations.
- Habitat:* Restore functional components of the Lake Erie marsh ecosystem which includes marshes, wooded wetlands, estuary, and scrub/shrub to provide benefits to endangered species, waterfowl, shorebirds, migratory songbirds, colonial waterbirds, fish, and other species of concern.
- People:* Provide public outreach and wildlife-dependent recreational opportunities to a diverse audience by offering a variety of quality educational and recreational activities when they are compatible with wildlife needs. This will promote understanding, appreciation, and support for the Ottawa Refuge Complex and the entire National Wildlife Refuge System.

Please refer to the CCP for details on objectives and strategies. In general, objectives were written to show desired quantity and to be measurable, especially under the habitat goal. The plan lists more than 60 strategies to achieve refuge management goals for the Ottawa Refuge alone.

This CCP outlines an ambitious course of action for the future management of the Ottawa Refuge Complex. The ability to intensively manage water impoundments, especially to benefit migratory birds, is relatively expensive. The Service will need to retain supplemental funding in order to implement many of the objectives in this plan. The highest priority projects include a Visitor Education Center, habitat restoration on acquired lands and improved access to refuge trails.

The goals outlined in this CCP need the support and partnership of Federal, state, and local agencies; non-governmental organizations; and individuals. An ecosystem approach to managing fish and wildlife resources extends beyond social and political boundaries and requires a broad base of support and diverse stakeholder strengths and interests. The Ottawa Refuge Complex CCP has been written with the participation of refuge users, conservation organizations and the local community. Refuge staff and the entire planning team are grateful to all of the people who have contributed their time, expertise and ideas to this effort.



# Chapter 1 Introduction

## Introduction

Located east of Toledo, Ohio, the Ottawa National Wildlife Refuge Complex is a unique slice of marshland on the southwestern shore of Lake Erie. As a major migration corridor, the area is vital to migratory birds including waterfowl, shorebirds, raptors and songbirds that need rest and food either after crossing Lake Erie on their way south or before they head back north to their breeding grounds. As much as 70 percent of the Mississippi flyway's population of black ducks use Lake Erie marshes for migration.

The Ottawa Refuge Complex includes three national wildlife refuges: the Ottawa National Wildlife Refuge, Cedar Point National Wildlife Refuge and West Sister Island National Wildlife Refuge (Figure 1).

## Refuge Purpose

Ottawa National Wildlife Refuge was established in 1961 under the authority of the Migratory Bird Conservation Act “....for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. 715d. The Refuge was also established to preserve a portion of the remaining Lake



Photo by Sharon Cummings

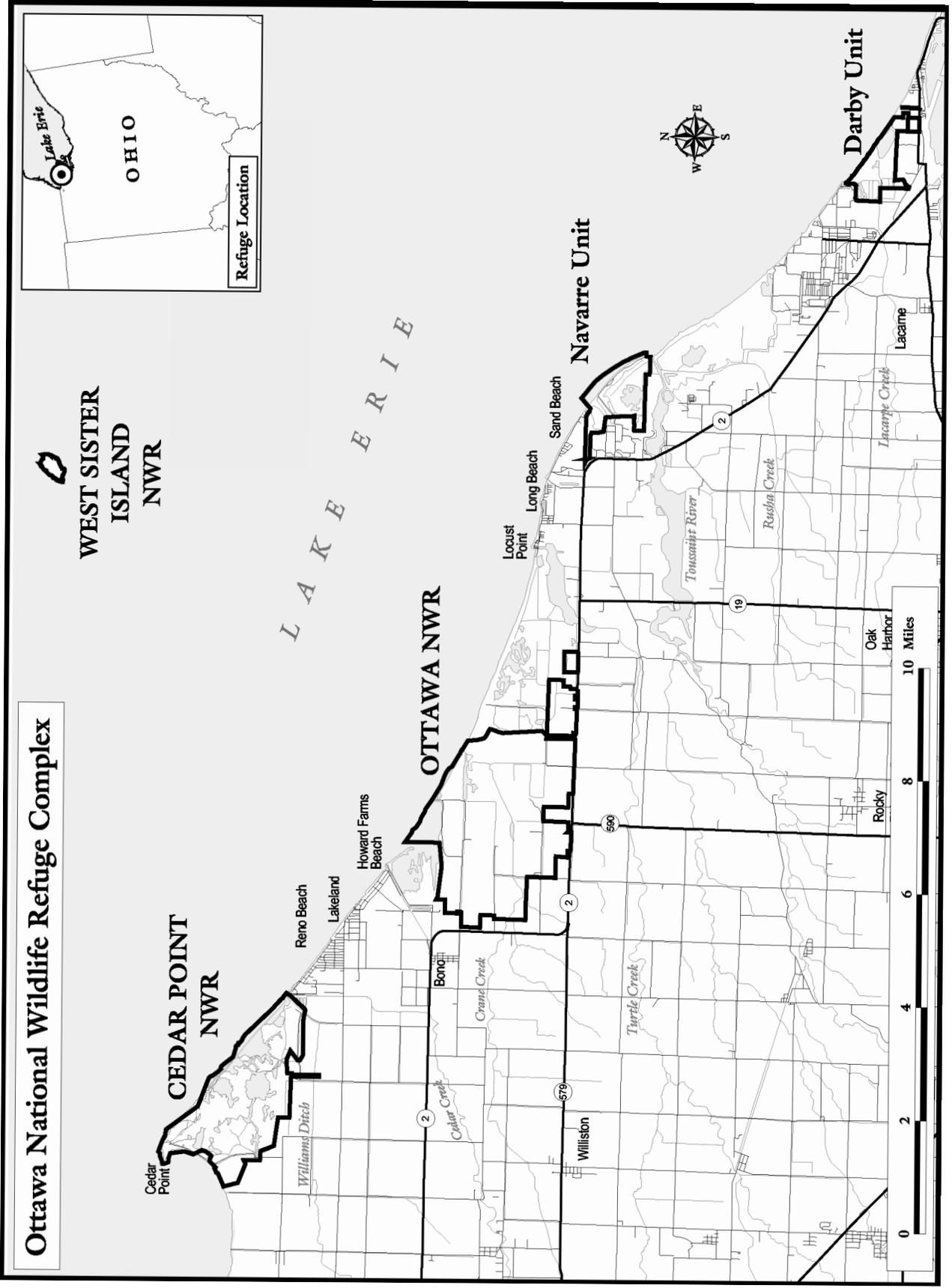
Erie marshes. Cedar Point National Wildlife Refuge was established in 1964 under this same authority and purpose. Today the Refuge Complex consists of three separate refuges (Ottawa, Cedar Point and West Sister Island) that total approximately 8,316 acres. The focus of the Ottawa National Wildlife Refuge Complex is to protect, enhance, and restore habitat for *threatened* and *endangered species*; provide suitable nesting habitat for migratory birds; provide spring and fall migra-

tional habitat for waterfowl and other migratory birds; provide habitat for native resident flora and fauna; and provide the public with wildlife-dependent recreation opportunities.

\*Italicized words are defined in a glossary located in Appendix B of this plan.



Figure 1: Ottawa Refuge Complex Location



West Sister Island National Wildlife Refuge was established by Executive Order 7937 on August 2, 1937 “... as a refuge and breeding ground for migratory birds and other wildlife...” and specifically to protect the largest wading bird nesting colony on the U.S. Great Lakes. On January 3, 1975, 77 acres of the 82-acre island was designated as a wilderness, part of the National Wilderness Preservation System (Public Law 93-632).

## Refuge Vision

The Ottawa National Wildlife Refuge Complex will be managed for the conservation, management and restoration of fish and wildlife habitats. In its unique position on the shore of Lake Erie, the Refuge will encourage and nurture diverse native plant communities to provide resting, feeding and breeding sites for migrant and non-migrant birds, resident mammals, reptiles, amphibians, and fish. It will provide a place for people to enjoy wildlife-dependent activities and learn about the complexities of the natural world through high-quality education and interpretive programming. It will add to the richness of the community by holding in trust a portion of the natural heritage of the Great Lakes *ecosystem* for the continuing benefit of the American people.

## Purpose of and Need for the Plan

This *Comprehensive Conservation Plan*, or CCP, identifies the role the Ottawa National Wildlife Refuge Complex will play in supporting the mission of the National Wildlife Refuge System and provides guidance for Refuge management. The plan articulates management *goals* for the next 15 years and specifies *objectives* and *strategies* that will achieve those goals. Several legislative mandates within the *National Wildlife Refuge System Improvement Act of 1997* have guided the development of this plan. These mandates include:

- Wildlife has first priority in the management of refuges.
- Wildlife-dependent recreation activities, including hunting, fishing, wildlife observation, wildlife photography, environmental education and interpretation, are the priority public uses of refuges. We will facilitate these activities when they do not interfere with our ability to fulfill the Refuge’s purpose or the mission of the Refuge System.
- Other uses of the Refuge will only be allowed when they are determined to be appropriate and compatible with Refuge purposes and mission of the Refuge System.

This CCP will enhance the management of the Ottawa National Wildlife Refuge Complex by:

- Providing a clear statement of direction for future management of the Refuge.
- Giving Refuge neighbors, visitors, and the general public an understanding of the Service’s management actions on and around the Refuge.



- Ensuring that the Refuge’s management actions and programs are consistent with the mandates of the National Wildlife Refuge System.
- Ensuring that Refuge management is consistent with Federal, state and county plans.
- Establishing continuity in Refuge management.
- Providing a basis for the development of budget requests on the Refuge’s operation, maintenance, and capital improvement needs.

## The U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service is the primary Federal agency responsible for conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people. Specific responsibilities include enforcing federal wildlife laws, managing migratory bird populations, restoring nationally significant fisheries, administering the Endangered Species Act, and restoring wildlife habitat such as *wetlands*. The Service also manages the National Wildlife Refuge System.

*The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people.*

## The National Wildlife Refuge System

Managing the National Wildlife Refuge System has evolved into a significant role for the Service. Founded in 1903 by President Theodore Roosevelt with the designation of Pelican Island as a refuge for brown pelicans, the National Wildlife Refuge System is the world’s largest collection of lands specifically managed for fish and wildlife. The System is a network of more than 500 national wildlife refuges encompassing more than 93 million acres of public land and water. The majority of these lands – 82 percent – is in Alaska, with approximately 16 million acres spread across the lower 48 states and several island territories. Refuges provide habitat for more than 5,000 *species* of birds, mammals, fish, and insects.

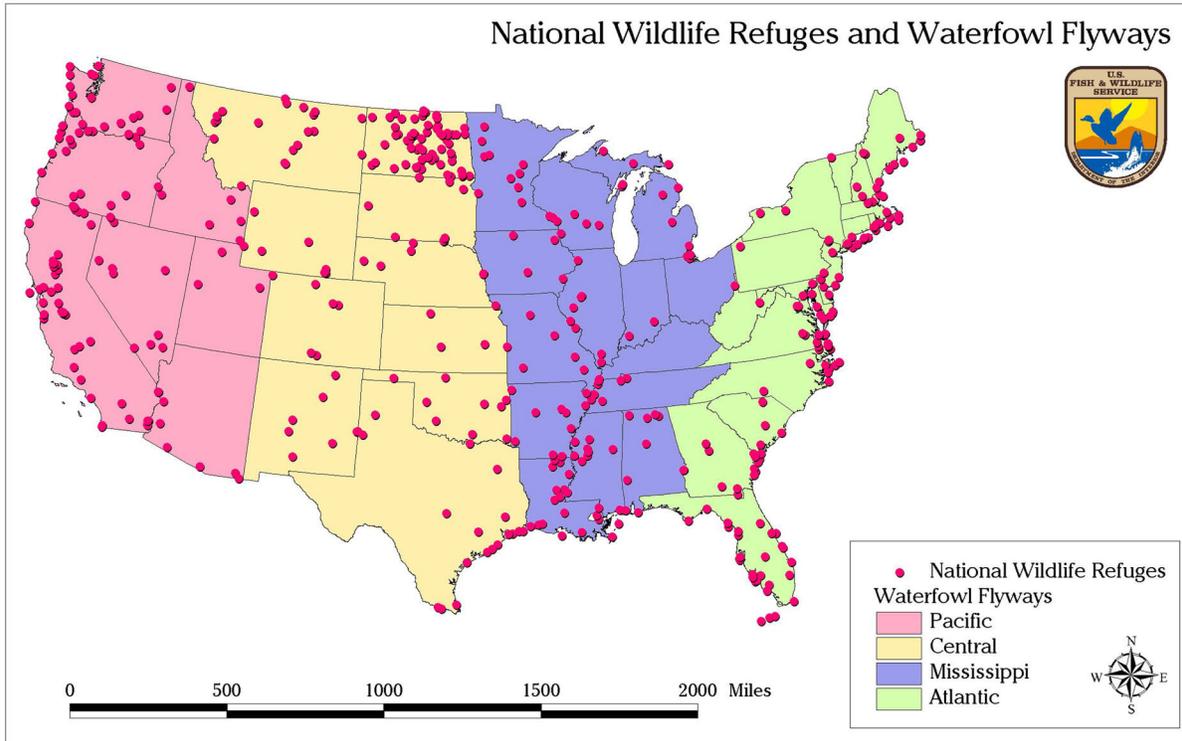
Like Pelican Island, many early national wildlife refuges were created for herons, egrets and other water birds. Others were set aside for large mammals such as elk and bison. Most refuges, however, have been created to protect migratory waterfowl. This is a result of the United States’ responsibilities under international treaties for migratory bird conservation as well as other legislation, such as the Migratory Bird Conservation Act of 1929. A map of the National Wildlife Refuge System shows refuges dotting the four major flyways that waterfowl follow from their northern nesting grounds to southern wintering areas (Figure 2).

*The mission of the National Wildlife Refuge System 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.*

National wildlife refuges also play a vital role in preserving endangered and threatened species. Among the refuges that are well known for providing



Figure 2: The National Wildlife Refuge System and Waterfowl Flyways



habitat for endangered species are Aransas National Wildlife Refuge in Texas, the winter home of the whooping crane; the Florida Panther Refuge, which protects one of the nation's most endangered mammals; and the Hawaiian Islands Refuge, home of the Laysan duck, Hawaiian monk seal, and many other unique species.

Refuges also provide unique opportunities for people. When it is compatible with wildlife and habitat needs, refuges can be used for *wildlife-dependent activities* such as hunting, fishing, wildlife observation, photography, environmental education and interpretation. Many refuges have visitor centers, wildlife trails, automobile tours, and environmental education programs. Nationwide, more than 30 million people visited national wildlife refuges in 1997.

The National Wildlife Refuge System Improvement Act of 1997 established many mandates aimed at making the management of national wildlife refuges more cohesive. The preparation of Comprehensive Conservation Plans is one of those mandates. The legislation requires the Secretary of the Interior to ensure that the mission of the National Wildlife Refuge System and purposes of the individual refuges are carried out. It also requires the Secretary to maintain the biological integrity, diversity, and environmental health of the National Wildlife Refuge System.



## The Great Lakes Basin Ecosystem

The Great Lakes Basin Ecosystem, which includes the Ottawa Refuge Complex, is the largest body of fresh water in the world. It holds 18 percent of the world's supply of fresh water; covers 95,000 square miles with 9,000 miles of shoreline; includes 5,000 tributaries; and has a drainage area of 288,000 square miles. More than 35 million people live in the Great Lakes Basin and depend upon its natural resources. This bi-national basin, which is shared between the U.S. and Canada, is subject to ever-increasing national and international attention being focused on the introduction and expansion of nonindigenous species, such as the zebra mussel, ruffe, purple loosestrife, and others; the precarious nature of aquatic and nearshore communities and habitats; and contamination, all of which are affecting ecosystem health.

The Great Lakes Basin supports a variety of fish and wildlife species of concern. Fish species of special interest include lake trout, lake sturgeon, lake whitefish, walleye, Pacific salmon, landlocked Atlantic salmon, and associated forage fish species. Native mussels are being seriously impacted by the exotic zebra mussel and are in danger of *extirpation*. The Great Lakes Basin provides critical breeding, feeding, and resting areas, as well as migration corridors, for waterfowl, colonial nesting birds, neotropical migrants, and many other species of migratory birds. Specifically, 31 species of migratory non-game birds of management concern to the U.S. Fish and Wildlife Service occur in this ecosystem. A recent survey of *biological diversity* in the Great Lakes Basin identified 130 globally rare or endangered plant and animal species and ecological communities. The bald eagle, peregrine falcon, piping plover, Kirtland's warbler, Mitchell's satyr and Karner blue butterflies, Indiana bat, gray wolf, lake sturgeon, deepwater sculpin, and pugnose shiner are a few of the many threatened, endangered, and *species of special concern* that inhabit the Great Lakes Basin ecosystem.

## History of Refuge Establishment

### Ottawa National Wildlife Refuge

The 4,683-acre Ottawa National Wildlife Refuge was created in 1961 to preserve a remnant of the formerly vast Lake Erie coastal wetlands. The land was purchased by funds authorized through the Migratory Bird Conservation and Hunting Stamp Act (commonly called the Duck Stamp Act). A large portion of the new Refuge had been owned and operated as a duck hunting club for decades. Water levels were managed by a series of dikes that formed impoundments and the new Refuge retained these and other facilities. In fact, the current Refuge headquarters was the former club's hunting lodge.



Photo by Sharon Cummings



Today, the Ottawa National Wildlife Refuge is comprised of three separate units. The Ottawa Unit is the original 4,683-acre tract. The 520-acre Darby Unit is located 12 miles to the east near Port Clinton. In 1966, the Service received the Darby Unit in a trade with Toledo Edison for a property known as the Navarre Marsh. The Service retains management rights on the 591-acre Navarre Unit, now the site of the Davis Besse Nuclear Power Station.

### **Cedar Point National Wildlife Refuge**

The 2,445-acre area that is now the Cedar Point National Wildlife Refuge was donated to the North American Wildlife Foundation by the Cedar Point Club, a hunt club that had owned Cedar Point Marsh since 1882. The Foundation turned the marsh over to the U.S. Fish and Wildlife Service in 1964 with the provision that it not be used as a public park, campground or picnic area. Proposed development was again the catalyst for action by local conservationists to preserve the resource.

### **West Sister Island National Wildlife Refuge**

West Sister Island National Wildlife Refuge is the oldest member of the Ottawa Complex and the most isolated. The 80-acre island became a national wildlife refuge in 1937, and in 1975 it was designated as a Federal wilderness area under the Wilderness Act of 1964. The Service manages 77 acres of the island and the U.S. Coast Guard owns the remaining acreage and an existing lighthouse. The island is home to the largest blue heron and great egret rookery in the U.S. Great Lakes and is also home to black-crowned night herons and snowy egrets. The island is not accessible to the public.

## **Legal Context**

In addition to the Refuge's establishing authority legislation and the National Wildlife Refuge System Improvement Act of 1997, several Federal laws, executive orders, and regulations govern administration of the Refuge. Appendix F contains a partial list of the legal mandates that guided the preparation of this plan and that pertain to future Refuge management.





## Chapter 2 The Planning Process

The Ottawa Refuge Complex CCP has been written with the participation of Service staff, Refuge users and the local community. Because it will serve as a guide to Refuge management for the next 10 to 15 years, public input into the CCP is vital. Refuge staff and the entire planning team are grateful to all of the people who have contributed their time, expertise and ideas either by attending open houses or focus group discussions or through written comments. All of the ideas have been valuable and they have contributed to a useful plan.

The CCP planning process began in July 1997 with informal discussions among Refuge employees, local residents and representatives of groups concerned with the future of the Ottawa Refuge Complex. Refuge staff members and a group of local individuals with various outdoor interests gathered in August 1997 to discuss their thoughts and ideas during a two-day session. Members of the public were notified of two open house events held in Oregon, Ohio, and Oak Harbor, Ohio, in November 1997 via news releases and posters displayed in the two communities. News releases were also issued inviting people who were unable to attend the open houses to send in written comments on any Refuge *issue*. Eighteen people attended the two open houses and 12 individuals submitted comment sheets.



Photo by Sharon Cummings

In addition to the open house events, the Refuge sought input from technical experts, including a group of regional migratory bird biologists and others. All of the group notes and written comments focused on ways to help the Ottawa Refuge Complex achieve its purpose, goals and objectives. A summary of public and focus group comments is presented in Appendix H.

The Ottawa Refuge Complex CCP was published in two phases. In accordance with the National Environmental Policy Act, a draft plan presented a range of *alternatives* for future management and identified the *preferred alternative*. A 30-day public review period followed the release of the draft plan. More than 400 copies of a Draft Summary CCP were mailed to individuals who had requested to be on the Service's mailing list for this project. One hundred copies of the full CCP were distributed to agencies and people who had requested them. In addition, the planning team held a public open house event on June 22, 2000, at the Refuge to present the draft CCP.

Verbal and written comments received from the public concerning the draft CCP contributed to several modifications reflected in this document. The



Service received 12 letters and e-mail comments during the review period. The comments covered a variety of topics and detail and not all thoughts could result in direct changes to the CCP. For example, some writers simply endorsed the future direction of Refuge management presented in the plan. Five people supported the land acquisition program and one person offered a strategy to link existing riparian habitats. Several writers stated a preference for wildlife observation (primarily bird watching) over hunting or recommended a shift in the balance of these uses on the Ottawa Refuge Complex. In a few cases, reviewers offered smaller, technical changes and we were able to easily incorporate those ideas.

## Summary of Issues, Concerns and Opportunities

A wide range of issues, concerns and opportunities was expressed during the planning process. Numerous discussions among Refuge and planning staff, focus group participants and resource specialists brought to light several recurring themes. These thoughts have been consolidated into the following five categories:

### Habitat Management

A primary concern during the planning process has been the future direction of habitat management throughout the Ottawa Refuge Complex. Planning participants expressed a desire to see improved diversity of plant, fish and wildlife species through the restoration of native habitat. Habitat management can be divided into these broad categories:

#### Upland Habitat

Several participants wanted to see more emphasis placed on creating grassland and woodland habitats on the Refuge. Specific comments included converting existing croplands, approximately 410 acres, to these habitat types. The timing of grass and brush mowing on dike roads to benefit migrating birds was also a point of concern to several individuals.

#### Wetland Habitat

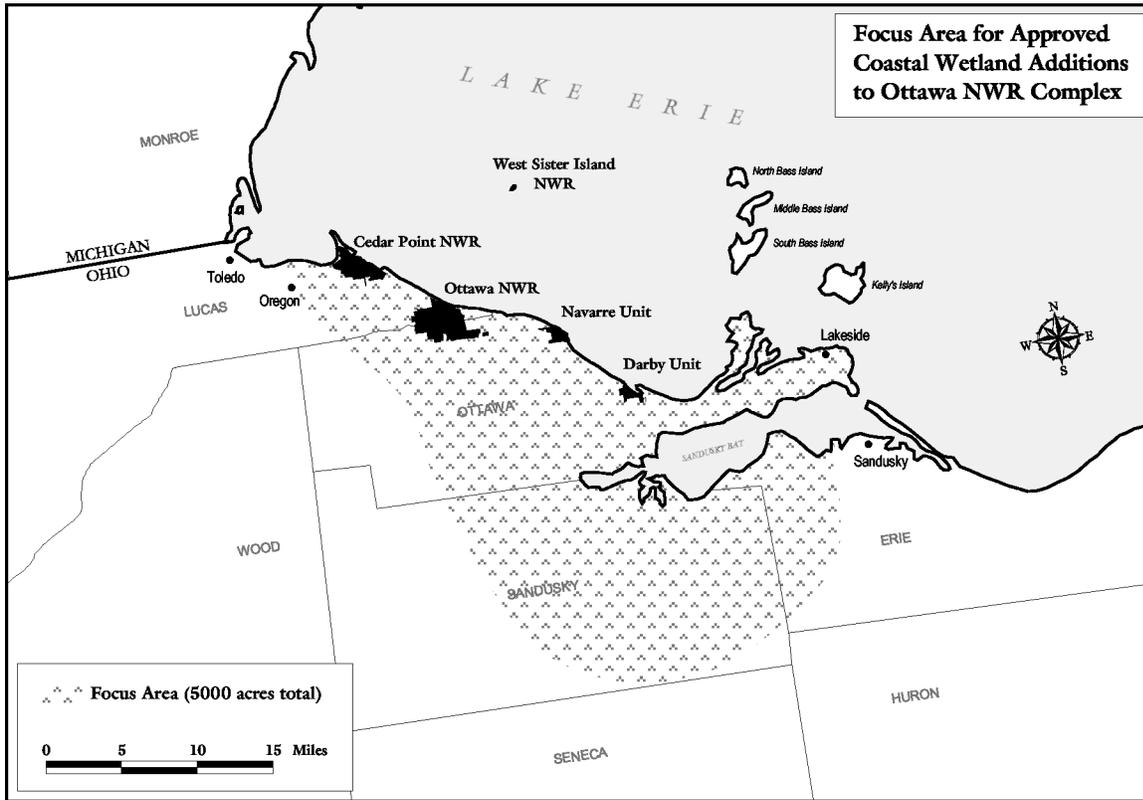
The Ottawa Refuge Complex actively manages water levels in a number of diked wetland impoundments to maintain or improve fish and wildlife habitats. Several planning participants expressed interest in the location and timing of water impoundment drawdowns and flooding.

#### Croplands

Some planning participants said that planting row crops, such as corn and soybeans, within Refuge units is unnecessary because of the volume of private croplands surrounding the Refuge. Conversely, comments were also made that growing crops on Refuge land helps to reduce crop damage by deer on surrounding farmlands and provides an accessible food source for migrant waterfowl.



Figure 3: Focus Area for Approved Coastal Wetland Additions to ONWR



### Land Acquisition

The U.S. Fish and Wildlife Service completed an *environmental assessment* in 1994 that recommended acquisition of up to 5,000 acres of critical wetland habitats in Lucas, Sandusky, Ottawa and Erie counties for addition to the Ottawa Refuge Complex (Figure 3). This land will be purchased from willing sellers as opportunities and funding arise. Several comments for and against Refuge expansion were received during the CCP *scoping* process.

### Migratory Bird Diversity

A number of ideas and concerns were expressed about land management practices that could be used to encourage use of Refuge lands by a wider variety of migratory birds. Discussions focused on creating desirable habitat for shorebirds and neo-tropical migrant songbirds.

### Recreation and Environmental Education

#### Visitor Services

Nearly all participants agreed that the Ottawa Refuge Complex is not well known in the local community. Many participants believe that the Refuge is often perceived as “off limits” to the general public. Ideas for increasing visibility included building a visitor center, maintaining weekend hours at the existing Refuge headquarters and expanding the Refuge environmental education program.



#### Vehicle Access

Several people expressed a desire to see more Refuge roads opened to the general public for vehicle traffic as an auto-tour. All roads, with the exception of the main entrance road near the Refuge headquarters, are currently closed. Several participants cautioned the Refuge to weigh vehicle access against the potential impacts to nesting bald eagles, migrating birds and other wildlife.

#### **Partnerships and Cooperative Relationships**

A number of participants felt that the Refuge staff should expand cooperative working relations with local non-profit organizations, industry, neighboring landowners and State and local governments. Participants said that the Ottawa Refuge Complex could benefit directly by finding new sources of volunteers for a variety of programs. In addition, improved relations could result in support and understanding of Refuge management objectives by local residents.



# Chapter 3 The Refuge Environment

## Introduction

This chapter describes the general environment, natural resources, socioeconomic conditions, and special environmental features of Refuge lands and surrounding area. The descriptions center on those aspects of the environment that may be affected by management actions of this plan.

## Geographic Setting

The Ottawa National Wildlife Refuge Complex and the surrounding area lies in the western basin of Lake Erie, stretching from just east of Toledo, Ohio, to 75 miles west of Cleveland, Ohio, in Lucas and Ottawa counties. The area is generally flat with predominantly hydric, or wetland, soils. Agriculture is the predominant feature of the surrounding landscape with small towns and cities scattered throughout. An estimated eight million people live within a 2-hour drive of the Refuge.



Photo by Sharon Cummings

The Refuge and surrounding land are part of what was traditionally known as the Great Black Swamp, which once included 300,000 acres of wetlands along Lake Erie and extended inland. This vast area comprised coastal wetlands, riverine marshes, wet prairies, hardwood swamps and oak savanna. Only about 10 percent of this original wetland habitat remains, and this resource supports a tremendous diversity of wildlife.

## Climate

The climate of northwest Ohio is continental in nature, with moderate extremes of heat, cold, wetness and dryness. The proximity of the Refuge to Lake Erie moderates temperature extremes and can delay both the onset of



winter cold and the return of spring warmth. The average annual rainfall is approximately 32 inches. Precipitation is distributed throughout the year, with spring being the wettest season. The area receives about 30 inches of snow per year.

## Refuge Resources

### Wetlands

Much of the area including and surrounding the Ottawa National Wildlife Refuge Complex was originally wetlands of various types with variable yearly water regimes. Many of the inland wetlands were probably seasonal in nature, while along the coast of Lake Erie more permanent wetlands formed behind protective barrier beaches. Most of these beaches disappeared as a result of high lake levels in the 1970s and lakefront development, which has changed sand deposit dynamics. Approximately 30,000 acres of wetlands remain in the area, mostly in Federal refuges, State management areas, and private hunting clubs just inland from the shores of Lake Erie.

These remaining wetlands are often surrounded by man-made dikes. The dikes are especially important for wetlands adjacent to Lake Erie to protect the wetlands from wave damage during high water periods or storm events. Dikes around wetlands allow for the pumping in or out of water for crop or other plant and invertebrate production. Gravity flow and pump systems are used to raise or lower water levels to achieve desired mixes of aquatic plants, thus enhancing their value to wildlife.

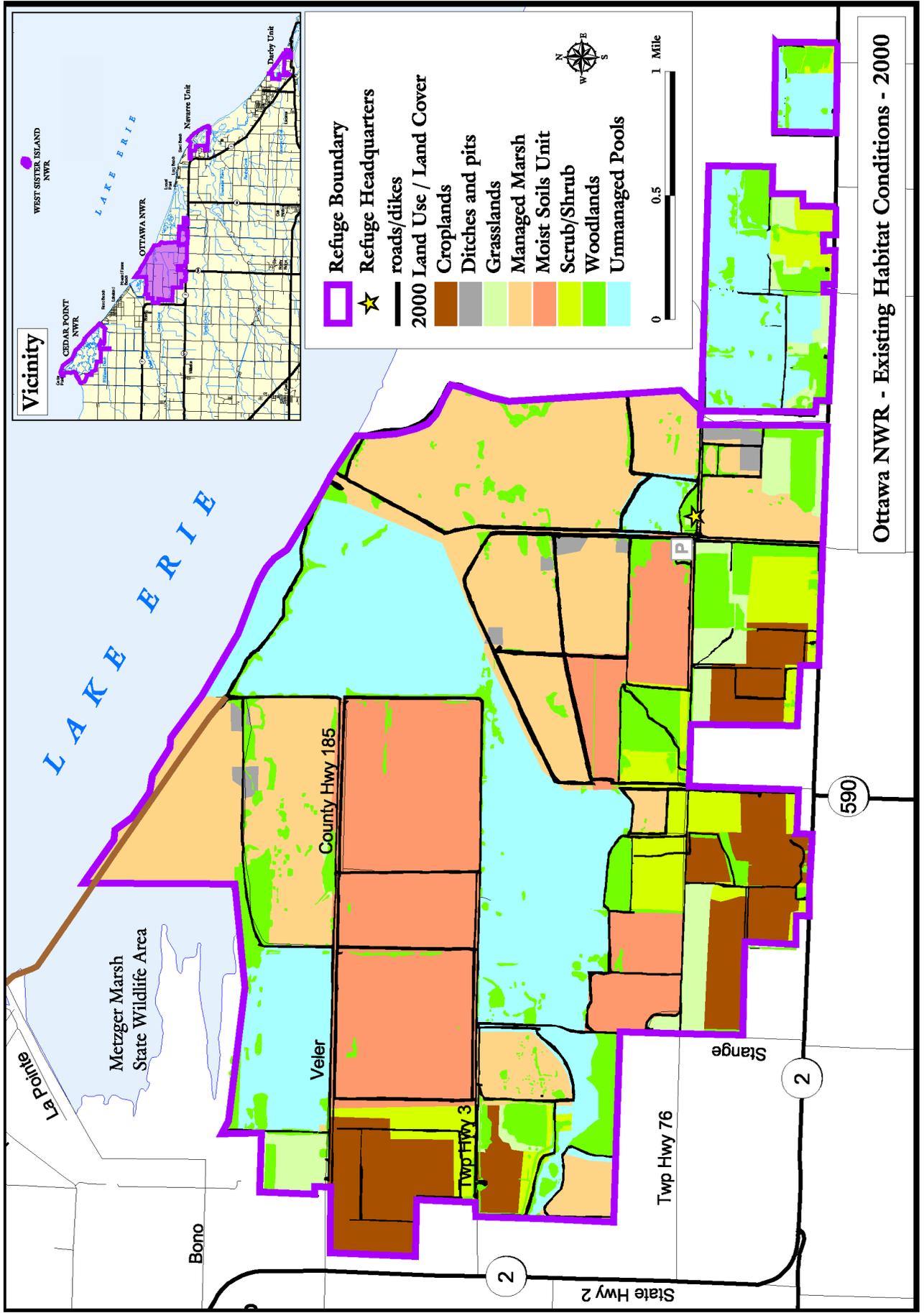
Managing the marshes for wildlife is essentially based on controlling plant succession to meet seasonal needs. Intensive management is best achieved by controlling water levels, since fluctuating water levels has a marked influence on *aquatic plant succession*. Current marsh management practices for waterfowl and other wetland wildlife include the use of pumps and/or dikes to provide a variety of wetland types in marsh units throughout the year. These generally include combinations of *moist soil units* and *hemi-marshes*.

Moist soil units are typically de-watered in the spring to provide shallow water conditions for waterfowl and shorebirds and plant growth. They are re-flooded in the fall to attract and provide food for fall migrants. Hemi-marshes are shallow water areas that contain water throughout the year. Figure 4 presents a depiction of the existing (July 1999) habitat conditions on the Ottawa Unit, the largest land unit of the Ottawa Refuge Complex. Figure 5 shows the Navarre and Darby units as well as Cedar Point National Wildlife Refuge.

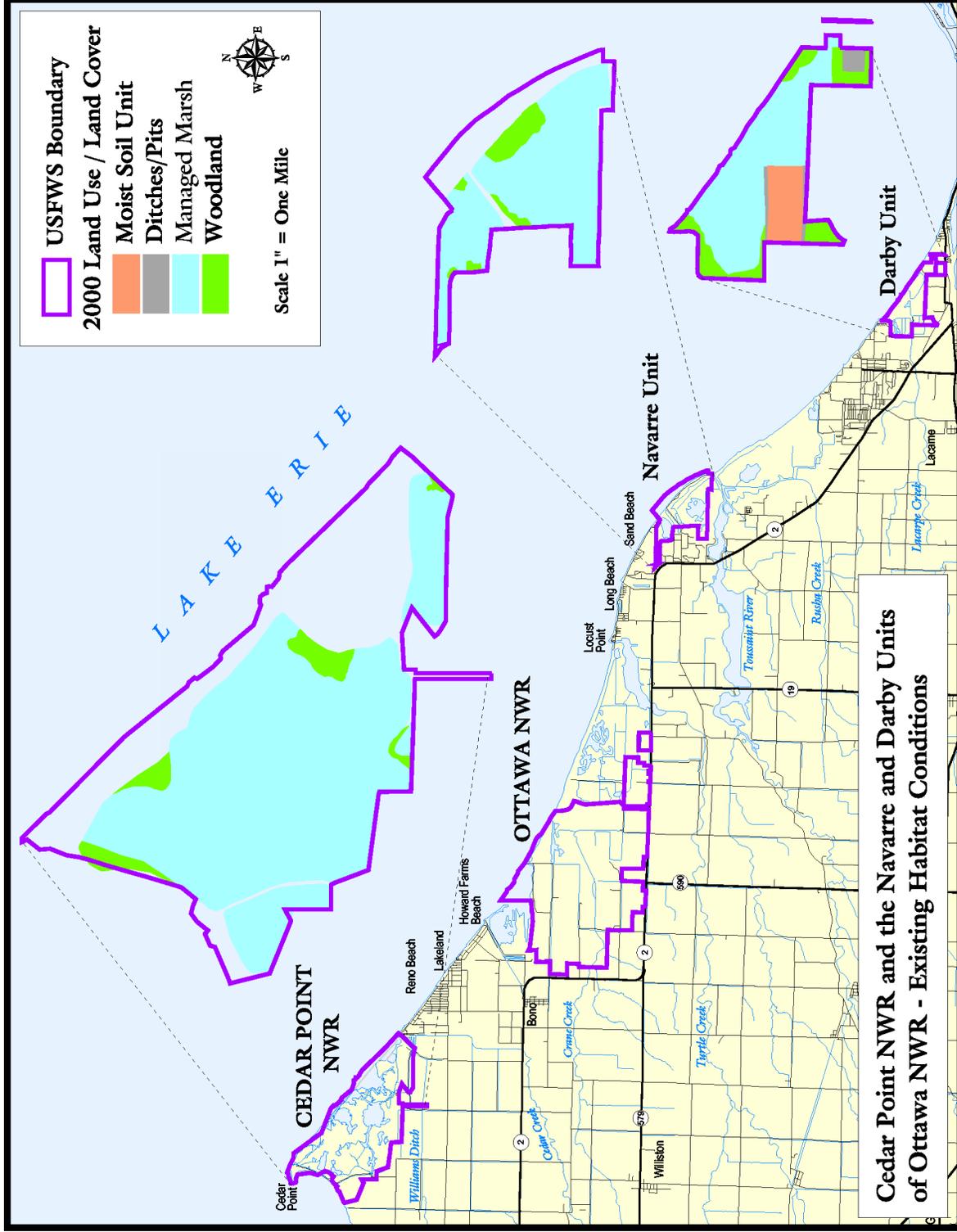
Within these marsh complexes, invertebrates including insects, *gastropods* and other organisms living among the *vegetation* provide an important food source for fish and mammals. Waterbirds and other wetland wildlife rely on marsh plants for subsistence, nest sites and cover, while other wetland wildlife utilize fish and invertebrates that inhabit the vegetation. Each habitat component within the marsh attracts its own species of plant, bird,



Figure 4: Existing Habitat, Ottawa National Wildlife Refuge



**Figure 5: Existing Habitat, Navarre and Darby Units, Cedar Point National Wildlife Refuge**



mammal, reptile, amphibian and fish. Within the marshes, *zonation* and *succession* in response to environmental conditions are among the important community processes. Water level fluctuation, whether natural or human-induced, and the resultant plant and animal response are often the most significant driving forces in the wetland community.

## Wildlife

### Birds

The Ottawa National Wildlife Refuge Complex has recorded more than 325 species of birds in or around units of the Complex. This diversity of species attests to the attractiveness of existing wetlands in the area, and to the location along a major bird migration route. Birds are further concentrated due to the physical barrier presented by Lake Erie and the tendency for migrant birds to follow well-defined landscape “highways,” such as shorelines. This natural pathway funnels millions of birds through a relatively small area.

The Refuge complex and surrounding wetland areas are especially important to certain groups of birds including waterfowl, neotropical migrant songbirds (such as warblers and thrushes that nest in North America and winter in Mexico, the Caribbean and Central and South America), raptors, bald eagles, shorebirds and colonial-nesting wading birds such as herons.

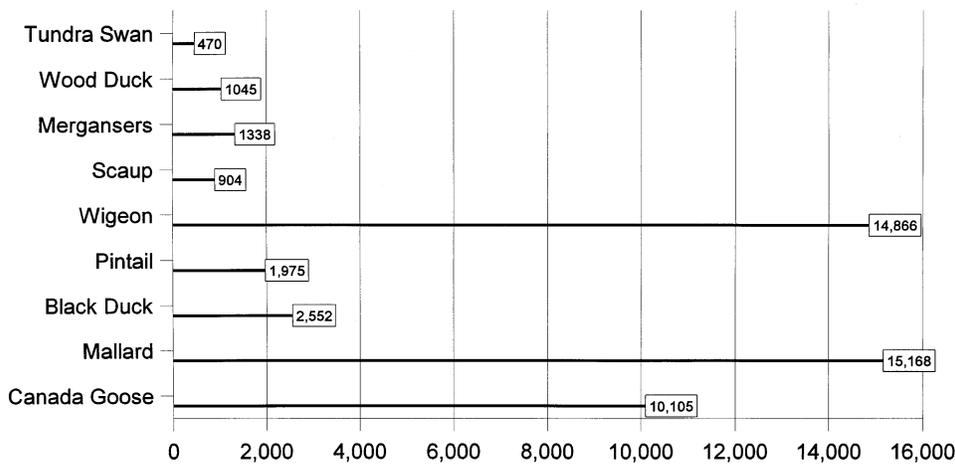
The region is an important staging area for migrant songbirds as they rest up for the passage around or over Lake Erie in the spring. Lake Erie represents the largest barrier to many of these species after they cross the Gulf of Mexico. The abundance and variety of insect prey available in the marshes and adjacent habitats permit these birds to refuel for their continued migration. It is currently believed that the western Lake Erie shoreline has one of the most dramatic buildups of neotropical migrants in North America during spring migration. For many years the Black Swamp Bird Observatory, a non-profit group, has captured and banded songbirds on the Ottawa Refuge Complex. The top 10 most common songbird species banded during 1999 were the blackpoll warbler (1,368), Swainson thrush (1,301) magnolia warbler (1,203), common yellowthroat (857), white-throated sparrow (789), ruby-crowned kinglet (759), gray catbird (754), yellow warbler (708), American redstart (673), and Myrtle warbler (608). A combined total of 19,129 individuals representing 113 species were banded that year. The number of birds captured at mist net sites is considered a small proportion of birds that pass through the Refuge units.

A small colony of black terns, a regional conservation priority species for the Service, recently began to nest again in natural habitat on Cedar Point National Wildlife Refuge. The number of adults and their nesting success is unknown at this time.

The Lake Erie marshes are at the crossroads of the Mississippi and Atlantic flyways, and they annually attract hundreds of thousands of migrating waterfowl. During a normal migration, waterfowl use of the Ottawa Refuge Complex averages 3 million duck-use days and 800,000 goose-use days. Mallards, black ducks, American wigeon, pintail, lesser scaup, redhead, and canvasback are the predominant duck species during migration. The Lake



**Figure 6: Peak 1998 Waterfowl Numbers on Ottawa and Cedar Point National Wildlife Refuges.**



Erie marshes are the most important migration staging area for black ducks on the continent. Surveys indicate that approximately 70 percent of the black ducks in the Mississippi flyway are concentrated in these wetlands during fall migration. This high concentration represents nearly 17 percent of all black ducks tallied nationwide. Waterfowl species that nest in the area are mainly mallard, blue-winged teal, wood duck and Canada goose. Figure 6 presents a selection of migratory waterfowl and the highest number observed on the Refuge Complex during 1998.

A colony of great blue herons, great egrets, double-crested cormorants and black-crowned night herons on West Sister Island National Wildlife Refuge averages 3,500 nesting pairs. Many of these birds feed in coastal wetland habitats on Ottawa and Cedar Point refuges. The island supports the largest night-heron rookery in the U.S. waters of the Great Lakes.

The Ottawa Refuge Complex and nearby Lake Erie shoreline also serves as an important spring and fall migration stopover for a variety of shorebirds. According to Black Swamp Bird Observatory records, the peak time for spring shorebird migration arrivals is April 11-20. Common snipe, greater yellowlegs, killdeer and pectoral sandpipers are among the species commonly seen during this time period. Peak arrival times for dunlin, semi-palmated plover and black-bellied plover are May 11-31. Fall migrations begin in mid-July and continue through early November. It is not uncommon to see a great variety of shorebirds well into October if the weather is mild and winds shift directions frequently. Shifting wind patterns typically dry out the western basin of Lake Erie, creating mudflats that are ideal for shorebird feeding.

#### **Migratory Bird Conservation Initiatives:**

*North American Waterfowl Management Plan (NAWMP):* This continent-wide plan was ratified in 1986 and outlines a broad framework for waterfowl management strategies and conservation efforts in the United States, Canada and Mexico. The Ottawa Refuge Complex is located within two joint ventures, or conservation partnerships, identified in the plan. A large portion of the State of Ohio, including the Refuge Complex, is located



within the Upper Mississippi River and Great Lakes Region Joint Venture. The Ottawa Refuge Complex is within the Lake Erie Marshes Focus Area of this Joint Venture. The Ottawa Refuge also contributes significant migration habitat for black ducks, the focus of the species-based Black Duck Joint Venture. The NAWMP provides a conduit for enhanced State, Federal and private wetland conservation efforts.

*Partners in Flight:* Nationally and internationally, several non-game bird initiatives are in the planning stage. Partners in Flight is developing Bird Conservation Plans, primarily for landbirds, throughout the United States. The plans include priority species lists, associated habitats and management strategies. The same elements will be the focus of ongoing planning efforts for shorebirds (U.S. Shorebird Conservation Plan) and colonial waterbirds (North American Colonial Waterbird Conservation Plan). These future plans will be supported through the management goals outlined in this CCP.

#### Mammals

About 30 species of mammals are found on the Ottawa Refuge Complex. Common species include muskrat, mink, raccoon, eastern cottontail, woodchuck, opossum, striped skunk, white-tailed deer, fox squirrel, and several mole and mice species. Mammals are most abundant in and around wetland habitat due to the abundant food and cover available.

A few resident mammal species, including muskrats, woodchucks and white-tailed deer, have periodically become overabundant on the Refuge. An elevated deer population can hinder the natural succession of woodlands through over browsing, damage neighboring croplands and constitute a hazard to motorists. Muskrats can greatly affect the emergent vegetative cover on marshes. Woodchucks can damage dikes through excessive burrowing. Resident populations of these species are being controlled, with varying success, through Refuge hunting and trapping programs.

Photo by Sharon Cummings



#### Reptiles and Amphibians

Amphibians and reptiles, while often mentioned together, are two natural and distinct classes of vertebrate animals. Many species of salamanders, newts, toads, and frogs are common to the Refuge and depend on wetland habitat for their survival. Sixteen species of turtles and snakes are also found in the area. Some, like the garter snake, are abundant. Others, like the soft-shelled turtle, are rare. The five-lined skink is the only lizard species in the area.

#### Threatened and Endangered Species

Bald eagles, a federally listed threatened species, are commonly seen near coastal areas during migration and five active nests are located on the Ottawa Refuge Complex<sup>1</sup>. Kirtland's warblers have been sighted on the Ottawa and Navarre units during migration seasons. Peregrine falcons, a species removed from the endangered species list in 1999, are occasionally

<sup>1</sup>Bald eagle populations are recovering nationwide and the Service has announced a delisting program.



seen during migration. Other federally listed threatened or endangered species that may be found locally in suitable habitat include the Indiana bat (endangered), lakeside daisy (threatened), eastern prairie bush clover (threatened), and eastern prairie fringed orchid (threatened). None of these additional species have been documented on the Ottawa Refuge Complex.

Thirty-three of the State of Ohio's 60 *terrestrial* endangered or threatened wildlife species are dependent on wetlands, and some of these species nest in Lake Erie marshes. Migratory bird species on the State list include American and least bittern, king rail, northern harrier, hermit thrush, common tern and sedge wren and several others. In addition to these terrestrial species, the State-listed endangered Great Lakes muskellunge also use coastal wetlands for spawning, nursery and rearing habitat.

### Fish

Coastal wetlands are a vital link in Lake Erie's fisheries ecosystem. They provide spawning, nursery and rearing habitat for some 43 wetland-dependent fish species, 26 of which have significant recreational, commercial, or prey value. Two categories of fish associated with the coastal marshes of this region include: (1) species directly dependent on coastal marshes as adult habitats, and (2) species making opportunistic use of coastal marshes. The first category includes species such as northern pike, longnose gar, bullheads, and crappies, whose dependence on aquatic vegetation has been well established. The second category includes near-shore and bay species such as gizzard shad, common carp, white perch, channel catfish, and yellow perch, which have been shown by qualitative surveys to be seasonally common in coastal marshes as young or adults. The well-developed system of drainage ditches in much of the area allows seasonal movement of some species far into the mainland.



Photo by Sharon Cummings

Carp have become a serious problem in many wetlands due to their sheer numbers, aquatic plant diet, and markedly increasing water *turbidity* during bottom feeding. Increases in turbidity decrease sunlight penetration in the water, which in turn reduces the plant and *zooplankton* production necessary to many wetland food chains.

## **Fish, Wildlife and Plant Species of Management Concern**

Table 1 presents information on the status and current habitat use of a number of fish, wildlife and plant species found on the Ottawa Refuge Complex. The table also lists which of the proposed CCP habitat objectives to be introduced in Chapter 4 will benefit each species. Individual species, or species groups, were chosen because they are listed as Regional Resource Conservation Priorities or State-listed threatened/endangered species. In addition, some species are of management concern due to their importance as economic/recreational sources and/or status as nuisance or invasive species.



**Table 1: Resource Conservation Priority Matrix**

Species	Refuge Status	Monitored?	Unit	1	2	3	4	5	6	7	8	9
* Wading Birds	Common/increasing	Yes Goal=Stable	WSINWR ONWR CPNWR	F, M	F	F	F	F	F	B		X
*Marsh Birds (General)	Uncommon	Yes Goal=Stable	ONWR CPNWR	F, Br, M	F, B, Br	F, B, Br	F					X
Black-crowned night heron	Common-decreasing	Yes Goal=Increase	WSINWR ONWR	F, M	F	F	F	F	F	B		X
Double-crested cormorant	Common-increasing	Yes Goal=Stable	WSINWR	F, M					F	B		X
*Shorebirds (General)	Common seasonally	Yes Goal=Stable	ONWR CPNWR			M, F	F					
American bittern	Uncommon	Yes Goal=Stable or Increase	ONWR CPNWR		F, Br	F, B, Br						X
Least bittern	Uncommon	Yes Goal=Stable or Increase	ONWR CPNWR	F, M	F, B, Br	F, Br						
American woodcock	Common seasonally	Yes Goal=Increase								F, M	F, M, B, Br	
Common tern	Uncommon	Yes Goal=Increase	ONWR	F		F			F, B, Br			
Black tern	Rare	Yes Goal=Increase	CPNWR	F, B Br		F, B Br	F, Br					
*Waterfowl (general)	Recreational/economic Common	Yes Goal=Stable	ONWR CPNWR	F, M		F	F	F	P			
Canada goose	Recreational/economic Common	Yes Goal=Stable	ONWR CPNWR	F, M		F, M	F	F	P			F, B Br
Trumpeter swan	Uncommon	Yes Goal=Increase	ONWR CPNWR	F, M		F, M		F	P			
Wood duck	Recreational/economic Common	Yes Goal=Increase	ONWR CPNWR	F, M	F	F	F	F	F	F, B Br		

\* See Species List in Appendix

B – Breeding Habitat F – Foraging Habitat

Br – Young/Brood Rearing P – Predator Avoidance, etc.

M – Migration X – Present

**Table 1: Resource Conservation Priority Matrix**

Species	Refuge Status	Monitored?	Unit	1	2	3	4	5	6	7	8	9
American black duck	Recreational/economic Common	Yes Goal=Increase	ONWR CPNWR	F, M Br	F, M	F, M	F	F	P			
Mallard	Recreational/economic Common	Yes Goal=Stable	ONWR CPNWR	F, M, B, Br	F	F, M, B, Br	F	F	P	F		
Blue-winged teal	Recreational/economic Common	Yes Goal=Stable	ONWR CPNWR	M		F	F	F				
Canvasback	Recreational/economic Uncommon	Yes Goal=Stable	ONWR CPNWR	M		F, M	F	F	F			
*Raptors	Common	Yes Goal=Stable	ONWR CPNWR							B	F	F
Bald eagle	Threatened/recovering	Yes Goal=Stable	ONWR CPNWR	F		F			F	F, B Br		X
*Owls (general)	Common	Yes Goal=Stable	ONWR CPNWR								F	F
*Songbirds (general)	Abundant seasonally	Yes Goal=Stable	ONWR								F, M, B, Br	F, M, B, Br
Sedge wren	Rare	Yes Goal=Increase	ONWR CPNWR									F
Wood thrush	Uncommon	Yes Goal=Stable	ONWR								F, M, B, Br	F, M, B, Br
*Furbearers	Recreational/economic Common	Yes Goal=Stable or Decrease	ONWR CPNWR	F, B, Br	F, B Br	F, B Br				B, Br	F, B, Br	F
White-tailed deer	Common	Yes Goal=Decrease	ONWR	F, P	F, P	F, P	F	F		F, X	F, B Br	X
Lake sturgeon	Rare (not found)	No Goal=Monitor	ONWR?								Br	
Walleye	Recreational/economic	Yes Goal=Increase	ONWR CPNWR								B, Br	
Sea lamprey	Nuisance	Yes Goal=Eradicate	ONWR								X	

\* See Species List in Appendix

B – Breeding Habitat      F – Foraging Habitat  
 Br – Young/Brood Rearing      P – Predator Avoidance, etc.  
 M – Migration      X – Present

**Table 1: Resource Conservation Priority Matrix**

Species	Refuge Status	Monitored?	Unit	1	2	3	4	5	6	7	8	9
Lake whitefish	Recreational/economic	Yes Goal=Stable	ONWR CPNWR						Br			
Muskellunge	Recreational/economic	Yes Goal=Stable	ONWR?						B, Br			
Round goby	Nuisance	Yes Goal=Eradicate	ONWR CPNWR						B, Br			
Yellow perch	Recreational/economic	Yes Goal=Increase	ONWR CPNWR						F			
*Reptiles (general)	Common	Yes Goal=Stable	WSINWR ONWR CPNWR									X
Copperbelly water snake	Threatened (not found)	No Goal=Monitor	ONWR?									
Lake Erie water snake	Proposed threatened (not found)	No Goal=Monitor	WSINWR?									
*Amphibians (general)	Common	Yes Goal=Monitor	ONWR CPNWR	F, B, Br		B, Br		X				
Mapleleaf mussel	Recreational/economic	Yes Goal=Stable	ONWR									
Pimpleback mussel	Recreational/economic	Yes Goal=Stable	ONWR						F, B, Br			
Round pigtoe mussel	Rare	Yes Goal=Stable	ONWR						F, B, Br			
Threeridge mussel	Recreational/economic	Yes Goal=Stable	ONWR						F, B, Br			
*Lepidopteran (general)	Recreational/economic	Yes Goal=Complete Inventory	ONWR CPNWR				F, B, Br	F		F, B, Br	F, B, Br	F, B, Br
Purple loosestrife	Increasing	Yes Goal=Eradicate	ONWR CPNWR	X	X	X	X	X				X

\* See Species List in Appendix  
 B – Breeding Habitat      F – Foraging Habitat  
 Br – Young/Brood Rearing      P – Predator Avoidance, etc.  
 M – Migration                      X – Present

## Social and Economic Context

Even though more than 8 million people live within a 2-hour drive, the Refuge complex is located within a predominantly rural region. However, Toledo and Cleveland are close enough to influence housing and recreational development. Nearby smaller communities range from agriculture-oriented towns (Oak Harbor) to recreation-oriented towns (Port Clinton). The economic base of the region is a mix of light industry, service industries, power generation, agriculture, government and recreation. Land use is roughly 75 percent agriculture, 8 percent conservation/parks, 6 percent residential, 6 percent business, 3 percent transportation and 2 percent miscellaneous.

Major farm commodities produced are soybeans, wheat, corn, vegetables and fruits, with some cattle, hogs and poultry. Industries include food processing, light manufacturing and the production of concrete, limestone, lime, gypsum, rubber and plastic products. The Davis-Besse Nuclear Power Plant west of Port Clinton is a major employer in the area and has 1,100 employees.



Photo by Sharon Cummings

Tourism has become an increasingly important component of the area's economy with the renewal of water quality in Lake Erie and the corresponding resurgence of the lake as a premiere regional and national fishery. Port Clinton, for example, has a permanent population of 12,500 people. During the summer months, however, the average weekday population is 120,000 and on weekends 250,000. The estimated annual expenditures by tourists in Ottawa County are estimated at between \$550 and \$600 million.

In the 1920s and '30s, the Lake Erie Marshes gained fame for their tremendous waterfowl hunting opportunities. This tradition is still strong today even though the amount of habitat, the number of birds, and the number of hunters have all dropped considerably. Several waterfowl hunting clubs still operate large wetland complexes along the Lake Erie coastline while State and Federal wildlife areas draw thousands of waterfowl hunters yearly.

## Archaeological and Cultural Resources

As part of the CCP process, the Service contracted for a cultural resources overview study of the Ottawa National Wildlife Refuge Complex. The study resulted in the report, "*Cultural Resource Overview, Ottawa, Cedar Point, and West Sister Island National Wildlife Refuges, Lucas and Ottawa Counties, Ohio*," by William E. Rutter and Andrew M. Schneider of Midwest Environmental Consultants, Inc., dated June 11, 1998. The report concluded that the Ottawa Refuge Complex has 53 reported sites on Refuge land and one site on adjacent Coast Guard land. Most of these sites date to the historic period. The authors identified an additional 149 known archeological sites within 5 miles of the three refuges. The single standing structure on the refuges is the West Sister Island Lighthouse.



Using Government Land Survey maps from 1820 and 1834, and other old maps, the archeologists were able to determine the extent of Lake Erie shoreline erosion since that time. Erosion has implications for destroyed archeological sites and for Refuge land management.

As of June 10, 1999, Lucas and Ottawa counties contain 106 properties on the National Register of Historic Places. Most of these properties are located in towns and cities, but the West Sister Island Lighthouse is on the Refuge. Historic properties on the National Register are generally not indicative of the kinds of properties that could be found on the refuges. Sites on the refuges could include prehistoric archeological sites, historic archeological sites (Indian and Western), farmsteads, and sites associated with commercial trapping and recreational hunting.

The overview study identified Indian tribes, historical societies and museums, and other potentially interested parties that should be consulted in the search for and evaluation of cultural properties on the refuges. However, it is often difficult to determine an association between prehistoric cultures that created the archeological sites and modern Indian tribes. No evidence exists for the removal of Native American human remains from any of the refuges, but reported prehistoric mounds in the area indicate the potential for finding human remains and cultural materials.

#### Indian Tribal Interests

During the late prehistoric period, two cultural groups occupied northern Ohio – the Algonquian-speaking Sandusky and the Iroquoian-speaking Western Basin Traditions. Approximately 700 years ago the people of the Western Basin Tradition moved to Ontario. Then, 350 years ago, the Neutral Iroquois defeated the people of the Sandusky Tradition, who fled and were absorbed into other Algonquian-speaking populations. By the late 17th century, northwest Ohio appears to have been abandoned. Tribes later in the area were the Miami, Shawnee, Delaware, Wyandot, Ottawa, Chippewa, and Potawatomi.





# Chapter 4 Management Direction

## Current Refuge Programs

The Ottawa Refuge Complex is managed as a haven for wildlife, fish, plants and people. The administration of the refuges for this purpose can often become quite complex. The Refuge program is heavily influenced by the maintenance needs for the water impoundment infrastructure. Natural forces such as the fluctuation of Lake Erie water levels, wind events and erosion ensure a constant need for maintenance of roads, dikes and pumps and the skilled staff to complete the work. In addition, Refuge managers need to understand the effects of their habitat actions on fish and wildlife. Refuge biologists inventory and monitor local and migrant wildlife and fish populations and provide advice to managers. Finally, all staff members are involved in providing the public with environmental education and wildlife-dependent recreational opportunities.



Photo by Sharon Cummings

## Staffing and Budget

The ultimate success of the Ottawa National Wildlife Refuge Complex, including Cedar Point National Wildlife Refuge and West Sister Island National Wildlife Refuge, in carrying out its mission depends on its staffing patterns and funding levels. Current staffing patterns and funding are described in Table 2.

The Refuge is supported by the Regional Office (Region 3) in Fort Snelling, Minnesota, an Ecological Services Field Office in Reynoldsburg, Ohio, a Fisheries Resources Office in Alpena, Michigan, a Private Lands Office in East Lansing, Michigan, a Law Enforcement Office in Sandusky, Ohio, and the National Office in Washington D.C.

## Habitat Management

Management of Refuge habitats involves a variety of tools and techniques used to control and enhance habitat conditions. The primary objective of habitat management is to provide fish and wildlife with a variety of habitats within the Refuge to meet the needs of a diversity of species for resting, nesting and feeding.



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**Table 2: Current Staffing**

Refuge Manager	GS-0485-13	1 FTE (Full-time Equivalent)
Refuge Operations Specialist	GS-0485-11	2 FTE
Biologist	GS-0486-11	1 FTE
Park Ranger (Public Use)	GS-0025-9	1 FTE
Wildlife Biologist (Private Lands)	GS-0485-9	1 FTE
Fisheries Biologist	GS-0482-7	1 FTE
Administrative Technician	GS-0303-7	1 FTE
Engineering Eq. Operator	WG-5716-10	1 FTE
Engineering Eq. Operator	WG-5716-8	1 FTE
Maintenance Worker	WG-4749-8	1 FTE
Tractor Operator	WG-5705-6	2 TFT (Temporary Full-time)
Student Trainee (Biology)	GS-0499	3 Students, Career Experience Program
Biological Science Aid	GS-0404-3	Student Temporary Exp. Program
Annual Staff Costs (including benefits and temporary staff:		\$585,400
Annual Operation/Maintenance Costs (Utilities, Training; Travel; Maintenance)		\$155,440
Partners for Fish and Wildlife Habitat Restoration		\$75,000
1999 Total Annual Costs:		\$815,840

## Upland Management

Ottawa National Wildlife Refuge Complex has very little true upland habitat. Nearly all the soil types on the Refuge are hydric (wetland) soils, due to the once vast marsh system that covered much of northwest Ohio. Those areas of the Refuge that tend to be dry are made up of tiled farm fields that were converted from wetlands prior to establishment of the Refuge. Many of these fields are currently farmed and will be allowed to revert to natural successional stages as the farming program is phased out. The gradual phase out of farming will create a range of successional stages over a 5-10 year period. Management of these areas will primarily consist of the control of invasive and noxious weeds (i.e. thistle) during successional progression from herbaceous plants to woody vegetation. Weed control measures will promote tree seedling growth and prevent spread of noxious species to nearby private crop fields.

## Wetland Management

Managed wetland impoundments (units) are the primary habitat type encountered at the Ottawa National Wildlife Refuge Complex. Refuge wetlands are managed to provide high quality food and cover for migrating waterfowl, shorebirds, wading birds, and other wetland-dependent wildlife species. Permanent and semi-permanent marshes of cattails, bulrush, and other emergent vegetation as well as a variety of submergent vegetation provides habitat for a variety of species. These areas also provide foods in the form of seeds, roots, tubers, and aquatic invertebrates. Management is directed at keeping these marshes in a highly productive state by simulating the natural cycle of water level changes which in turn stimulates good aquatic vegetation growth and a variety of plant and animal species within these marshes. Marshes are managed to provide a mixture of open water,



submergent and emergent vegetation communities. A mixture of communities provides diverse habitat, which wildlife need for feeding and resting as well as courtship and reproduction.

Photo by Sharon Cummings



Water levels in impoundments are managed in different ways at certain times of the year. Water levels are lowered, or “drawn down,” during the growing season to stimulate plant germination and growth and to concentrate invertebrates populations. Water levels are raised during the fall to encourage use of the impoundments by waterfowl. Specific water level plans for individual impoundments depend on conditions within the unit. Units that have reduced vegetation growth may be completely drained during the growing season to germinate seeds and encourage new vegetation growth. Excessive or undesirable vegetation in a unit may require high water levels throughout the growing season to reduce the growth of vegetation and increase open water areas. Habitat diversity is encouraged through rotational management of the wetland complex. In any given year, some units will be drawn down while other units are maintained at higher levels.

Seasonal manipulation of water levels simulates the natural fluctuations that occur in wetlands connected to Lake Erie. The majority of the wetlands at Ottawa National Wildlife Refuge are diked wetlands with no direct connection to the lake. Diking of wetlands is done in an effort to protect wetlands from the rapid water level changes and wave action associated with Lake Erie. These actions can uproot wetland vegetation and scour soils, decreasing the habitat quality of the wetland. However, the dikes, prohibit the entry of fish into the marshes for spawning and reduce the exchange of nutrients between a marsh and the lake, two important functions of coastal wetlands.

### **Invasive Plant Species**

Invasive species of current concern on Ottawa National Wildlife Refuge in order of priority are: purple loosestrife (*Lythrum salicaria*), gypsy moths (*Lymantria dispar*), reed canary grass (*Phalaris canariensis*), phragmites (*Phragmites australis/communis*) and flowering rush (*Butomus umbellatus*). The species are prioritized based on the immediate threat each poses to natural diversity of habitats on the Refuge. An integrated pest management system is in place on Ottawa and consists of mechanical, biological and chemical treatments of species.

A complete Integrated Pest Management program to combat invasives will be included in the Habitat Management Plan that supports this CCP.

### **Metzger Marsh – A Wetland Management Case Study**

Metzger Marsh is a 650-acre Lake Erie coastal wetland jointly managed by Ottawa National Wildlife Refuge and the Ohio Division of Wildlife (ODOW). Until the 1970s, the marsh was protected from Lake Erie by a naturally occurring barrier beach that deflected waves due to storm events and reduced the effects lake level fluctuations on the marsh, but allowed water



and nutrient exchange and fish access for spawning. High Lake Erie water levels in the 1970s eroded the barrier beach and exposed Metzger Marsh to the full impact of Lake Erie.

Over the following years, waves and rapid water level changes reduced wetland vegetation in Metzger Marsh to scattered clumps of cattails. In the early 1990s a decision was made by the U.S. Fish and Wildlife Service and the ODOW to build a dike to protect Metzger Marsh and reestablish vegetation and management capabilities. With the help of many partners, and a permit from the Army Corps of Engineers, a 7,700-foot dike was constructed across the mouth of Metzger Marsh. This dike was different from others in the area because it was built with a connection to Lake Erie.

Conditions of the Corps of Engineers permit required a fish passage structure to be installed in the dike to allow Lake Erie fish to enter and exit the marsh for feeding, spawning and protection. During the first years after construction, the gates on the structure were closed and water levels drawn down to allow wetland vegetation to reestablish in the marsh. Regrowth of vegetation was extremely successful and an emergent wetland community returned to Metzger Marsh. In March 1999, the gates were opened to Lake Erie and will be left open for four years, as required by the permit. Water levels within the marsh will rise and fall with Lake Erie level changes as they did when the barrier beach was present. Fish passage and nutrient flow will resume.

During the 4 years of free water flow, scientific studies conducted by Federal, State and university researchers will monitor vegetation changes in the marsh, fish passage through the structure, nutrient flow, and many other factors. Information collected and analyzed during this period will help to establish management strategies after the 4-year cycle is complete. Metzger Marsh will be jointly managed by Ottawa National Wildlife Refuge and ODOW's Magee Marsh Wildlife Management Area.

## Private Lands

The Ottawa National Wildlife Refuge's Partners for Fish and Wildlife Program assists private landowners with the improvement or restoration of wildlife habitat on their land. Technical assistance, contracting, cost-share assistance and actual earth work is provided to private landowners in 13 counties in Michigan and Ohio.

The Partners for Fish and Wildlife program helps landowners to make their lands better places for wildlife. To accomplish this, the program relies on partnerships with conservation groups, businesses, and individuals. Because of the involvement of our partners, many projects can be completed at little or no cost to the landowner. Since the start of the program in 1987, thousands of acres of wildlife habitat have been restored or enhanced by the Ottawa National Wildlife Refuge Private Lands Program.

As a part of the Ottawa National Wildlife Refuge, the Partners for Fish and Wildlife program will continue to expand and diversify. At current funding



levels, we will strive to complete between 40-50 restorations per year encompassing around 200 acres. As the program continues to grow, the need for additional Private Lands staff will also increase. Budget increases will also be necessary to keep up with the interest from private landowners.

The program is expected to expand into other areas of Michigan and Ohio. In addition to widening its geographical coverage, the program will begin to expand the types of restorations performed and reestablish a wide variety of habitats including native warm season grasses, reforestation projects, and riparian corridor restorations. Wetland restorations will remain the main focus of the program, but these new habitat projects will help the Partners for Fish and Wildlife Program benefit a greater diversity of fish and wildlife species.

## Fish and Wildlife Monitoring

The Ottawa Refuge Complex currently engages in a wide variety of natural resource monitoring and research projects. The studies, surveys and inventories provide valuable information used to make Refuge management decisions and to support statewide and national conservation efforts. Staff biologists are involved in the following ongoing projects to monitor fish, wildlife and their habitats:

Photo by Sharon Cummings



### Waterfowl

Migratory waterfowl numbers are monitored during the months of September through April. Aerial counts are conducted twice monthly by the ODOW, and Refuge staff perform comparison ground counts during the same time periods.

### Marsh Birds, Shorebirds and Wading Birds

Marsh birds are surveyed using protocols of the ODOW and Long Point Bird Observatory in Canada. Virginia rails, sora rails, moorhens, and least and American bitterns are counted throughout the Refuge each year. In addition, a study was initiated in 1993 by the Black Swamp Bird Observatory to relate shorebird use and needs to water management regimes on the Refuge. Two common tern nesting platforms are located on the Refuge in the Crane Creek estuary. The platforms were used by 40 nesting tern pairs in 1999 that produced 47 fledglings.

West Sister Island contains the largest heron/egret rookery on the U.S. side of the Great Lakes and the mainland Refuge is a critical feeding area. One or two annual nest counts are conducted between June and July to inventory active nests at the West Sister colony.

### Passerine/Neotropical Migrants (Songbirds)

Neotropical and other passerine migrants are monitored each spring and fall by the Black Swamp Bird Observatory through a combination of point counts and mist net stations located on three units of the Refuge. A Monitoring Avian Productivity and Survivorship site is located on the Navarre Division



of Ottawa National Wildlife Refuge. In addition, monitoring is conducted within select Refuge units using area search protocols designed to evaluate the effects of habitat management actions.

### **Raptors (Hawks, Owls and Eagles)**

Midwinter bald eagle and peregrine falcon counts are conducted each year in cooperation with ODOW. Eagle nests on the Refuge are monitored annually by trained volunteer observers. In addition, the Black Swamp Bird Observatory conducts raptor migration counts just outside the west and east boundaries of the Ottawa Unit.

### **Fish**

In 1998, a comprehensive fish species inventory study was initiated. The purpose is to identify and quantify species composition and the health of the aquatic ecosystem. As of spring 1999, 47 species from 17 families have been identified on Ottawa National Wildlife Refuge. A temporal fish community exists within areas of the Refuge, primarily Crane Creek and Metzger Marsh, that still maintain a connection with Lake Erie. Information being gathered will document fish movements into and out of Refuge wetland areas for spawning, nursery, and protective habitats.

### **Amphibian/Reptile Surveys**

Amphibian call surveys are conducted each spring on Ottawa, Cedar Point and Darby divisions to determine relative abundance of each species. Reptile surveys are conducted each spring and summer through the use of coverboard arrays.

### **Invertebrates**

With the assistance of Refuge staff, the U.S. Geological Survey in Ann Arbor, Michigan, conducts an ongoing study to monitor the survival and propagation of clams in conjunction with fish community monitoring in Crane Creek, Pool 3 and Metzger Marsh. Gypsy moth traps are placed throughout the Refuge each year. A recent increase in catch rates indicate that significant impact to forest resources may be expected in the future. In addition, a lepidopteran (butterflies and moths) and odonate (dragonflies, damselflies, etc.) species list is being compiled for the Refuge Complex and a voucher collection is being assembled. To date, the collection contains 34 lepidopteran, 11 odonate and two moth species.

### **White-tailed Deer**

Two or three spotlight surveys are conducted each fall to determine the number of deer using the Refuge prior to the annual hunt. When possible, a second set of surveys is conducted immediately after the hunt to evaluate the immediate impacts of disturbance and hunting pressure.

### **Muskrat**

Muskrat numbers are monitored annually through hut survey counts and qualitative assessments of emergent vegetation.



*Photo by Sharon Cummings*



## Habitat Monitoring

### Purple Loosestrife and Biological Control Monitoring

The Refuge is surveyed each year to evaluate the spread of purple loosestrife. This information is used to dispatch volunteers for eradication programs and direct staff in chemical applications. Monitoring of biological control (beetle) effectiveness continues at release sites.

### Artificial Nesting Structure Monitoring

Volunteers monitor and maintain elevated nest boxes for wrens, bluebirds, tree swallows and wood ducks on a weekly basis during the breeding season (April-July). Nesting success is also monitored by ODOW on two common tern artificial nesting platforms in the Crane Creek estuary.

### Tree Restoration

In 1994, more than 12,000 tree seedlings were planted at three locations within the Ottawa Division. Because of excessive browsing by deer, by 1998 only one of those planting sites still contained young trees. A simple monitoring scheme is used to keep track of those survivors.

### Aquatic Habitat Monitoring

A baseline inventory study of aquatic vegetation, invertebrates, nutrients, and water quality was initiated in 1998.

## Wildlife-dependent Recreation, Environmental Education and Interpretation

The Ottawa Refuge Complex accommodates all six priority wildlife-dependent recreational uses as identified in the Refuge Improvement Act of 1997. A major feature of the Ottawa Refuge Complex is the often spectacular opportunity for wildlife observation, especially bird watching. The Refuge complex has been listed in many "Top Ten" birding locations in the past few years. The Refuge bird checklist provides information on 273 species of regular visitors, including seasonal occurrences, which improves the likelihood of viewing a specific species during a visit. Birders visiting the Refuge especially enjoy viewing migrating warblers, waterfowl, shorebirds, and seeing resident bald eagles. Approximately 120,000 visitors each year enjoy Ottawa's fish and wildlife resources and participate in wildlife observation and photography, hunting, fishing, environmental education and interpretation. The economic benefit for local communities from birding ecotourism was estimated at \$5.6 million in 1993-1994 (Kerlinger 1994). The Refuge is uniquely positioned to attract more visitors as a daily average of 10,000 vehicles pass by on State Highway 2 (Ohio Department of Transportation, 1997).



Photo by Sharon Cummings



The Refuge offers more than 7 miles of hiking trails that travel through diverse habitat types. Refuge staff and volunteers offer interpretive talks and hikes throughout the year. These cover a variety of subjects including breeding birds, bald eagles, reptiles, plants and marsh management techniques. Interpretive signs are located throughout the trail system and cover many of the same topics. A recently renovated footbridge will be used to expand the trail system to include additional habitat types.

Environmental education is a priority program at Ottawa National Wildlife Refuge. Teacher workshops are held to demonstrate field trip methods to teachers and encourage teachers to include environmental education in their classrooms. Field trips to the Refuge are limited by staff availability and a lack of indoor facilities. Wetland studies, water quality, wildlife and soils are common topics on trips to the Refuge. The Refuge is less than a 1-hour drive from many school systems, including Toledo and its surrounding communities. However, access is limited for these students by a lack of school system funding for transportation. Despite these limitations the Refuge hosts approximately 1,200 students each year.

Hunting and fishing opportunities are also provided on the Ottawa Refuge. In cooperation with the Ohio Department of Natural Resources, Division of Wildlife, the Refuge conducts waterfowl and deer hunt programs each fall. The hunts are carefully controlled and limited permits are distributed through a lottery-style drawing. In 1999, 840 hunters received permits to hunt waterfowl on the Ottawa Refuge and 168 deer hunting permits were issued in January 2000. In general, game fish habitats and populations are limited on the Ottawa Refuge Complex. However, a public fishing area is available seasonally at the Cedar Point Refuge.

## Outreach

Through off-site exhibits and presentations to the general public, local clubs, organizations and students, Refuge staff and volunteers reach approximately 4,000 people annually. These events focus on teaching the public about the National Wildlife Refuge System and the importance of Lake Erie coastal marshes. Each year, the Refuge and several partners host a festival in conjunction with International Migratory Bird Day. Additional students are reached through the Federal Junior Duck Stamp Contest. The Refuge receives approximately 1,000 entries each year from students across the state.

## Archaeological and Cultural Resources

The Refuge Manager considers potential impacts of management activities on historic properties, archaeological sites, traditional cultural properties, sacred sites, human remains and cultural materials. Prior to ground disturbing activities the Refuge Manager informs the Regional Historic Preservation Officer in a timely manner to allow analysis, evaluation, consultation and mitigation as necessary.



The Refuge does not have a museum or museum collections (e.g. art, ethnography, history, documents, artifacts). To date, no archaeological materials have been collected from Refuge lands. Archaeological investigations and collecting are performed only in the public interest by qualified archaeologists working under an Archaeological Resources Protection Act permit issued by the Regional Director. Refuge staff members take steps to prevent unauthorized collecting by the public, employees and government contractors. Violations are reported to the Regional Historic Preservation Officer.

## **Wilderness Suitability**

West Sister Island was designated as a Federal wilderness in 1975. As part of the CCP process, we reviewed lands within the legislative boundaries of the Ottawa and Cedar Point National Wildlife Refuges for wilderness suitability. No lands were found suitable for designation as wilderness as defined in the Wilderness Act of 1964. No existing Refuge units contain 5,000 contiguous, roadless acres. In addition, land within the Refuge units has been substantially altered by humans, either through agriculture or water impoundment construction.

## **Goals, Objectives and Strategies**

Goals, objectives and strategies were developed for Ottawa National Wildlife Refuge, Cedar Point National Wildlife Refuge and West Sister Island National Wildlife Refuge with participation by members of the public, wildlife managers and scientists.

The following pages describe the goals established for major management areas, objectives for achieving those goals, and the specific strategies that will be employed by Refuge staff. The goals are organized into three broad categories: wildlife, habitat and people. This mirrors the organization of the 1999 Service publication "*Fulfilling the Promise*," which presents a vision for the National Wildlife Refuge System.

Each of the three national wildlife refuges that make up the Ottawa Refuge Complex are presented individually even though they share many similar goals.



# Ottawa National Wildlife Refuge

## Goals:

*Wildlife:* Maintain native wildlife populations in balance with the habitat available while decreasing and limiting exotic plant and animal species. Surveys based on sound scientific methods for fish and wildlife populations will be conducted to determine viable habitat prescriptions to enhance the attractiveness of the Refuge for optimum numbers of species and peak populations.

*Habitat:* Restore functional components of the Lake Erie marsh ecosystem, which includes marshes, wooded wetlands, estuary, and *scrub/shrub* to provide benefits to endangered species, waterfowl, shorebirds, migratory songbirds, colonial waterbirds, fish, and other species of concern.



Photo by Sharon Cummings

*People:* Provide public outreach and wildlife-dependent recreational opportunities to a diverse audience by offering a variety of quality educational and recreational activities when they are compatible with wildlife needs. This will promote understanding, appreciation, and support for the Ottawa National Wildlife Refuge Complex and the entire National Wildlife Refuge System.

## Wildlife Goals, Objectives and Strategies

### Wildlife Goal 1:

Maintain native wildlife populations in balance with the habitat available while decreasing and limiting exotic plant and animal species. Surveys based on sound scientific methods for fish and wildlife populations will be conducted to determine viable habitat prescriptions to enhance the attractiveness of the Refuge for optimum numbers of species and peak populations.

### Wildlife Objective 1

Identify key fish and wildlife populations currently using the Ottawa National Wildlife Refuge Complex and determine appropriate monitoring protocols to track their status.

#### *Strategies:*

- Conduct surveys to establish presence/absence of plant and animal species.
- Conduct an extensive literature review and continue consulting local and regional experts within the Service and other cooperating agencies to establish sound monitoring protocols.

### Wildlife Objective 2

Monitor key species, including waterfowl, songbirds, shorebirds, raptors, waterbirds, fish, and other species of concern, to understand relative population levels, population trends and responses to management.



*Strategies:*

- Complete the Fish and Wildlife Inventory and Monitoring plan by September 30, 2000.
- Through partnerships or Refuge staffing, continue the Monitoring Avian Productivity and Survivorship and bird banding programs.
- Use protocols and data analysis procedures approved by the Service to monitor amphibians, reptiles, fish, marsh birds, shorebirds, songbirds, raptors, and mammals. Include modified protocols as part of the Long Point Bird Observatory program to meet Great Lakes Ecosystem objectives.
- Establish and implement a Geographic Information System by obtaining basic Refuge layers and inputting new and existing fish and wildlife survey data.
- Initiate research in cooperation with universities, non-profit organizations and other agencies to gain comprehensive information, analysis and understanding about fish and wildlife populations and distribution.
- Whenever possible, publish and give presentations on the results of research and other monitoring done on Refuge. Encourage cooperators to do the same.

**Wildlife Objective 3**

Artificial nesting structures for wildlife production will be maintained to supplement production until natural cavities or secure nesting habitats are as available as the artificial nesting structures.

*Strategies:*

- Inventory and maintain the existing wood duck nest boxes (50) using Refuge volunteer programs.
- A minimum of two tern platforms will be monitored and maintained within the Crane Creek estuary or Pool 1.
- The current number of bluebird and tree swallow nest boxes (103) will be maintained and monitored to provide these species with adequate nesting habitat.
- Raccoons and other mammals may become a nuisance, particularly in regard to artificial nesting structures, and their control will be addressed individually through the Refuge trapping program. No quantifiable reduction level will be pre-determined for these species.

**Habitat Goals, Objectives and Strategies**

**Habitat Goal 1:**

Restore functional components of the Lake Erie marsh ecosystem, which includes marshes, wooded wetlands, estuary, and scrub/shrub to provide benefits to endangered species, waterfowl, songbirds, colonial waterbirds, shorebirds, fish, and other species of concern.



*Discussion:* The following habitat objectives were determined by:

- Considering the existing uplands and water impoundment capabilities;
- Evaluating the seasonal and life requirements of several key wildlife and fish species;
- Adjusting the habitat quantity based on a regime that benefits the highest number of trust and regional resource priority species.

The Refuge staff wildlife biologist and regional planners sought the assistance of two ecologists from the Biological Resources Division of the U.S. Geological Survey in Fort Collins, Colorado for this exercise. We diagrammed the marsh habitat requirements of several key migratory bird species in terms of timing, vegetative cover and water depth (Table 3). A similar exercise was completed for wooded wetland, scrub/shrub and estuary habitats.

Three additional species of migratory birds – the king rail, green heron and common tern – were evaluated for compatibility of water depth and cover requirements. We determined that the highest number of trust and regional resource priority species would benefit from four types of managed water impoundments. These marsh types became the first four habitat objectives. The individual unit drawdown rotation schedule will be identified in a revised Water Management Plan, or annual work plan, by 2001. Figures 7 and 8 present one possible scenario for the desired future habitat conditions on the Ottawa Refuge Complex. Water impoundments will be managed on a rotational basis and environmental factors will always play a role in specific pool management. However, the maps represent one possible way that a Refuge Manager could meet the habitat objectives described in this CCP.

**Table 3 Habitat Requirements for Three Marsh-dependent Migratory Bird Species**

Species	Habitat Needed	Time	Type of Cover	Open Water Depth	Primary Food
Black Duck	Migration Wintering	Oct.- April	Emergent vegetation and open water	12 inches to 3 feet	Emergent plant seeds
Virginia Rail	Nesting	April- May	Dense, tall (>1m) vegetation with interspersed openings	<12 inches	Invertebrates
	Brood rearing	May- Oct.	Dense, tall (>1m) vegetation with interspersed openings	≤ 8 inches	Invertebrates
Least Bittern	Nesting	April- June	Dense vegetation	3 inches to 18 inches	Small fish and invertebrates
	Brood rearing	June- Sept.	Dense vegetation	3 inches to 18 inches	Small fish and invertebrates



Figure 7: Future Habitat Conditions on Ottawa National Wildlife Refuge

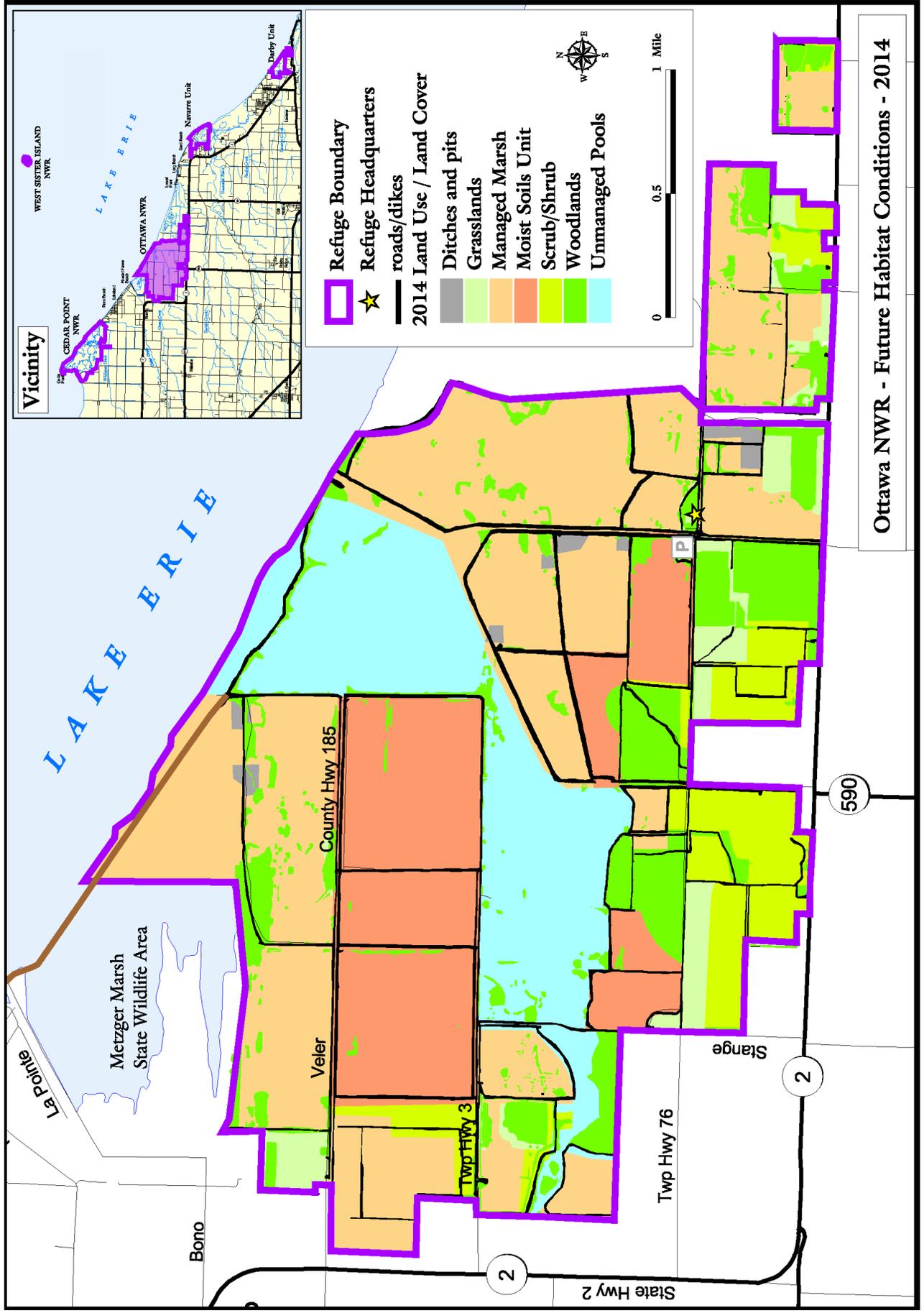
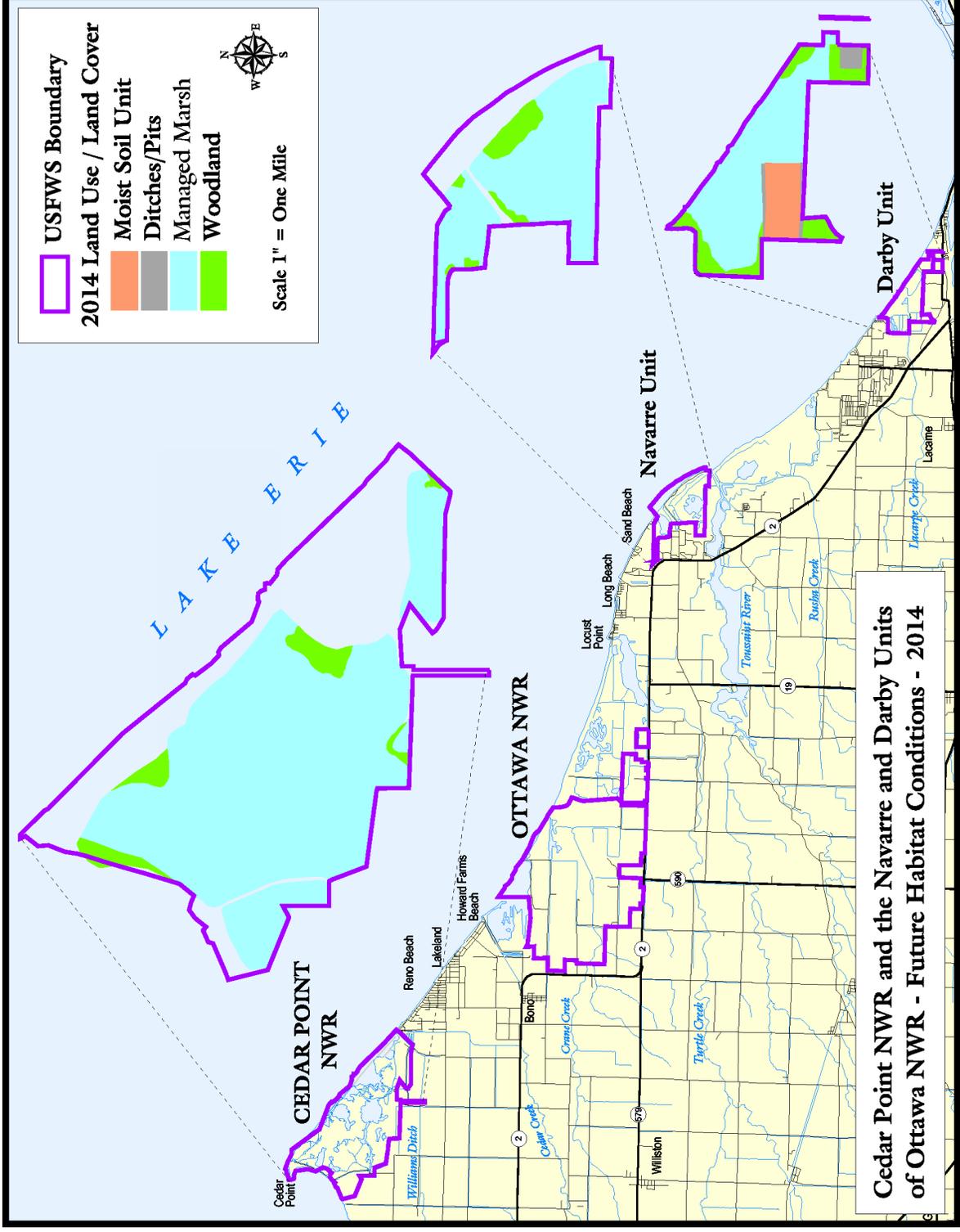


Figure 8: Future Habitat conditions on Cedar Point National Wildlife Refuge, Navarre Unit



### **Habitat Objective 1**

Provide 1,000-1,500 acres of marsh, on a 5-year average basis, with 60 percent open water, variable water depths of 8 inches to 3 feet, and submergent vegetation to provide foraging habitat for black ducks, herons, trumpeter swans and other migratory birds.

#### *Strategies:*

- Drawdown 60 percent of available *managed marsh* acres in the spring to the desired depth.
- Muskrat populations will be maintained at a beneficial level through the Refuge trapping program. Muskrats will be trapped from units when they have consumed 30 percent or more of the emergent wetland vegetation or begin to cause damage to the dike system.
- Control purple loosestrife as necessary through chemical and biological means.
- Rough fish populations, including carp and round gobies, will be controlled in units with excessive emergent vegetation damage. At such times, consider stocking of predators like largemouth bass and/or northern pike when water conditions allow.
- Monitor the spread of round gobies in units with Lake Erie water sources.

### **Habitat Objective 2**

Provide 300 to 500 acres of marsh, on a 5-year average basis, with 60 percent dense emergent vegetation, consisting of old growth cattail and bullrush, and shallow water (3 inches to 12 inches) to provide foraging and nesting habitat for Virginia rails, least bitterns and other birds.

#### *Strategies:*

- Drawdown 20 percent of available managed marsh acres in the spring to the desired depth.
- Control purple loosestrife as necessary through chemical and biological means.
- Control muskrat and carp abundance using aforementioned techniques.

### **Habitat Objective 3**

Provide 300 to 500 acres of marsh, on a 5-year average basis, with 60 percent emergent vegetation (not dense), shallow water (3 inches to 12 inches) for nesting king rails, foraging herons and other birds with similar requirements.

#### *Strategy:*

- Evaluate the use of prescribed fire to reduce dense or dead vegetation, recycle nutrients, and promote rapid emergent growth prior to re-flooding.

### **Habitat Objective 4**

Provide 50 to 300 acres annually of very shallow water areas (less than 3 inches) for shorebird foraging.



*Strategy:*

- n Water level manipulations in appropriate units will be timed to coincide with peak shorebird migration periods.

**Habitat Objective 5**

Provide 300 to 500 acres of annual production, on a 5-year average basis, of early successional plant communities to encourage seed production on high quality, natural waterfowl food plants.

*Strategies:*

- Draw down suitable areas and manipulate soil, as necessary, to encourage the growth of nutsedge, smartweed, and other high quality food plants for fall flooding.
- Control exotic and other undesirable plant species by manipulating water levels or physical removal to maximize waterfowl food production during drawdown cycles.

**Habitat Objective 6**

Provide 500 to 1,000 acres annually of deep, open water habitats with a width greater than 100 meters to provide habitat for nesting common terns, foraging herons, mussel beds and nursery habitats for walleye and yellow perch that use Lake Erie during part of their life cycle. At least 25 percent of open water areas will be 3 feet or more in depth.

*Strategies:*

- Maintain existing Crane Creek estuary at current size pending further environmental study.

*Discussion:* The confluence of Crane Creek was divided into several managed marsh impoundments prior to its inclusion in the Refuge. Prior to Refuge ownership, the interior dikes had deteriorated due to lack of maintenance and an open water estuary developed. The remnants of the original dike system are still visible. The water level near the mouth of Crane Creek is now controlled not only by flow from upstream but also the rise and fall of Lake Erie water levels.

It has been proposed that the Refuge re-build the former dike system and manage the Crane Creek area for waterfowl. However, there may be a greater benefit to fish, invertebrates, terns and other species by maintaining the open water link to Lake Erie. The open estuary may prove very important for fish spawning and nutrient exchange. Ongoing studies at the nearby Metzger Marsh project may soon help determine the relative efficiency and habitat values of these open waters.

- Study the impacts of proposed Crane Creek estuary conversion to a managed water impoundment. Completion of ongoing Metzger Marsh fish passage studies in 2003 will shed light on the relative value of open Lake Erie estuaries to fish and other aquatic species.



### **Habitat Objective 7**

Provide 400 to 700 acres of woodlands/wooded wetlands for resting habitat for migrant songbirds such as warblers, natural cavities for wood ducks, squirrels and others, perch/nest trees for bald eagles, and natural habitat for salamanders, wood frogs, toads and reptiles.

#### *Strategies:*

- Allow high areas within wetland units to become vegetated with willow and other water-tolerant tree and shrub species. Manage water levels according to lower areas within units.
- Monitor and maintain hydrologic regime in present wooded wetlands to ensure continuation of wetland characteristics and functions.
- Allow natural successional processes to progress to mature woodland stage in abandoned farm areas and suitable areas adjacent to present wooded sites.
- Where possible, promote the maintenance of standing dead trees as roosting sites and potential cavity nest sites.
- Decrease the Refuge white-tailed deer population through the hunt program to reduce browsing damage to young trees and to protect the woodland herbaceous layer. The January-February deer count will be 7 to 15 deer per square mile of upland and shallow wetland habitat by 2010.

### **Habitat Objective 8**

Scrub/shrub habitats will be increased to 600 acres to provide breeding habitat for woodcock, resting and nesting habitat for songbirds, and increase small mammal populations for hawks, owls and other predators.

#### *Strategies:*

- Where possible, promote scrub/shrub habitat as corridors across large open expanses, i.e. remnant dikes and higher portions of wetland areas.
- Cooperative farming program will be gradually phased out by 2006. Public and scientific opinion indicates that more natural habitat is preferred to cropland on Ottawa National Wildlife Refuge.
- Allow natural successional processes to progress to shrub stage in abandoned farming areas and suitable areas adjacent to present wooded sites. Grass seeding, noxious weed control and shrub planting will be required on some sites to facilitate restoration.

### **Habitat Objective 9**

Maintain the integrity of the dike system to allow for management of water levels within impoundment units by providing safe Refuge vehicle passage and preventing erosion of dikes.

*Discussion:* Dike mowing, and possible negative impacts to nesting songbirds, has been a subject of some discussion among refuge managers, biologists and bird watchers. The primary purpose of the dike system is to create water impoundments that can be managed to benefit a large array of migra-



**Habitat Management on Future Acquired Lands:** The Ottawa Refuge Complex is authorized to acquire up to 5,000 acres of critical wetland habitats within a portion of four counties adjacent to Lake Erie. Since 1998, the Service has received \$1.5 million in appropriations from Congress for this purpose. Several parcels of land, at various locations, are being purchased from willing sellers and will be subsequently managed by the Refuge. Depending on available funding, land acquisition could continue throughout the life of this plan.

Specific habitat prescriptions on each new Refuge property will be decided on a case-by-case basis. Existing upland habitats and/or wetland restoration potential varies with each acquired parcel. Portions of many parcels are low-lying agriculture fields with active drainage facilities. Hydrologic planning, including elevation surveys, will be necessary before these historic wetlands can be restored and managed. In the short-term, existing fields may need to remain in a planted crop or grass cover to prevent takeover by noxious weeds. However, the Service is committed to preparing a habitat restoration plan for each parcel within 1 year of acquisition. The restored habitats will be designed to complement the objectives outlined in this CCP.

tory birds and aquatic wildlife. The dike system represents a significant public monetary investment and protecting these earthen structures from erosion is a very important, and often costly, function of Refuge operations. Vehicle passage along these dike roads is fundamental to efficient Refuge management and public safety. Shrubs and trees growing on dike slopes complicate maintenance of the rock armor placed for erosion protection. The activity of burrowing animals such as woodchucks and muskrats also hastens erosion of the dikes.

The dikes do provide narrow strips of upland habitat surrounded by large wetland complexes. This habitat is attractive to some ground and shrub-nesting songbird species. However, the dikes also serve as travel corridors and foraging areas for predators such as raccoon, mink and coyotes. The dikes may act as “traps” for nesting songbirds and nesting success would be lower than if the birds were dispersed in natural habitat.

The dikes are not an original habitat type found within the Lake Erie coastal marsh ecosystem. It may be best to manage them as artificial structures and reduce their attractiveness to nesting birds. For these reasons, the Refuge will continue to mow the dikes on an as-needed basis. Vegetation cutting and frequent vehicle passage will discourage birds from nesting along the dikes. However, brush and tree removal along the slopes will occur primarily from late summer throughout the winter months. The delayed timing of this work will allow shrub nesting birds a chance to complete the nesting cycle.

*Strategies:*

- Dike tops will be mowed throughout the growing season to discourage brush growth and facilitate safe Refuge vehicle passage. Brush and tree removal will occur from late summer throughout the winter months. Dike repairs will be scheduled for summer months in conjunction with water management plans.
- Dike and channel slopes will be maintained to minimize erosion. All resloped areas will be constructed with filter fabric underlying rock for increased erosion protection.
- Explore installation of additional interior dikes in large units (i.e., MSU-3 and Pool 9) to allow better marsh and water management.



- Rodent control will be implemented when dike integrity is compromised by burrowing activity.

## People Goals, Objectives and Strategies

### People Goal 1:

Provide wildlife-dependent recreation to a diverse audience by offering a variety of quality wildlife observation, wildlife photography, environmental education, interpretation, hunting and fishing opportunities<sup>2</sup> when these uses are compatible with wildlife needs. This will promote understanding, appreciation, enjoyment and support for the Ottawa National Wildlife Refuge Complex and the entire National Wildlife Refuge System.

### People Objective 1 (Environmental Education and Interpretation)

Make visitor contacts more effective to increase people's awareness of the Refuge, its programs, and the National Wildlife Refuge System. Visitors will know that the trails go through diverse habitats, have a general idea of the type of wildlife on the Refuge, and recognize the importance of undisturbed areas and management activities on the Refuge.

#### Strategies:

- Construct a visitor education center. The visitor education center will provide a Refuge focal point and primary point of visitor contact.

*Discussion:* Representing Ohio's only lands within the National Wildlife Refuge System, the Ottawa Refuge Complex is uniquely positioned to play a key role in environmental education for the region. A visitor education center would expose more people to the Service and the Refuge System. A visitor education center would also dramatically increase support by current partners and friends of the Refuge System.

- Have a staff or volunteer contact visitors upon their arrival to share priority Refuge messages.
- Maintain the 1998 level of off-site public contacts (4,500) to allow staff to increase on-site contacts with groups and individuals.
- Create programs to encourage visitation at times other than peak bird migration.
- Extend the trail system to pass through more diverse habitat areas. Increase interpretive stations to better inform the public.
- Increase the frequency of auto-tour route openings beyond the current one or two events a year. Examine the feasibility of weekend openings up to once per month.

<sup>2</sup> People Objectives 1-5 are based on the six priority wildlife-dependent recreational uses identified in the Refuge Improvement Act of 1997.



### **People Objective 2 (Environmental Education)**

Provide environmental education opportunities to a diverse audience.

#### *Strategies:*

- Increase environmental education staffing to provide quality programs at the visitor education center.
- Provide off-Refuge programs to reach a diverse audience.
- Encourage teacher workshops to promote educator-lead field trips. This can also be used to increase local school system awareness of Refuge facilities.

### **People Objective 3 (Wildlife Observation and Photography)**

Assure that visitors have ample opportunities to observe Ottawa's waterfowl, shorebirds, songbirds, and other migratory birds during the key migration periods.

#### *Strategies:*

- Provide a paved visitor parking lot, a quarter-mile-long trail and restroom facilities that are fully accessible.
- Develop one (or two) new accessible observation platform with spotting scopes and improved interpretive signs along dike trails.
- Coordinate birding festivals with ODOW and local communities.
- Develop a system of remote video camera feeds into the visitor center so visitors can witness bird migration use on Cedar Point as well as other Refuge marshes not accessible to visitors.

### **People Objective 4 (Hunting)**

Provide quality hunting opportunities for recreational purposes while maintaining non-hunting Refuge areas for undisturbed wildlife use.

#### *Strategies:*

- Provide no fewer than 12 waterfowl hunting blinds located on the periphery of the Refuge.
- Conduct an annual survey to assess whether hunters consider the hunt a quality experience. Continue to cooperate with the ODOW during the Refuge waterfowl hunt.
- Explore the option of an early and/or late goose hunt to reduce resident Canada goose populations to a manageable level and to protect vulnerable Southern James Bay Canada goose populations.
- Provide a wheelchair-accessible blind in a suitable habitat for waterfowl.
- Explore opening some units to archery deer hunting where and when waterfowl disturbance will be minimal.
- Provide wheelchair-accessible blinds in suitable deer hunting units. If sufficient interest is shown, a hunting program for disabled people will be established.



- If primitive weapons hunts do not sufficiently control deer populations, the feasibility of a controlled shotgun hunt held during the state deer season will be explored. Hunt areas and timing will be established to minimize waterfowl disturbance.

### **People Objective 5 (Fishing)**

Provide quality fishing opportunities.

#### *Strategy:*

- Expand public opportunities for fishing in limited areas of the Refuge. Opportunities for fishing outreach will be provided during seasonal events.

### **People Objective 6**

Improve visitor comfort while on the Refuge.

#### *Strategies:*

- Improve the visitor toilet facilities.
- Provide a resting area with drinking water, tables and benches along walking trails.

### **People Goal 2:**

Protect the cultural, historic and prehistoric features of the Ottawa National Wildlife Refuge.

### **Objective**

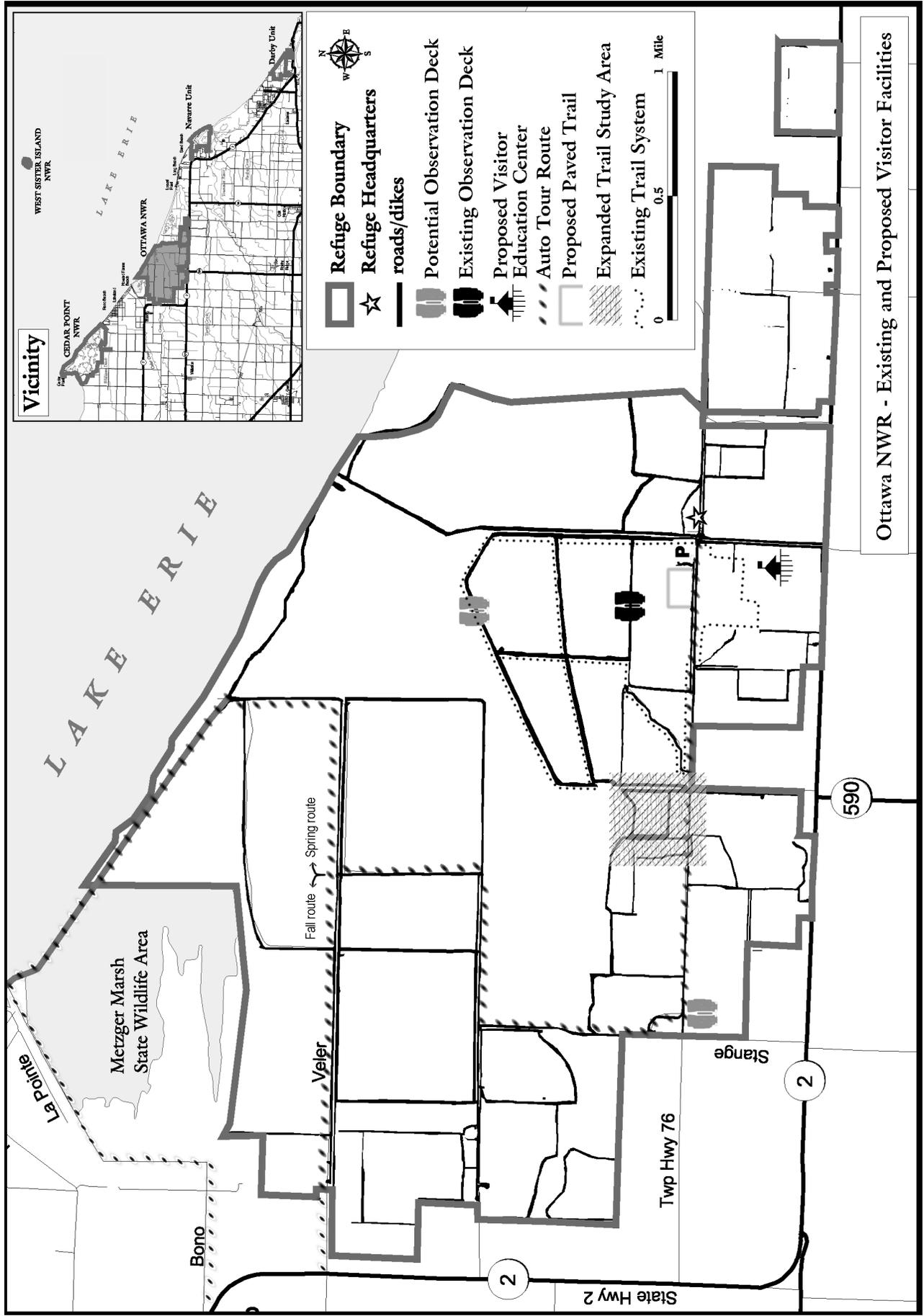
Actively manage cultural and archaeological sites found within units of the Ottawa Refuge.

#### *Strategies:*

- Establish a plan to fulfill requirements of Section 14 of the Archaeological Resources Protection Act for surveying lands to identify archaeological resources; and Section 110(a)(2) of the National Historic Preservation Act for a preservation program. The overview study identified a number of research questions to guide future investigations on the Refuge.
- Notify the Regional Historic Preservation Officer early in the planning process for each construction action and upon receiving requests for archaeological investigations on Refuge lands.



Figure 9: Public Use Facilities



Ottawa NWR - Existing and Proposed Visitor Facilities

# Cedar Point National Wildlife Refuge

## Wildlife Goals, Objectives and Strategies

Photo by Sharon Cummings



### Wildlife Goal 1:

Maintain native wildlife populations in balance with the habitat available while decreasing and limiting exotic plant and animal species. Surveys based on sound scientific methods for fish and wildlife populations will be conducted to determine viable habitat prescriptions to enhance the attractiveness of the Refuge for optimum numbers of species and peak populations.

### Wildlife Objective 1

Identify key fish and wildlife species currently using the Cedar

Point National Wildlife Refuge and determine appropriate monitoring protocols to track their population status.

#### Strategies:

- Conduct surveys to establish the presence/absence of plant and animal species.
- Conduct extensive literature review and continue consulting local and regional experts within the Service and other cooperating agencies to establish sound monitoring protocols.

### Wildlife Objective 2:

Monitor key species, including waterfowl, songbirds, shorebirds, colonial waterbirds, fish, and other species of concern to understand relative population levels, population trends and responses to management.

#### Strategies:

- Complete the Fish and Wildlife Inventory and Monitoring Plan by September 30, 2000.
- Use protocols and data analysis procedures approved by the U.S. Fish and Wildlife Service to monitor amphibians, reptiles, marsh birds, songbirds and mammals. Include modified protocols as part of the Long Point Bird Observatory program to meet Great Lakes Ecosystem objectives.
- Initiate research in cooperation with universities, non-profit organizations and other agencies to gain comprehensive information, analysis and understanding about wildlife populations and distribution.



- Whenever possible, publish and give presentations on the results of research and other monitoring done on Refuge. Encourage cooperators to do the same.

## **Habitat Goals, Objectives and Strategies**

### **Habitat Goal 1:**

Restore functional components of the Lake Erie marsh ecosystem that includes marshes, wet meadow, wooded wetlands and scrub/shrub to provide benefits to endangered species, waterfowl, songbirds, shorebirds, colonial waterbirds, fish, and other species of concern.

### **Habitat Objective 1**

Maintain 1,670 acres (current status) of marsh with the variable water depths and vegetation attributes as they existed in 1999.

#### *Strategies:*

- Identify the pool drawdown rotation schedule in a revised Water Management Plan, or annual work plan, by 2001.
- Actively manage carp and muskrat populations to maintain vegetation/open water balance.
- Control purple loosestrife as necessary through chemical and biological means.
- The spread of round gobies should be monitored in units with Lake Erie water sources.

### **Habitat Objective 2**

Wooded wetlands will be maintained at the current level (80 acres) to provide perch sites for bald eagles, habitat for migrating songbirds and natural nesting habitat for wood ducks and other cavity-nesting species.

#### *Strategy:*

- Monitor and maintain hydrologic regime in present wooded wetlands to ensure continuation of wetland characteristics and functions.

### **Habitat Objective 3**

Maintain the integrity of the dike system to allow for water management in the units by providing safe Refuge vehicle passage and preventing erosion of dikes.

#### *Strategies:*

- Dike tops will be mowed throughout the growing season to discourage brush growth and facilitate safe passage for Refuge vehicles. Brush and tree removal will occur from late summer throughout the winter months. Dike repairs will be scheduled for summer months in conjunction with water management plans.
- Dike and channel slopes will be maintained to minimize erosion. All resloped areas will be constructed with filter fabric underlaying rock erosion protection.



- Rebuild dikes in Pool 2 to prevent the loss of existing trees and to prevent flooding on private property.
- Rodent control will be implemented when dike integrity is compromised by burrowing activity.

## **People Goals, Objectives and Strategies**

### **People Goal 1:**

Provide public outreach and wildlife-dependent recreational opportunities to a diverse audience by offering quality educational and recreational activities where compatible with wildlife needs. This will promote understanding, appreciation, and support for Cedar Point National Wildlife Refuge, the Ottawa National Wildlife Refuge Complex and the National Wildlife Refuge System.

### **People Objective 1 (Environmental Education)**

Establish Cedar Point National Wildlife Refuge's identity as part of the Ottawa National Wildlife Refuge Complex.

#### *Strategies:*

- Educate Refuge visitors about Cedar Point National Wildlife Refuge through interpretive displays.
- During staff-visitor contacts, Cedar Point National Wildlife Refuge will be discussed as part of the Ottawa National Wildlife Refuge Complex.

### **People Objective 2 (Environmental Education and Interpretation)**

Foster understanding, appreciation and support for Cedar Point National Wildlife Refuge and for the preservation of inviolate areas for migrating, resting and nesting birds.

*Discussion:* The Cedar Point Refuge is managed as a migratory bird resting and feeding area. Most of the Refuge consists of one large managed marsh unit and public access is necessarily limited to seasonal use of an adjacent road-accessible fishing pond. The 2,500 acres of contiguous marsh is extremely important to waterfowl during migration. Vehicles or pedestrians passing along the dike will often send hundreds of birds into the air. The increased public use of the rest of the Lake Erie shoreline makes this Refuge invaluable to birds before and after flights across Lake Erie. During the late winter and early spring, eagle nesting activity at the north point closes the dike road to all Refuge activities (including dike maintenance) for 2-3 months.

The open period for the sole public use facility at Cedar Point, the seasonal fishing access, was recently expanded from June 1-September 1 to May 1-October 1 to allow additional fishing opportunities.

#### *Strategies:*

- Develop an information packet for distribution to off-Refuge contacts.



- In all off-Refuge presentations, include information about Cedar Point National Wildlife Refuge and the need to prevent disturbance of birds using the Refuge.

### **People Objective 3 (Fishing)**

Provide quality fishing opportunities to a diverse audience.

#### *Strategies:*

- Install and maintain accessible fishing piers.
- Expand the fishing season to include spring and fall, when fish are more active (note: a May and October expansion is proposed for 2000).
- Monitor and maintain harvestable fish populations in units that are open to fishing.

### **People Goal 2:**

Protect the cultural, historic and prehistoric features of the Cedar Point National Wildlife Refuge.

### **Objective**

Actively manage cultural and archaeological sites found within units of the Cedar Point Refuge.

#### *Strategies:*

- Establish a plan to fulfill requirements of Section 14 of the Archaeological Resources Protection Act for surveying lands to identify archaeological resources; and Section 110(a)(2) of the National Historic Preservation Act for a preservation program. The overview study identified a number of research questions to guide future investigations on the Refuge.
- Notify the Regional Historic Preservation Officer early in the planning process for each construction action and upon receiving requests for archaeological investigations on Refuge lands.



# West Sister Island National Wildlife Refuge

## Wildlife Goals, Objectives and Strategies

### Wildlife Goal 1:

Preserve and protect the largest wading bird colony within the Great Lakes ecosystem in accordance with the national wilderness designation.

### Wildlife Objective 1

Limit disturbance of heron, egret and cormorant nesting colonies.

#### Strategies:

- Improve and maintain boundary signs.
- Monitor research activities to ensure compliance with research permits.
- Increase law enforcement patrols to West Sister Island.

### Wildlife Objective 2

Increase scientific knowledge of the value of West Sister Island to wildlife.

#### Strategies:

- Issue special use permits for research that contributes to the Refuge objectives for West Sister Island.
- Encourage detailed study of black-crowned night herons to determine causes of a continued population decline.

## Habitat Goals, Objectives and Strategies

### Habitat Goal 1:

Provide habitat conditions favorable to colonial nesting wading birds without compromising the wilderness integrity.

### Habitat Objective 1

Maintain nesting habitat for approximately 1,000 great blue herons, 800 great egrets, 500 black-crowned night herons and 1,500 double crested cormorants (1998 population levels).



Photo by Sharon Cummings

*Discussion:* The West Sister Island lighthouse was built in 1847 and was maintained year-round by keepers employed by the United States Coast Guard until the light was automated in 1937. Trees were cut for firewood and domestic livestock grazed the land, which kept at least half the island in a grass/shrub stage. The grass/shrub stage was ideal for black-crowned night heron nesting and other herons and egrets that had traditionally nested on the island. In fact, the island was designated a migratory bird refuge in 1937 to protect the heron rookery found



there. After the lighthouse was automated, the open areas of the deserted island slowly reverted to mature trees through natural succession. The mature stand of trees is not as desirable to black-crowned night herons, favoring instead the egrets, herons and double-crested cormorants. Black-crowned night herons began a slow decline on the island. Black-crowned night herons are also declining throughout Ohio and they are listed as a State threatened species.

Local wildlife scientists believe that habitat manipulation could restore the shrub type habitat historically found on the island. Therefore, in cooperation with ODOW, an experiment was initiated in 1998 to clear cut 1 acre of trees each year. The trees are being cut at a 4-foot height to encourage re-sprouting and produce a shrub stage within 1 to 2 years of cutting. Hand saws are used to retain the integrity of the wilderness designation on the island. This experiment will continue for 5 years, at which time heron use of the cut areas will be evaluated. If the habitat experiment is successful after 5 years, and if an increase in black-crowned night heron nesting occurs, the Refuge may opt to continue the manipulation. If the experiment is not successful and there is no increase in black-crowned night heron nesting, then all cutting activity will cease.

*Strategies:*

- Continue to cut 1-acre blocks of forest annually in an experimental manipulation of vegetation to create a range of successional stages to benefit the black-crowned night herons.
- Monitor the vegetation growth annually (after fledging in the colonies) to ensure that the desired vegetational stage is being achieved.
- Monitor the bird populations and nesting success annually during the nesting season (April through July).
- Determine necessary habitat management techniques to provide suitable black-crowned night heron habitat.
- Conduct an initial baseline comprehensive vegetation study to determine the existing vegetative communities.
- Monitor long-term vegetative changes on West Sister Island by sampling every 4 to 5 years.

## **People Goals, Objectives and Strategies**

*Discussion:* West Sister Island was designated as a Federal wilderness in 1975 primarily because of its value as a heron and egret rookery. The island is managed to minimize human disturbance to the nesting birds and remains closed to the public. The CCP planning team discussed the possibility of opening the island for day visits during non-nesting time periods. The group concluded that, although wilderness qualities may not be compromised by limited public use during the off-season, the year-round closure should be retained for a number of reasons.



The island is remote with surrounding shoals and lacks safe boat landing sites. Weather during the non-nesting season in fall, winter and early spring would compound the safety issue. Aside from the colonial nesting waterbirds, the island does not receive a high amount of regular use by other migratory birds. Wildlife viewing opportunities would be limited outside of the summer months. The island has a dense vegetative cover, including some rare plants and large stands of poison ivy. Large areas around the rookeries are covered with bird droppings and carcasses. Overnight camping and destruction of vegetation, although prohibited, would most likely occur if the island were opened to the public. The necessary increase in law enforcement activity would place an added burden on limited Refuge staff and resources. Public safety and law enforcement would be major concerns if public visitation was promoted on the island.

**People Goal 1:**

Provide public education opportunities that promote understanding, appreciation and support for the Lake Erie Islands, the West Sister wilderness status, and the need to preserve inviolate areas for colonial nesting birds.

**People Objective 1 (Environmental Education)**

Establish West Sister Island's identity as part of the Ottawa National Wildlife Refuge Complex.

*Strategies:*

- Educate Refuge visitors about West Sister Island National Wildlife Refuge through interpretive displays at onshore facilities.
- During staff-visitor contacts, West Sister Island National Wildlife Refuge will be discussed as part of the Ottawa National Wildlife Refuge Complex.

**People Objective 2 (Environmental Education and Interpretation)**

All off-Refuge outreach contacts will understand, appreciate and support the Lake Erie Islands, the West Sister Island wilderness status and the need to preserve inviolate areas for colonial nesting birds.

*Strategies:*

- Develop an information packet for distribution to off-Refuge contacts.
- In all off-Refuge presentations, include information about West Sister Island, its wilderness status, and the need to prevent disturbance of the breeding colonies.

**People Goal 2:**

Protect the cultural, historic and prehistoric features of West Sister Island National Wildlife Refuge.

**Objective**

Actively manage cultural and archaeological sites found on West Sister Island Refuge.



*Strategies:*

- Establish a plan to fulfill requirements of Section 14 of the Archaeological Resources Protection Act for surveying lands to identify archaeological resources; and Section 110(a)(2) of the National Historic Preservation Act for a preservation program. The overview study identified a number of research questions to guide future investigations on the Refuge.
- Notify the Regional Historic Preservation Officer upon receiving requests for archaeological investigations on Refuge lands.

**People Goal 3:**

Protect the wilderness character of West Sister Island.

**Objective**

Maintain natural qualities of the island through limited human presence and disturbance.

*Strategies:*

- Continue periodic law enforcement visits in cooperation with the U.S. Coast Guard. Evidence of public closure violations will increase frequency and timing of visits.
- Update the 1981 Wilderness Management Plan.



# Chapter 5 Plan Implementation

## New and Existing Projects

This Comprehensive Conservation Plan outlines an ambitious course of action for the future management of the Ottawa Refuge Complex. The ability to intensively manage water impoundments, especially to benefit migratory birds, is relatively expensive. The Service will need to retain supplemental funding to implement many of the objectives in this plan. The following



Photo by Sharon Cummings

section presents a brief description of some of the highest priority Refuge projects, as chosen by the Refuge staff. The examples include requests for equipment, construction materials as well as new staff and visitor facilities. A full listing of unfunded Refuge operation projects can be found in the Appendices.

### Ottawa National Wildlife Refuge Projects

**Visitor Education Center:** The Ottawa National Wildlife Refuge Complex, Ohio's only set of national wildlife refuges, is within a 2-hour drive for more than 8 million people. Construction of a visitor education center will allow increased opportunities for environmental education and recreation to visitors, schools and organizations. Programs and displays will focus on the importance of Lake Erie marshes, as well as Ottawa Refuge Complex and Service missions. An education/visitor center will help define the identity of the Refuge and increase public visibility and support.

*Estimated Cost:* \$4,500,000

**Invasive Plant Control:** This project will increase biodiversity and productivity of moist soil units and semi-permanent wetlands by reducing invasive pest species like purple loosestrife, reed canary grass and willow. Control will be achieved by purchasing herbicide and equipment, and by releasing and monitoring loosestrife-controlling weevils and beetles. This is a 5-year control effort.

*Estimated Cost:* \$75,000

**Habitat Restoration on Acquired Lands:** The Ottawa Refuge Complex expansion program begun in 1994 will eventually add 5,000 acres to the Complex. The newly acquired parcels will require habitat restorations, monitoring and boundary posting. The Refuge currently has 300 acres of new properties. Wetlands will be restored on acquired tracts where possible and



upland areas will be restored to habitat types outlined in the CCP. This project covers a 10-year period and includes personnel to complete restoration activities as well as to conduct baseline biological surveys.

*Estimated Cost: \$267,000*

**Volunteer Accommodations:** Volunteers provide a tremendously important service to the Ottawa Refuge Complex. Particularly during summer months, retiree volunteers are available for extended Refuge stays if campsites are provided to enable them to park an RV or trailer at the Refuge. This type of volunteer is particularly valuable to a refuge because of the expertise, work ethic and availability to complete extended projects. Four concrete pads, electrical hookups, water and septic tank will provide a suitable site. A suitable site for a parking area exists at the former Gaeth-Kurdy property.

*Estimated Cost: \$43,000*

**Heavy Equipment:** A single-axle dump truck is needed to maintain existing dikes and construct new dikes to maintain, enhance, and restore the present wetlands and moist soil units. Damage from high-water levels and wave erosion requires a constant program of adding gravel and rip-rap to existing dikes. A single-axle dump truck is necessary during repair work to haul gravel and rip-rap rock from the quarry to the job site. The truck will also be used to trailer equipment between off-Refuge job sites for the Partners for Fish and Wildlife Program.

*Estimated Cost: \$80,000*

**Visitor Trail Improvements:** We will improve Ottawa's trails and wildlife observation opportunities by paving the main visitor parking area, paving a one-quarter mile trail section, adding new accessible observation decks with spotting scopes, and replacing and upgrading interpretive signs along the trail.

*Estimated Cost: \$250,000*

**Shrub Habitat Restoration:** This project will enhance reversion of abandoned farm fields to scrub/shrub successional stages as outlined in the CCP. Weed control will be accomplished by spraying, mowing, and burning. Abandoned farm fields will initially be seeded to grasses to discourage weedy species from establishing. Shrubs from existing Refuge shrublands will be transplanted to speed restoration. This project will be conducted over a 10-year period to coincide with the phasing out of cropland on the Refuge.

*Estimated Cost: \$70,000*

**Refuge Geographic Information System (GIS):** The use of GIS in resource management has increased dramatically in the past 10 years. Vegetation mapping, waterfowl use patterns, water management trends, and innumerable other uses provide refuge managers with information to better manage refuge resources. A computer dedicated to GIS functions and a full time computer specialist to manage the system will enable Refuge staff to provide and access planning and scientific information to achieve station goals and objectives.

*Estimated Cost: \$147,000*



**Fire Equipment:** Ottawa National Wildlife Refuge will be revising its burn plan to include additional prescribed burning as a management technique on the Refuge. Additional equipment is required to increase the capabilities of the Refuge fire team. Unfunded needs include a pumper vehicle for suppression and control of fires, as well as equipment for all fire trained personnel on the Refuge.

*Estimated Cost:* \$42,000

**Fish Habitat / Access Investigations:** Lake Erie coastal wetlands have been degraded due to increased coastal development and erosion protection efforts (dikes). Fish access to these important spawning areas is severely restricted. This project will address this issue by investigating ways to improve habitat and fish access into wetlands. Fish movement and aquatic habitat components of open, impounded, and controlled wetlands will be monitored at Ottawa National Wildlife Refuge. The fish passage structure at Metzger Marsh will be monitored for effectiveness as well. Information gathered through these studies can be used as a guide for incorporating fisheries management in Ottawa's coastal wetland areas.

*Estimated Cost:* \$147,000

**Entrance Road Pull-outs:** Refuge visitation currently exceeds 100,000 and at times the main entrance road to the visitor parking area and Refuge Headquarters can become congested, especially when the marsh on the east side of the road has watchable wildlife. This road also leads to the maintenance yard and is the only way large dump trucks can get out to State Route 2 to the quarry and other Refuge units. Currently there are no areas for cars to pull off the road to observe the wildlife. Construction of two or three pull off areas on the entrance road would relieve some congestion and reduce the chance of accidents due to cars stopped in the road.

*Estimated Cost:* \$86,000

## **Cedar Point National Wildlife Refuge Projects**

**Dike Restoration:** This project will repair and rip-rap the north dike of the Cedar Point National Wildlife Refuge Pheasant Farm unit to allow complete water management and marsh restoration. The dike is currently severely eroded. Water levels cannot be raised as high as desired for effective water management and wildlife use without causing additional and severe damage to the dike. Cedar Point National Wildlife Refuge is an important foraging area for wading birds nesting on West Sister Island National Wildlife Refuge, as well as an undisturbed feeding, resting and staging area for migrating waterfowl.

*Estimated Cost:* \$84,000

**Road Improvements:** Gravel the roads in Cedar Point Refuge to allow law enforcement, biological surveys, maintenance activities, etc. during all times of the year and to protect the diketops from erosion and rutting.

*Estimated Cost:* \$87,000

In addition to the list of operation projects, the Ottawa Refuge Complex currently has 57 backlogged maintenance projects totaling \$8,482,000. More



than \$5 million is represented by four major dike restoration projects that would rebuild the dilapidated dike system in Crane Creek. Dike repair, equipment and building replacements make up the majority of the remaining funding shortfall. More than half of the total number of projects are estimated to cost less than \$50,000 each.

## Partnership Opportunities

Partnerships have become an essential element for the successful accomplishment of Ottawa Refuge Complex goals and objectives. The objectives outlined in this Comprehensive Conservation Plan need the support and partnership of Federal, State, and local agencies, non-governmental organizations, and individuals. The ecosystem approach to managing fish and wildlife resources extends beyond social and political boundaries and requires a broad base of support and diverse stakeholder strengths and interests. The Ottawa National Wildlife Refuge Complex will seek creative partnership opportunities to achieve its vision.

The Ottawa National Wildlife Refuge Association, a non-profit “Friends” organization made up of Refuge supporters, will become an increasingly important partner in the future. The Association is in its initial stages of organization but has already demonstrated its ability to reach out to the community for support and assistance for Refuge projects. Future partnerships can include advocacy for the Refuge, grant proposal assistance, public outreach, volunteer coordination, special event planning and staffing, and visitor center staffing and sales. Refuge staff will continue to work with the Association to provide guidance and direction for partnership needs.

## Step-down Management Plans

Step-down management plans describe specific actions required for the accomplishment of Refuge objectives. The management plans identified in Table 4 will be reviewed and revised as necessary to achieve the results anticipated in this Comprehensive Conservation Plan.

## Monitoring and Evaluation

The effectiveness of proposed management actions will be monitored throughout the life of this plan. Some specific wildlife and habitat monitoring strategies were described in Chapter 4. However, more details will be available in the forthcoming step-down biological inventory and monitoring plan.

Periodically, usually every 3 to 5 years, a Station Review Team will visit the Ottawa Refuge Complex and evaluate the current program. The team will consist of Refuge supervisors, program specialists and biologists from the regional office and other field stations. The team will review all aspects of



**Table 4 Step-down Management Plans**

<b>Plan</b>	<b>Date Revised</b>	<b>Objective</b>
Biological Inventory and Monitoring Plan	In Progress	Complete by end of FY 2000
Habitat Management Plan (Integrated Pest Management Emphasis)	In Progress	Complete in FY 2001
Public Use Plan	1980	Revise in FY 2000
Law Enforcement Plan	1990	Revise in FY 2000
Cultural Resource Management Plan	---	Complete in FY 2002
Water Management Plan	1995	Create annual work plan.
Hunt Management Plan	1995	Review annually; revise in FY 2001
Fire Management Plan	---	Complete by end of FY 2000
Cropland Management Plan	1994	Phase out by FY 2006
Fisheries Management Plan	1985	Revise in FY 2000
Wilderness Management Plan (West Sister Island NWR)	1981	Revise in FY 2001

Refuge management, including direction, accomplishments and funding. The goals and objectives presented in this CCP will provide the evaluation measure for the team.

## Plan Review and Revision

The CCP for the Ottawa Refuge Complex is meant to be a guide for Refuge Managers to use over the next 10-15 years. However, the CCP is also a dynamic and flexible document. Some of the management strategies discussed within the CCP have never before been used on the Refuge. Weather events, such as droughts, floods and windstorms, can drastically impact specific habitat management applications. Funding and personnel changes can also influence the amount and types of work that can be accomplished. Because of all these factors, the recommendations in the CCP will be reviewed periodically and, if necessary, adjusted to meet new circumstances. Whenever possible, specific objectives and strategies have built-in time frames that allow for these uncertain conditions. For example, the wetland habitat objectives were designed to be met on a 5-year average basis. The public will be notified through newsletters, media announcements or public meetings if a substantial shift in a management strategy is recommended after a periodic review of this CCP.





# Acknowledgments

The Ottawa Refuge Complex Comprehensive Conservation Plan has been written with the participation of refuge users, state and local government employees, non-profit organizations and members of the local community. Because it will serve as a guide to refuge management for the next 10 to 15 years, public input into the Comprehensive Conservation Plan was vital. The Ottawa Refuge staff and the entire planning team are grateful to all of the people who have contributed their time, expertise and ideas either by attending open houses or focus group discussions or through written comments. All of your ideas have been valuable and will contribute to the success of this plan.

We especially would like to acknowledge Sharon Cummings of Toledo, Ohio, for contributing the superb photographs that appear in this CCP. We would also like to thank the members of the Ottawa National Wildlife Refuge Association and the Black Swamp Bird Observatory for their help and dedication to the environment. We are also grateful to all who contribute their time and energy as refuge volunteers. You are truly the backbone of conservation.





# Appendices

Appendix A	Environmental Assessment
Appendix B	Glossary
Appendix C	Refuge Operation Needs System List (RONS List)
Appendix D	Compatibility Determination
Appendix E	Species Lists
Appendix F	Compliance Requirements
Appendix G	Summary of Public Involvement/Comments and Consultation/Coordination
Appendix H	List of Preparers



**Appendix A**  
**Environmental Assessment**



# Finding of No Significant Impact

## Environmental Assessment and Comprehensive Conservation Plan for the Ottawa National Wildlife Refuge Complex, Ohio

An Environmental Assessment (EA) has been prepared to identify management strategies to meet the conservation goals of the Ottawa National Wildlife Refuge (Ottawa Refuge Complex). The EA examined the environmental consequences each management alternative could have on the quality of the physical, biological, and human environment, as required by the National Environmental Policy Act of 1969 (NEPA). The EA presented and evaluated four alternatives for managing fish, wildlife and plant habitats, as well as visitor services, on the Ottawa Refuge Complex over the course of the next 10-15 years:

**Alternative A.** No Action (Current Management). The No Action alternative encouraged existing, or status quo, refuge management practices. Woodland, shrubland and managed marsh acres, as well as cooperatively-farmed croplands, would remain at current levels. Visitor services would be maintained primarily at or near the refuge headquarters.

**Alternative B.** Decreased Diversity of Habitats and Services. This alternative favored a “hands-off” approach to refuge management. The primary strategy would be to allow Lake Erie water levels and rainfall to regulate the extent of wetland areas. Minimal maintenance of facilities would impact visitor services and on-site environmental programs.

**Alternative C.** Increased Diversity of Habitats and Services. Improving the quality of services to refuge visitors and shifting habitat emphasis to include more wooded wetlands, natural marsh and scrub/shrub lands were the focus of this alternative.

**Alternative D.** Equalized Habitats and Services. Alternative D emphasized an equal amount of woodlands, wetlands, croplands, grasslands, scrub/shrub and managed water impoundments. Some of these habitat types, including grasslands and croplands, were not components of the original Lake Erie marsh ecosystem. On-site visitor services would be expanded into new areas of the refuge.

The alternative selected for implementation is Alternative C. The strategies presented in the Comprehensive Conservation Plan (CCP) were developed as a direct result of the selection of this alternative. New woodland and scrub/shrub habitats, as well as carefully timed water level adjustments in the impoundments, would benefit a variety of fish, wildlife and plant species identified as Resource Conservation Priority species by the Service. New habitats would be created for migrating songbirds, waterfowl and shorebirds. Visitors to the refuge will also benefit as new trail segments, observation platforms and a Visitor Education Center are all proposed within the CCP. Visitors will also experience an increase in compatible, wildlife-dependent recreational opportunities and on-site environmental education programs.

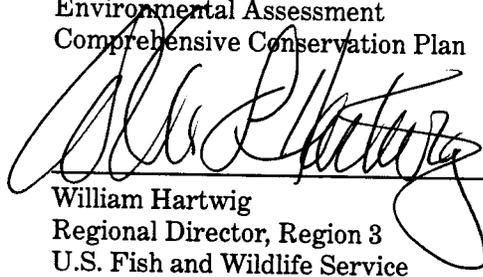
For reasons presented above and below, and based on an evaluation of the information contained in the Environmental Assessment, we have determined that the action of adopting Alternative C as the management alternative for the Ottawa Refuge Complex CCP is not a major federal action which would significantly affect the quality of the human environment, within the meaning of Section 102 (2)(c) of the National Environmental Policy Act of 1969.

Additional Reasons:

1. Future management actions will have a neutral or positive impact on the local economy.
2. A cultural resource inventory completed prior to this CCP included recommendations for the protection of cultural, archaeological and historical resources.
3. This action will not have an adverse impact on threatened or endangered species.

Supporting References:

Environmental Assessment  
Comprehensive Conservation Plan

  
William Hartwig  
Regional Director, Region 3  
U.S. Fish and Wildlife Service

9/22/00  
Date

Great Lakes - Big Rivers Region  
Bishop Henry Whipple Federal Building  
Fort Snelling, MN 55111-4056

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# Appendix A

## Ottawa National Wildlife Refuge Complex Environmental Assessment

### I. Purpose and Need for Action

The purpose of the proposed action is to determine a management direction for the Ottawa, Cedar Point and West Sister Island National Wildlife Refuges through preparing and implementing a Comprehensive Conservation Plan. The three refuges are administered as the Ottawa National Wildlife Refuge Complex. This plan will identify a set of goals, objectives and strategies for Refuge management for the next 10-15 years.



Photo by Sharon Cummings

This Environmental Assessment (EA) was prepared using guidelines of the National Environmental Policy Act of 1969. The Act requires federal agencies to examine the effects of proposed management actions on the natural and human environment. The EA will present four alternatives for future Refuge management and will identify the preferred course of action. Each alternative was designed to contain a reasonable mix of fish and wildlife habitat prescriptions and wildlife-dependent recreational opportunities. The environmental consequences of each alternative are described below and formed the basis for selection of the preferred alternative. This Environmental Assessment was designed to cover the environmental consequences for most

future management actions and minor facilities on the Ottawa Refuge Complex. However, some future actions such as the construction of major facilities (i.e. a visitor education center) will require further environmental documentation.

### II. Alternatives

#### Description of the Alternatives

During the planning process, the Service planning team identified Alternative C: Increased Diversity of Habitats and Services, as the preferred alternative. Alternative C was selected and developed

based on public input and the best judgement of the planning team. At first glance, Alternatives C and D appear to be very similar in scope and recommended management strategies. However, there are significant differences between the two, especially in the approach toward habitat management. Alternative C calls for a greater diversity of natural habitat types with an emphasis on providing more woodlands. Alternative D would provide an equal measure of all habitat types currently on the Refuge. Some of these types, primarily croplands and grasslands, were not a part of the pre-settlement landscape. Alternative D also calls for an increased level of public use and recreation that may conflict with primary needs of wildlife.

The strategies presented in the CCP were developed as a direct result of the selection of Alternative C.

***Alternative A. No Action (Custodial Management)***

The No Action alternative would encourage existing, or status quo, Refuge management practices. Refuge staff would continue to manage existing wetland impoundments on a rotational basis. Woodland, marsh and shrubland acres would remain at current levels. The existing croplands (200 acres) would continue to be farmed on a cooperative basis. The primary emphasis for habitat management would remain on migratory waterfowl; with a few water units managed to benefit shorebirds and songbirds. Visitor services would be maintained at the Refuge headquarters. Vehicle access for Refuge visitors would continue solely during seasonal tour events.

***Alternative B. Decreased Diversity of Habitats and Services***

This alternative would encourage a “hands-off” approach to Refuge management. A reduction in active wetland and upland habitat management practices would occur over a period of years. The primary strategy would be to allow Lake Erie water levels and rainfall to regulate the extent of wetland areas. Natural successional processes would occur on the upland areas and crop fields within the Refuge boundary would lie fallow. No specific habitat emphasis for waterfowl, shorebirds or songbird habitats would be pursued by the Refuge. The seasonal auto tour would no longer be open. Trails would be closed seasonally, especially during peak waterfowl use days, and fewer interpretive talks would be conducted. Trails will still be open to the public during the rest of the year. Environmental education would be limited to teacher-lead field trips. Minimal maintenance of facilities will be provided.

***Alternative C. Increased Diversity of Habitats and Services (Preferred Alternative)***

Improving the quality of services to Refuge visitors and shifting habitat emphasis to include more wooded wetlands, natural marsh and scrub/shrub lands would be the focus of Alternative C. These new habitat types would be designed to benefit songbirds that depend on forests, shorebirds and other neo-tropical migrants. Active water management to benefit migrating waterfowl would

continue on most impoundments. Croplands would be gradually converted to woodlands or scrub/shrub habitats. Improvements for Refuge visitors would include a visitor center, limited seasonal openings of dike roads and expansion of available walking trails.

***Alternative D. Equalized Habitats and Services***

Alternative D would emphasize an equal amount of woodlands, wetlands, croplands, grasslands, scrub/shrub and managed water impoundments to benefit the highest diversity of plants, mammals and migratory birds. These lands would be intensively managed for these habitats and for visitor services. Recreational uses such as new trails, auto tour routes and other visitor facilities would receive a priority. A year-round auto tour would be provided, open seven days a week from dawn to dusk. The Refuge visitor education center would be open seven days a week. Regularly scheduled interpretive programs would be conducted. Refuge walking trails would not only travel through all habitats but also all areas of the Refuge; except during critical times around eagle nests and priority resting waterfowl areas. This would provide more opportunities for viewing of habitats for shorebirds, waterfowl, eagles, and songbirds. Environmental education on the Refuge will include both staff-lead and educator-lead field trips. Regularly scheduled interpretive programs and more teacher workshops would be conducted each year.

### **III. Affected Environment**

The Ottawa National Wildlife Refuge Complex and the surrounding area lies in the western basin of Lake Erie, stretching from about 30 miles east of Toledo, Ohio, to 75 miles west of Cleveland, Ohio, in Lucas and Ottawa counties. The area is generally flat with predominantly hydric, or wetland soils. Agriculture is the predominant feature of the surrounding landscape with small towns and cities scattered throughout. An estimated 8 million people live within a 3-hour drive of the Refuge.

The Refuge and surrounding land are part of what was traditionally known as the Great Black Swamp, which once included 300,000 acres of coastal wetlands along Lake Erie and extended inland. This vast area was also comprised of riverine marshes, wet prairies, hardwood swamps and oak savanna. Only about 10 percent of this original wetland habitat remains, and this resource supports a tremendous diversity of wildlife. The Ottawa National Wildlife Refuge makes up an important part of this remaining habitat.

See Chapter III of the CCP.

## IV. Environmental Consequences

### Effects Common to All Alternatives

The four alternatives were developed to address most of the issues, concerns and opportunities identified during the planning process. The specific environmental and social impacts of implementing each scenario are examined in five broad categories; fish and wildlife habitats, migratory birds, recreation and environmental education, land acquisition and socioeconomic environment. The alternatives share a few features in common that can be discussed as a whole:

#### Air and Water Quality:

Habitat management involving prescribed burning may occur and only under ideal conditions of weather. Smoke management practices will be implemented during all burning events. Refuge management activities and visitor use should not negatively affect water quality.

#### Cultural and Historic Resources:

The Ottawa Refuge Complex has 53 reported sites on Refuge land, and one site on Coast Guard land. Three prehistoric archeological sites are known and three more are reported to possibly be on the Refuge. The West Sister Island Lighthouse, owned by the U.S. Coast Guard, is listed on the National Register of Historic Places. The 1998 study completed by Midwest Environmental consultants, Inc. concluded that "...the refuges presented largely inhospitable prehistoric and historic occupation zones that have been subjected to large-scale disturbance." However, the report determined that sites on the refuges could include prehistoric archeological sites, historic archeological sites (Indian and Western), farmsteads, and sites associated with commercial trapping and recreational hunting. Archeological surveys have been performed on just 15 acres of the Refuge Complex. Prior to Refuge undertakings, appropriate efforts will be made to identify known and unknown cultural resources within the area of potential effects, with avoidance of cultural resources being the preferred treatment.



Photo by Sharon Cummings

#### Threatened and Endangered Species

Bald eagles, a federally-listed threatened species, are commonly seen near coastal areas during migration and five nests are located on the Ottawa Refuge Complex. Kirtland's warblers have been sighted on the Ottawa and Navarre units during migration seasons. Other federally-listed threatened and endangered species that may be found locally in suitable habitat include the Indiana bat (endangered), lakeside daisy (threatened), eastern prairie bush clover (threatened), and eastern prairie fringed orchid (threatened). None of these additional species have been documented on the Ottawa Refuge Complex.

Thirty-three of the State of Ohio's 60 terrestrial endangered or threatened wildlife species are dependent on wetlands, and some of these species nest in Lake Erie marshes. Migratory bird species on the State list include American and least bittern, king rail, northern harrier, hermit thrush, common tern and sedge wren and several others. In addition to these terrestrial species, the State-listed endangered Great Lakes muskellunge also use coastal wetlands for spawning, nursery and rearing habitat.

Partnerships and Cooperative Relationships:

The Service intends to continue to foster working relationships with local communities, state governments, individuals, conservation groups and other organizations. The recently-formed Ottawa National Wildlife Refuge Association will be a catalyst for environmental education and other programs. The Refuge staff will seek out opportunities to engage people in fulfilling the mission of the Ottawa Refuge Complex.

## **Alternative A. No Action**

Resident Fish and Wildlife:

Seventy-percent of the Ottawa Refuge Complex would remain in controlled water impoundments to primarily benefit migrating waterfowl. No loss of croplands, woodland or grassland habitats would occur on the Refuge Complex. Fish, reptile and amphibian populations would continue natural trends. Deer populations will remain stable or increase depending on the success of control measures.

Migratory Birds:

Migrating waterfowl will receive the highest benefit from the no action alternative. The number of ducks and geese using the Refuge would follow flyway population trends. Shorebird and songbird numbers will remain stable or increase slightly.

Land Acquisition:

The existing acquisition program will continue based on the strategy outlined in the 1994 Environmental Assessment. The emphasis will remain on protecting 5,000 acres of existing wetland habitats throughout the identified study area. Specific habitat prescriptions or public uses on the new lands will be reviewed on a case-by-case basis.

The 1994 Refuge expansion proposal called for the purchase of 5,000 acres of wetland or restorable wetland habitat and adjacent uplands in portions of Lucas, Ottawa, Sandusky and Erie counties. Each tract proposed for purchase will be evaluated and prioritized based on criteria set forth in a workshop conducted by the National Ecology Research Center in 1992. These evaluation criteria can be roughly categorized into species, habitat, and management concerns. They are based on objectives of the Refuge. The criteria include:

- Endangered species use
- Existence of special habitats
- Availability and quality of a water supply
- Future management flexibility
- Existing water management capability
- Estimated operation and maintenance costs
- The threat of adverse change
- Adjacent land uses and habitats
- Parcel size
- Habitat fragmentation
- Opportunities for recreation and education
- Planned beneficial uses

Recreation and Environmental Education:

No new trails or major visitor facilities would be built under this scenario. The Refuge staff will continue to improve their outreach program within current budget limitations. Refuge visitation could increase by 10 percent or less annually based on existing trends and access.

Effects on Socioeconomic Environment:

Currently, ecotourists to the area contribute \$21-\$29 per day/visit to the local economy. The economic impact on the local communities was estimated to be \$5.61 million in 1993-1994 (Kerlinger). The tourists in this study came from 17 states outside Ohio and several foreign countries. No significant change in the local economy or tourist visitation would be expected under the No Action alternative.

## **Alternative B. Decreased Diversity of Habitats and Services**

Resident Fish and Wildlife:

Lake Erie water levels and rainfall would be the driving forces behind the availability of wetland habitats on the Ottawa Refuge Complex. A higher percentage of open water habitats would result in less emergent vegetation being available for resident wildlife such as muskrats. Rough fish numbers would increase initially with easier access to Lake Erie. However, there would also be a decreased emergent vegetation food supply for these foraging fish. Croplands would gradually revert to scrub/shrub or woodland habitats and increase available habitat for small mammals and wintering deer. Fish, reptile and amphibian populations would be reduced by the loss of some shallow marsh habitats to Lake Erie. Deer populations will remain stable or increase depending on the success of control measures.

Migratory Birds:

Migrating waterfowl use of the Refuge Complex would decrease due to the loss of emergent vegetation and shallow water habitats. Shorebirds numbers should remain stable as impoundment water levels will drop seasonally with Lake Erie. An increase in scrub/shrub and woodland habitats will benefit songbirds.

Land Acquisition:

The existing land acquisition program would be discontinued under this alternative. Up to 5,000 acres of Lake Erie coastal wetlands could be lost to development or drainage for agricultural purposes.

Recreation and Environmental Education:

No new trails or major visitor facilities would be built under this scenario. Number of visitors would drop from 1998 total of 120,378, possibly as much as 40 percent. As Ohio's only National Wildlife Refuge, fewer people in the state would be exposed to the Service and Refuge System. This approach will not draw tourists to the area, and may cause more people to find alternate recreation areas, including nearby state facilities. This plan may cause a loss of support by current partners and friends of the Refuge System.

Environmental education programs on-site will decline significantly. Many teachers request the assistance of staff to demonstrate techniques and share their knowledge of the resources with the students. Many other group leaders do not have the experience or knowledge to lead groups on field trips or hikes through the Refuge and would look to other locations for the assistance if not provided at the Refuge.

Socioeconomic Environment:

Of the 455 respondents to the Kerlinger ecotourism study at Magee Marsh, 98.9 percent also visited the Ottawa NWR. A decrease in Refuge visitor services may cause a decrease in Refuge visitation, but is unlikely to significantly decrease general use of the area for ecotourism.



Photo by Sharon Cummings

### **Alternative C. Increased Diversity of Habitats and Services (Preferred Alternative)**

Resident Fish and Wildlife:

New woodland and scrub/shrub habitats would benefit a variety of resident wildlife species including small mammals, such as mice, voles, rabbits, red fox and flying squirrels. Marsh habitats would remain in controlled water impoundments to primarily benefit migrating waterfowl. Muskrat and mink populations will be maintained based on natural trends and the success of the trapping program. Fish, reptile and amphibian populations would continue natural trends. Deer populations will decrease depending on the success of new control measures.

Migratory Birds:

Migrating waterfowl will receive the highest benefit from this action alternative. The number of ducks and geese using the Ottawa Refuge Complex would increase or follow flyway population trends. Shore-

bird and songbird numbers will increase slightly following the new shallow water and shrub habitats.

Land Acquisition:

The existing land acquisition program will continue primarily based on the strategy outlined in the 1994 Environmental Assessment. The emphasis will remain on protecting 5,000 acres of existing wetland habitats throughout the identified study area. However, acquiring riparian woodlands and shrub habitat would complement the new direction for the Ottawa Refuge Complex. Specific habitat restoration practices or public uses on the new lands will be reviewed on a case-by-case basis.

Recreation and Environmental Education:

New trail segments and a Visitor Education Center are proposed under this scenario. The Refuge staff will continue to improve their outreach program within budget limitations. The existing auto loop would be opened during several special events throughout the year. New comfort facilities at the existing Refuge headquarters including a restroom, outdoor tables, benches and potable water would be built. Refuge visitation could increase by 25 percent or more annually with these new facilities. The number of visitors to the Refuge may increase as much as 25 percent from the 1998 total of 120,000.

Socioeconomic Environment:

Local income from ecotourism will increase slightly and there is the potential to increase the length of stay of these visitors. Local employment and income from new construction contracts will occur (\$4 million-plus for the visitor center alone). The expanded hunting program will generate new license sales and sporting goods purchases.

## **Alternative D. Equalized Habitats and Services**

Resident Fish and Wildlife:

New upland habitats including woodland, scrub/shrub and grasslands would benefit a variety of resident wildlife species including deer mice, voles, rabbits, red fox and flying squirrels. Marsh habitats would be reduced and the controlled water impoundments more intensively managed to primarily benefit migrating waterfowl. Muskrat and mink populations would decrease based on the loss of wetland habitat. Fish, reptile and amphibian populations would decline slightly. Deer populations will decrease depending on the success of new, intense control measures.

Migratory Birds:

Migrating waterfowl numbers would decline based on the conversion to upland habitats. Forest and grassland-dependent songbird species would find new nesting habitat on the Ottawa Refuge Complex.

#### Land Acquisition:

The existing land acquisition program would change focus under Alternative D. Habitat diversity and accessibility for the public would be the primary consideration for selecting new lands. Habitat conversion (tree and prairie plantings, etc.) would be prescribed on newly acquired lands. Road and trail access for public recreational activities is encouraged under this alternative.

#### Recreation and Environmental Education:

A constructed trail system throughout the Ottawa Refuge Complex, year-round auto tour routes and a Visitor Education Center are proposed under this alternative. The Refuge staff will significantly improve their outreach program within budget limitations. The existing auto loop would be opened year-round and additional routes will be examined. New comfort facilities at the existing Refuge headquarters including a restroom, outdoor tables, benches and potable water would be built. The number of visitors to the Refuge may increase as much as 80 percent, from the 1998 total of 120,000. Increased visitation at current non-peak times of year will require more staff time and maintenance work. Increased visitation will augment awareness of the Refuge and increase support for the Refuge System. Environmental education programs will be able to expand to more schools with the increased facilities and staff.

#### Socioeconomic Environment:

There will be a substantial increase in spending in the local economy. Not only will visitation be increased, but this has the potential to increase the length of stay of visitors. More visitors may visit during times of year that currently see lower use. The need for increased staff to maintain and operate these new facilities will increase the employee salary base available to local vendors. Local employment and income from new construction contracts will occur (\$4 million-plus for the visitor center alone). The expanded hunting program will generate new license sales and sporting goods purchases.

## **V. Consultation and Coordination**

The Ottawa Refuge Complex Environmental Assessment and Comprehensive Conservation Plan has been written with the participation of Service staff, Refuge users and the local community. The CCP planning process began in July 1997 with informal discussions among Refuge employees, local residents and representatives of groups concerned with the future of the Ottawa Refuge Complex. Subsequently, the planning team held two focus group meetings at the Refuge and two open house events in local communities.

A wide range of issues, concerns and opportunities was expressed during the planning process. Numerous discussions among Refuge and planning staff, focus group participants and resource specialists brought to light several recurring themes. These themes included

management of water impoundments, land acquisition, migratory bird diversity, visitor services, new partnerships and cooperative relationships, among other topics.

For more detail, please see Chapter 2 of the CCP and Appendix H for a discussion of the public scoping process.

## **VI. List of Preparers**

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# **Appendix B**

## **Glossary**



# Appendix B

## Glossary

<i>Alternative</i>	A Set of objectives and strategies needed to achieve refuge goals and the desired future condition.
<i>Aquatic plant succession</i>	The gradual filling of a wetland with emergent plants.
<i>Biological Diversity</i>	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.
<i>Compatible Use</i>	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.
<i>Comprehensive Conservation Plan</i>	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.
<i>Ecosystem</i>	A dynamic and interrelated complex of plant and animal communities and their associated non-living environment.
<i>Ecosystem Approach</i>	A strategy or plan to protect and restore the natural function, structure, and species composition of an ecosystem, recognizing that all components are interrelated.
<i>Ecosystem Management</i>	Management of an ecosystem that includes all ecological, social and economic components that make up the whole of the system.

<i>Endangered Species</i>	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 <u>Federal Register</u> .
<i>Environmental Assessment</i>	A systematic analysis to determine if proposed actions would result in a significant effect on the quality of the environment.
<i>Extirpation</i>	The extermination of a species.
<i>Gastropods</i>	A mollusk class including snails and slugs.
<i>Hemi-marsh:</i>	A wetland with pockets of drier soil and containing a mixture of herbaceous and wood vegetation.
<i>Goals</i>	Descriptive statements of desired future conditions.
<i>Issue</i>	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.
<i>National Wildlife Refuge System</i>	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.
<i>Managed marsh:</i>	A permanent wetland in which water levels can be seasonally manipulated through dams, pumping or other means.
<i>Moist Soil Unit:</i>	A controlled water impoundment where water is intentionally drained to encourage emergent plant growth. The dry bed may be plowed or seeded to natural waterfowl food plant species.
<i>Objectives</i>	Actions to be accomplished to achieve a desired outcome.

<i>Preferred Alternative</i>	The Service's selected alternative identified in the Draft Comprehensive Conservation Plan.
<i>Scoping</i>	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.
<i>Scrub/shrub:</i>	A vegetation community consisting of grasses, stunted trees and scattered shrubs.
<i>Species</i>	A distinctive kind of plant or animal having distinguishable characteristics, and that can interbreed and produce young. A category of biological classification.
<i>Species of concern</i>	A fish, wildlife or plant species that, although not endangered, is experiencing a population decline.
<i>Succession</i>	The gradual, orderly process of change in plant species composition that results in a mature plant community.
<i>Strategies</i>	A general approach or specific actions to achieve objectives.
<i>Terrestrial</i>	Living or growing on land.
<i>Turbidity</i>	The relative level of suspended solids in water.
<i>Wildlife-dependent Activities</i>	A use of refuge that involves hunting, fishing, wildlife observation and photography, or environmental education and interpretation, as identified in the National Wildlife Refuge System Improvement Act of 1997.
<i>Threatened Species</i>	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 <u>Federal Register</u> .

<i>Vegetation</i>	Plants in general, or the sum total of the plant life in an area.
<i>Vegetation Type</i>	A category of land based on potential or existing dominant plant species of a particular area.
<i>Watershed</i>	The entire land area that collects and drains water into a stream or stream system.
<i>Wetland</i>	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.
<i>Wildlife Diversity</i>	A measure of the number of wildlife species in an area and their relative abundance.
<i>Zonation</i>	The distribution of organisms in biogeographic zones.
<i>Zooplankton</i>	Microscopic aquatic animals.

# **Appendix C**

## **RONS List**



# Appendix C

## Unfunded Refuge Operations Projects

### Ottawa National Wildlife Refuge Complex

Projects are shown in station priority order and are linked to CCP habitat objectives.

<b>RONS Project Title</b>	<b>Project Number</b>	<b>Rank</b>	<b>Funding Need</b>	<b>Objective</b>
Construct an Education/Visitor Center	97045	1	\$4,500,000	P (1)
Control of Exotic Plant Species	97027	2	\$75,000	H (All)
Improve Two-way Radio Communications	98005	3	\$60,000	(All)
Improve Law Enforcement Transportation	98002	4	\$47,000	P (All)
Rip-rap and Reslope Krause Road Ditch	97013	5	\$93,000	H (9)
Equipment Maintenance Facility	99004	6	\$295,000	H (9)
Upgrade Computer Network and Communications	98020	7	\$72,000	(All)
Operation of Metzger Marsh Facilities	98021	8	\$113,000	H (All)
Habitat Restoration on Acquired Lands	99005	9	\$267,000	H (All)
Provide Volunteer Campsite Facilities	98017	10	\$43,000	P (1)
Purchase Single-axle Dump Truck	97001	11	\$80,000	H (9)
Restore & Expand Main Dikes in Unit 14/15	99002	12	\$269,000	H (1-5)
Install Power Unit on Ottawa MSU 2 A,B,C Pump Station	97051	13	\$27,000	H (1-5)
Construct Unit 1/Pool 9 and Metzger Marsh Dike	97003	14	\$213,000	H (1-5)
Increase Nature Trail System	97038	15	\$216,000	P (1)
Improve Accessibility for Employee Parking Entrance	98018	16	\$26,000	P-1-2
Pool 1 Pump Station	97033	17	\$228,000	H (1-5)
Improve Accessibility of Nature Trails	97010	18	\$103,000	P (1)
Installation of Sheet-piling Carp Excluders	98007	19	\$78,000	H (1-6)
Early Successional Field Restoration	99001	20	\$70,000	H (8)
Increase GIS Capabilities	98006	21	\$147,000	(All)
Enhance Management of Moist Soil Units	97050	22	\$63,000	H (1-5)

**Objectives: H=Habitat; W=Wildlife; P=People**

**Appendix C  
 Unfunded Refuge Operations Projects — Continued  
 Ottawa National Wildlife Refuge Complex**

<b>RONS Project Title</b>	<b>Project Number</b>	<b>Rank</b>	<b>Funding Need</b>	<b>Objective</b>
Increase Environmental Education & Outreach	97046	23	\$43,000	P (3)
Improve Visitor Wildlife Observation Opportunities	97022	24	\$112,000	P (1)
Volunteer Coordinator	98019	25	\$46,000	P (1-3)
Improve Nature Trails	97042	26	\$70,000	P (1)
Improve Roads and Dike Tops	97005	27	\$53,000	H (All) P (1)
Continuation of Farming Program	97013	28	\$62,000	H (All)
Facilitate Equipment Mobilization	97015	29	\$171,000	H (9)
Improve Conservation Easement Management	97043	30	\$75,000	H (All)
Increase Law Enforcement Presence	98001	31	\$97,000	P (All)
Barge for Dragline Crane Operation	97011	32	\$56,000	H (1-7)
Diversify Vehicle Fleet	97044	33	\$53,000	H (All)
Improve Fire Management Capabilities	97010	34	\$42,000	H (All)
Habitat Improvement for Fishery Management	99003	35	\$147,000	H (1-6)
Provide Vehicle Turnouts on Entrance Road	97004	36	\$86,000	P (1)
Equipment Storage Building	97041	37	\$58,000	H (9)
Provide Safe refuge Entrance/Exit on State Route 2	98003	38	\$283,000	P (1)
Construct 9 Bay Vehicle Garage	98009	39	\$54,000	H (9)
Improve Refuge Boundary Signage	97026	41	\$46,000	P (1) H (All)

**Objectives: H=Habitat; W=Wildlife; P=People**

**Appendix C**  
**Unfunded Refuge Operations Projects — Continued**  
**Ottawa National Wildlife Refuge Complex**

<b>RONS Project Title</b>	<b>Project Number</b>	<b>Rank</b>	<b>Funding Needed</b>	<b>Objective</b>
Improve Linsey-Limestone Ditch	97030	42	\$54,000	H (1-7)
Enhance Darby Unit Pool 3	97019	43	\$54,000	H (1-5)
Improve Signage at Ottawa NWR Complex	97039	44	\$29,000	P (1)
Improve East Radar Ditch	97036	45	\$24,000	H (1-7)
Improve Stange Road Access	97024	46	\$36,000	
Rip-rap Pool 2B Dikes	97017	47	\$70,000	H (1-5)
MSU-5 Dike Restoration	97015	48	\$90,000	H (1-5)
Unit 14/15 Interior Dike Enhancement	97019	50	\$147,000	H (1-5)
Vehicle Wash Rack	97022	51	\$23,000	H (9)
Provide Accommodations for Students and Interns	98016	52	\$141,000	W (1-3)
Improve Refuge Interpretive Signage	97023	53	\$24,000	P (1)

**Objectives: H=Habitat; W=Wildlife; P=People**

**Appendix C  
 Unfunded Refuge Operations Projects  
 Cedar Point National Wildlife Refuge Complex**

<b>RONS Project Title</b>	<b>Project Number</b>	<b>Rank</b>	<b>Funding Needed</b>	<b>Objective</b>
Install Rip-rap on N. Pheasant Farm Dike	97034	1	\$84,000	H (1)
Enhance Water Management in CP NWR Pool 2	99006	2	\$177,000	H (1)
Enhance Cedar Point Roads	97018	3	\$87,000	H (3)

**Objectives: H=Habitat; W=Wildlife;**

# **Appendix D**

## **Compatibility Determinations**



# Appendix D

## Compatibility Determinations

### **Compatibility Determination: Recreational Fishing**

**Station Name:** Ottawa National Wildlife Refuge, Ohio

**Date Established:** July 28, 1961

**Establishing and Acquisition Authorities:** Migratory Bird Conservation Act, 16 U.S.C. § 715-715r, as amended.

**Purpose(s) for Which Established:** The primary purpose for the Refuge is “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”

**Description of Proposed Use:** To provide youth an opportunity and an educational experience relating to fishing. This activity is permitted to support a special event such as National Fishing Week to introduce youth to the sport and let them “wet a line.” Fishing along with environmental education programs are presented once or twice a year. The practice of “catch and release” is followed. Consequently, all fishing activity is supervised by Refuge staff and volunteers.

Fishing will be allowed only on the pond adjacent to the refuge headquarter’s building and is limited to one or two annual special events. Bank fishing during daylight hours is permitted during these special events.

Species allowed to be taken and the permitted methods of taking will be consistent with state regulations.

Refuge-specific regulations prohibit fishing, except for a special event.

**Anticipated Impacts on Service Lands, Waters, and Interests:** Little to no impact will result based on the activity held, since special events (one to two annually) are conducted at an administrative facility pond. Additionally, the group size is limited to approximately 50 individuals and the youth are required to “catch and release” the fish.

**Availability of Resources:** Staff, equipment and facilities are available to administer this use.

**The following stipulations are required to ensure compatibility:**  
None

**Justification:** This activity introduces local youth to sport fishing, wetland ecology, and the U.S. Fish and Wildlife Service and enhances their understanding of the environment and of the need for fish and wildlife conservation.

**Determination:**

This use is compatible X This use is not compatible    

Determined by: s/Larry D. Martin 8/22/00  
Project Leader Date

Reviewed by: s/Steven J. Lenz 9/5/00  
Refuge Supervisor (Acting) Date

Concurred by: s/Nita M. Fuller 9/12/00  
Regional Chief, Date  
National Wildlife Refuge System

**Compatibility Determination: Recreational Fishing**

**Station Name:** Cedar Point National Wildlife Refuge, Ohio

**Date Established:** December 18, 1964

**Establishing and Acquisition Authorities:** Migratory Bird Conservation Act, 16 U.S.C. § 715-715r, as amended.

**Purpose(s) for Which Established:** The primary purpose for the Refuge is “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”

**Description of Proposed Use:** To provide public sport fishing opportunities on Cedar Point National Wildlife Refuge.

From May 1 through September 30 annually, a 15-acre borrow pit (of the 2,445-acre Refuge) is open for sport fishing during daylight hours from the bank. Furthermore, boats and floatation devices are not permitted.

Species allowed to be taken and the permitted methods of taking are the same as current state regulations allow. Enforcement activities on the Refuge are performed by the U.S. Fish & Wildlife Service and monitored during routine visits.

**Anticipated Impacts on Service Lands, Waters, and Interests:**

Controlled access and seasonal restrictions will limit human disturbance of wildlife.

Litter resulting from public use will be collected periodically by personnel and volunteers.

Bank fishing is conducted from an earthen, man-made dike and some soil erosion may occur from people fishing from the dike slope.

Bass, bluegill, channel catfish, and crappie are the most commonly fished species. Periodic restocking of these species is performed.

**Availability of Resources:** Staff, equipment and facilities are available to administer this use.

**The following stipulations are required to ensure compatibility:**

1. Controlled access and seasonal stipulations.
2. Litter collection.
3. Law enforcement.
4. Trail maintenance.
5. Wheelchair-accessible piers.

**Justification:**

Lake Erie has been referred to as the walleye capital of the world. Consequently the fishing community represents a significant population of anglers. However, Lake Erie fishing requires specialized equipment not available to many people. Bank fishing on the Refuge only requires the bare necessities. Likewise, some anglers prefer a tranquil, wilderness fishing experience such as what the Refuge has to offer. Since the fishing access is isolated from the major wildlife use area and because of seasonal and fishing technique restrictions, disturbance to wildlife is minimal.

**Determination:**

This use is compatible  X  This use is not compatible

Determined by:	<u>s/Larry D. Martin</u> Project Leader	<u>8/22/00</u> Date
Reviewed by:	<u>s/Steven J. Lenz (Acting)</u> Refuge Supervisor (RFS1)	<u>9/5/00</u> Date
Concurred by:	<u>s/Nita M. Fuller</u> Regional Chief, National Wildlife Refuge System	<u>9/12/00</u> Date

**Compatibility Determination: Waterfowl Hunting**

**Station Name: Ottawa National Wildlife Refuge, Ohio**

**Date Established:** July 28, 1961

**Establishing and Acquisition Authorities:** Migratory Bird Conservation Act, 16 U.S.C. § 715-715r, as amended.

**Purpose(s) for Which Established:** The primary purpose for the Refuge is “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”

**Description of Proposed Use:** The controlled waterfowl hunt plan identifies Canada, snow and white-fronted geese and ducks as huntable species on the refuge. Hunting will take place only from designated blinds located along the perimeter of the Ottawa unit. Twelve blinds are proposed for use during the 2000 waterfowl hunting season. However, the number and placement of blinds is subject to annual review.

Refuge-specific regulations are: 1) Permits are required; 2) Hunting hours are legal shooting time until 12 noon; 3) Hunter must report back to check station and submit waterfowl for examination; 4) No more than two hunters per blind and shooting must take place in blind and/or within 75 yards of blind; and 5) Each hunter may not possess more than 25 shells of nontoxic shot.

Waterfowl species allowed to be taken and the permitted methods of taking will be consistent with Federal and State regulations.

In addition to the regulations stated above, the hunt is scheduled for 4 days per week, usually Monday, Wednesday, Friday, and Saturday.

A cooperative agreement provides for the hunt to be administered by the Ohio Department of Natural Resources, Division of Wildlife, and they conduct the permitting process and blind maintenance.

**Availability of Resources:** Staff, equipment and facilities are available to administer this use.

**Anticipated Impacts on Service Lands, Waters, and Interests:**

Statewide the giant Canada goose population has increased to the point that Ohio conducts an early nuisance goose hunting season. Additionally, wildlife managers expend a lot of time and dollars responding to goose depredation complaints, transporting nuisance geese from unwanted areas, and issuing landowners goose scare-away devices. Without a hunting program, this population will denude habitat for other wetland-dependent species as well as impact the surrounding agricultural fields.

Canada, snow and white-fronted geese and ducks are included in the waterfowl hunting program. Historically, snow and white-fronted geese are incidentally harvested due to low local populations.

Controlled access, blind placement near the Refuge perimeter, and seasonal restrictions will limit human disturbance of wildlife and maintain the interior of the Refuge as a sanctuary for migrant waterfowl.

The following stipulations are required to ensure compatibility:

1. Controlled access and seasonal stipulations
2. Law enforcement activities
3. Biological surveys

**Justification:** Public interest, especially the agricultural community, supports the Refuge's controlled hunt. Statewide, the giant Canada goose population has increased to the point that Ohio conducts an early nuisance goose hunting season. Additionally, wildlife managers expend a lot of time and dollars responding to goose depredation complaints, transporting nuisance geese from unwanted areas, and issuing landowners goose scare-away devices. Without a hunting program, this population will denude habitat for other wetland-dependent species as well as impact the surrounding agricultural fields.

**Determination:**

This use is compatible  X  This use is not compatible

Determined by:	<u>s/Larry D. Martin</u> Project Leader	<u>8/22/00</u> Date
Reviewed by:	<u>s/Steven J. Lenz (Acting)</u> Refuge Supervisor (RFS1)	<u>9/5/00</u> Date
Concurred by:	<u>s/Nita M. Fuller</u> Regional Chief, National Wildlife Refuge System	<u>9/12/00</u> Date

**Compatibility Determination: Wildlife Observation, Photography, Environmental Education and Interpretation**

**Station Name: Ottawa National Wildlife Refuge, Ohio**

**Date Established:** July 28, 1961

**Establishing and Acquisition Authorities:** Migratory Bird Conservation Act, 16 U.S.C. § 715-715r, as amended.

**Purpose(s) for Which Established:** The primary purpose for the Refuge is “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”

**Description of Proposed Use:** To provide public wildlife observation and photographic opportunities, environmental education and interpretation on Ottawa National Wildlife Refuge.

A 7-mile interpretive foot trail system is available for visitors to hike/bicycle on a daily basis during daylight hours. The trails are composed of dike-top roads surrounding moist soil units, open pools, and foot trails meandering through woodlots. Interpretive panels and bench sites provide management and wildlife information to the visitor. An elevated (5 feet high) platform was constructed along one of the trails and this was designated as a “watchable wildlife” area. The trail system has been designated as a National Recreation Trail. Several times a year an auto tour route is opened during special refuge events.

**Anticipated Impacts on Service Lands, Waters, and Interests:** Due to the Refuge’s close proximity to high population centers (Detroit, Cleveland, and Toledo), high visitor numbers could impact the Refuge. However, except for periodic auto tour route openings, public use is confined to a centralized 500-acre area of the 4,800-acre Refuge. Historically, visitor numbers indicate approximately 120,000 total visits per year. Biological surveys monitor wildlife to determine if there is a disturbance factor in the public use area.

Litter resulting from public use will be collected periodically by personnel and volunteers.

Controlled access and seasonal restrictions will limit human disturbance of wildlife.

The following stipulations are required to ensure compatibility:

1. Controlled access and seasonal stipulations
2. Law enforcement activities
3. Biological surveys
4. Trail maintenance and litter collection

**Availability of Resources:** Staff, equipment and facilities are available to administer this use.

**Justification:** The Refuge trail system, combined with observation platforms, provides an interpretive wildlife observation route that visitors can interface with the natural ecosystem. This public use area is confined to a centralized 500-acre area of the 4,800-acre Refuge. Periodic auto tour route openings provide opportunities to a broader public. Biological surveys are used to monitor wildlife and people to determine if there is a disturbance factor in the public use area.

**Determination:**

This use is compatible X This use is not compatible     

Determined by:	<u>s/Larry D. Martin</u> Project Leader	<u>8/22/00</u> Date
Reviewed by:	<u>s/Steven J. Lenz (Acting)</u> Refuge Supervisor (RFS1)	<u>9/5/00</u> Date
Concurred by:	<u>s/Nita M. Fuller</u> Regional Chief, National Wildlife Refuge System	<u>9/12/00</u> Date

## **Compatibility Determination: White-tailed Deer Hunting**

**Station Name:** Ottawa National Wildlife Refuge, Ohio

**Date Established:** July 28, 1961

**Establishing and Acquisition Authorities:** Migratory Bird Conservation Act, 16 U.S.C. § 715-715r, as amended.

**Purpose(s) for Which Established:** The primary purpose for the Refuge is “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”

**Description of Proposed Use:** Public hunting is to be used primarily as a management tool for balancing the white-tailed deer population objectives with other wildlife objectives, thereby inhibiting this species from impacting the quality of vegetative habitat. An annual hunt, using primitive weapons only, will be conducted through a lottery system. The entire refuge is divided into management zones to evenly distribute hunters for harvest success and safety reasons.

### **Refuge-specific regulations are:**

- 1) Permits are required and all state deer hunting regulations apply unless otherwise stated in the refuge deer hunt plan;
- 2) Hunting hours are as determined by state regulations;
- 3) Deer harvested must be checked at the Ottawa Refuge check station before leaving the premises;
- 4) Hunters may use blinds if provided or must otherwise stay within their designated hunting zone;
- 5) Each hunter may not possess more than 1 legal caliber/gauge weapon including longbows or crossbows;
- 6) Total hunt days will be determined by state regulations with a goal of at least 14 successful hunters per day;
- 7) Blinds accessible by physically challenged hunters will be provided;
- 8) Hunters will be selected through a lottery process for 1 hunt day with 2 partners of their choice;
- 9) Biological data will be collected and analyzed to ensure that the hunts are conducted in a biologically sound manner and meet refuge deer hunt management objectives;
- 10) Hunt dates and types will be coordinated with the Ohio Division of Wildlife and will receive state approval and will be listed in their statewide public meeting process;
- 11) An active refuge law enforcement program will ensure regulation compliance and will protect refuge resources;

- 12) An annual hunt evaluation report that addresses compatibility will be prepared by the refuge biologist and will be reviewed and approved by the refuge project leader;
- 13) Vehicle use will be limited to regularly maintained roads and vehicles must be parked in parking areas designated for each management zone during hunts;
- 14) Successful applicants wishing to transfer permits to another party must sign and date the permit in the appropriate section before release of the permit is valid;
- 15) During a special deer hunt, all hunters must wear a hat and vest or jacket that is colored blaze orange regardless of weapon used.

Guidance, procedures, and documentation consistent with the Ohio Revised Code are provided for the Ohio Department of Natural Resources. A letter of concurrence from the Ohio Division of Wildlife will be sought.

#### **Anticipated Impacts on Service Lands, Waters and Interests:**

Statewide, the white-tailed deer population has increased to the point that Ohio conducts special antlerless deer and urban-zone hunting programs to supplement harvest during the regular season. These additional programs are designed to meet population target level objectives and fulfill management direction.

The population estimate at Ottawa National Wildlife Refuge was determined from a winter white-tailed deer helicopter survey. Our estimates indicate that our current deer population is at 47.3 deer/mi<sup>2</sup>. In Ohio, buck harvest goals are based on landowner attitudes and desires, and deer-vehicle collision statistics. Extrapolation from Ohio's figures indicate pre-harvest density estimates for Lucas and Ottawa counties are 0.6 and 0.9 deer/square mile (unpubl. rep., Ohio Division of Wildlife 1993). In the Midwest agricultural region, statewide deer densities range from 1-15 deer/square mile (Gladfelter 1984). Our population estimate is 315% above the upper end of average densities reported for the agricultural Midwest region. DeCalesta (1994) suggested threshold deer densities for effect on habitat and songbirds within managed (100-year rotation) forests to be between 7.9 and 14.9 deer/km<sup>2</sup>. This converts to 5 and 9 deer/mi<sup>2</sup> at the lower and upper ends of the threshold scale, respectively.

Wildlife managers expend a lot of time and dollars responding to deer-vehicle accident and crop depredation complaints. Without a hunting program specifically used as a management tool, the refuge deer population may degrade habitat quality not only for that population, but for other important species. Additionally, the population is expected to impact the surrounding agricultural fields.

Controlled access, blind placement and hunting opportunity in designated management zones, and seasonal restrictions will limit human disturbance of wildlife and provide wildlife a refuge interior sanctuary.

The following stipulations are required to ensure compatibility:

1. Controlled access and seasonal stipulations
2. Law enforcement activities
3. Biological surveys

**Availability of Resources:** Staff, equipment and facilities are available to administer this use.

**Justification:** Sport hunting has been a long-standing tradition in the Lake Erie marshes region. Public interest, especially from the local agricultural community, supports the white-tailed deer population reduction goal. Statewide, the white-tailed deer population has increased to the point that Ohio conducts special antlerless deer and urban-zone hunting programs to supplement harvest during the regular season.

The white-tailed deer population (47.3 deer/mi<sup>2</sup>) at Ottawa National Wildlife Refuge exceeds Ohio's pre-harvest density estimates (0.6 and 0.9 deer/mi<sup>2</sup>) for Lucas and Ottawa counties and the Midwest agricultural region's statewide deer density ranges (1-15 deer/mi<sup>2</sup>). It also exceeds the threshold deer densities for effect on habitat and songbirds within managed (100-year rotation) forests (5-9 deer/mi<sup>2</sup>).

Without a hunting program specifically used as a management tool, the refuge deer population is expected to adversely affect associated plant and animal communities, and hence alter ecological diversity and succession (Warren 1991). This may result in significant negative impacts on both plant and other animal communities including some of special concern or of Service trust responsibility. This impact has been well documented and accepted through research over a period of many years. A list of literature citations used to develop this compatibility determination is attached. The white-tailed deer hunting plan objectives will ultimately result in a deer density of 15 deer/mi<sup>2</sup>. This deer density will maintain the refuge deer population at the upper limit of a reasonable equilibrium with its environment as estimated for the Midwest agricultural region.

Antlerless deer harvest will be based on these considerations: status of management unit deer population in relation to goals (at goal, higher, or lower) as determined by inventories; and past effects of varying antlerless deer harvest levels on populations (gained through experience). As recommended by Creed et al. (1984), an antlerless deer to buck harvest ratio will eventually be established to maintain deer densities at optimum levels after initial herd reduction. Winter severity is not assumed to be limiting at the refuge's latitude and accordingly, such information is not used in southern

Michigan or Ohio. Therefore, the available lower Winter Severity Index values will be used to establish future harvest ratios.

Disturbance to other species of refuge wildlife will be minimal because the hunt will be held during periods of low migratory bird use. This disturbance will be periodic and of short duration. No evidence exists that such activity causes biological problems for these other species. The population reduction is expected to affect good health in the refuge deer herd and greatly reduce disease potential and nutritional deficiency problems.

#### Literature Cited

Creed, W.A. 1984. Harvest management: the Wisconsin experience, Chapter 11 in *White-tailed Deer: Ecology and Management*. L.K. Halls, ed. Stackpole Books, Harrisburg, PA. 870pp.

deCalesta, D.S. 1994. Effect of white-tailed deer on songbirds within managed forests in Pennsylvania. *J. Wildl. Manage.* 58:711-718.

Gladfelter, H.L. 1984. Midwest agricultural region, Chapter 22 in *White-tailed Deer: Ecology and Management*. L.K. Halls, ed. Stackpole Books, Harrisburg, PA. 870pp.

Warren, R.J. 1991. Ecological justification for controlling deer populations in eastern national parks. Abstracts: 56th North American Wildl. And Nat. Resour. Conf. Edmonton, Alberta, Canada.

#### **Determination:**

This use is compatible  X . This use is not compatible  \_\_\_\_\_ .

Determined by:  s/Larry D. Martin   8/22/00   
Project Leader Date

Reviewed by:  s/Steven J. Lenz (Acting)   9/5/00   
Refuge Supervisor (RFS1) Date

Concurred by:  s/Nita M. Fuller   9/12/00   
Regional Chief, Date  
National Wildlife Refuge System

# **Appendix E Species List**



# Appendix E

## Species List

Fish Species List on  
Ottawa National Wildlife Refuge Complex  
as of June 8, 1999  
(Listed by family, then species.)

### AMIIDAE

Bowfin\* (*Amia calva*)

### ATHERINIDAE

Brook silverside\* (*Labidesthes sicculus*)

### CATOSTOMIDAE

Quillback\* (*Carpiodes cyprinus*)  
Bigmouth buffalo\* (*Ictiobus cyprinellus*)  
Spotted sucker (*Mynytrema melanops*)  
White sucker (*Catostomus commersoni*)

### CENTRARCHIDAE

Black Crappie\* (*Pomoxis nigromaculatus*)  
White Crappie\* (*Pomoxis annularis*)  
Largemouth bass\* (*Micropterus salmoides*)  
Smallmouth bass\* (*Micropterus dolomieu*)  
Rockbass\* (*Ambloplites rupestris*)  
Longear sunfish (*Lepomis megalotis*)  
Pumkinseed\* (*Lepomis gibbosus*)  
Green sunfish (*Lepomis cyanellus*)  
Bluegill\* (*Lepomis macrochirus*)  
Orangespotted sunfish (*Lepomis humilis*)

### CLUPEIDAE

Gizzard shad\* (*Dorosoma cepedianum*)

### CYPRINIDAE

Bluntnose minnow\* (*Pimephales notatus*)  
Common carp\* (*Cyprinus carpio*)  
Goldfish\* (*Carassius auratus*)  
Emerald shiner\* (*Notropis atherinoides*)  
Spotfin shiner\* (*Notropis spilopterus*)  
Spottail shiner\* (*Notropis hudsonius*)  
Common shiner (*Notropis chrysocephalus*)  
Sand shiner\* (*Notropis stramineus*)

\*indicates species found at Metzger Marsh fish structure

Silver chub (*Hybosis storeriana*)  
Golden shiner\* (*Notemigonus crysoleucas*)

**ESOCIDAE**

Northern pike\* (*Esox lucius*)

**ICTALURIDAE**

Brown Bullhead\* (*Ameiurus nebulosus*)  
Yellow bullhead\* (*Ameiurus natalis*)  
Black bullhead\* (*Ameiurus melas*)  
Channel catfish\* (*Ictalurus punctatus*)  
Tadpole madtom (*Noturus gyrinus*)

**LEPISOSTEIDAE**

Longnose gar\* (*Lepisosteus osseus*)

**OSMERIDAE**

Rainbow smelt (*Osmerus mordax*)

**PETROMYZONTIDAE**

Sea lamprey (*Petromyzon marinus*)  
Silver lamprey\* (*Ichthyomyzon unicuspis*)

**PERCICHTHYIDAE**

White bass\* (*Morone chrysops*)  
White perch\* (*Morone americana*)

**PERCIDAE**

Logperch\* (*Percina caprodes*)  
Yellow perch\* (*Perca flavescens*)  
Walleye\* (*Stizostedion vitreum*)

**UMBRIDAE**

Central mudminnow (*Umbra limi*)

**PERCOPSIDAE**

Troutperch\* (*Percopsis omiscomaycus*)

**SALMONIDAE**

Rainbow trout\* (*Oncorhynchus mykiss*)

**SCIAENIDAE**

Freshwater drum\* (*Aplodinotus grunniens*)

**EXOTIC**

Round goby\* (*Neogobius melanostomus*)

\*indicates species found at Metzger Marsh fish structure

## Bird List

Two hundred and seventy-three birds are listed as regular visitors to Ottawa National Wildlife Refuge. Another 49 species have been seen only a few times on the refuge and are included in the “accidental” list.

Birds listed are grouped according to taxonomic identification, first by order (solid line) and then family (dotted line). The English or common names used and the taxonomic order are in accordance with the American Ornithologists’ Union “Checklist of North American Birds,” 6th edition (1983), 3rd Supplement (1989).

Symbols used include:

S: Spring  
 s: Summer  
 F: Fall  
 W: Winter

Status:

**c:** common  
**f:** fairly common, seen on a majority (51 percent).  
**u:** uncommon, seen on 20 percent to 50 percent of visits.  
**r:** rare, seen on less than 20 percent of visits.  
**x:** extremely rare, seen on five or fewer visits since 1969.  
**“-”** indicates that no records exist.  
**\*\*** indicates that the species has nested locally.

<b>Common Name</b>	<b>S</b>	<b>s</b>	<b>F</b>	<b>W</b>
Common Loon	x	x	u	r
Pied-billed Grebe*	c	c	c	r
Horned Grebe	u	x	u	x
Red-necked Grebe	x	-	x	-
Eared Grebe	x	x	x	-
American White Pelican	x	x	x	-
Double-crested Cormorant*	c	f	f	x
American Bittern*	u	r	r	x
Least Bittern*	u	r	r	-
Great Blue Heron*	c	c	c	c
Great Egret*	c	c	c	r
Snowy Egret*	f	f	f	-
Little Blue Heron*	u	u	u	-
Tricolored Heron	x	-	x	-
Cattle Egret*	r	r	u	-
Green-backed Heron*	c	c	c	-

<b>Common Name</b>	<b>S</b>	<b>s</b>	<b>F</b>	<b>W</b>
Black-crowned Night Heron*	f	c	c	x
Yellow-crowned Night Heron	x	x	x	
Glossy Ibis	x	-	-	-
White-faced Ibis	x	-	-	-
Trumpeter Swan*	u	u	u	-
Tundra Swan	f	-	f	f
Mute Swan*	x	x	x	x
Greater White-fronted Goose	x	-	x	x
Snow (blue phase) Goose	f	x	f	f
Brant	x	-	x	-
Canada Goose*	c	c	c	c
Wood Duck*	f	f	c	u
Green-winged Teal*	f	u	c	u
American Black Duck*	c	f	c	c
Mallard*	c	c	c	c
Northern Pintail*	f	u	c	f
Blue-winged Teal*	c	c	c	x
Northern Shoveler*	c	u	c	u
Gadwall*	c	u	c	u
American Wigeon*	f	u	f	u
Canvasback*	f	x	f	u
Greater Scaup	x	-	x	x
Lesser Scaup	f	x	f	u
Oldsquaw	r	-	r	r
Black Scoter	x	-	x	x
Surf Scoter	-	-	x	x
White-winged Scoter	x	x	x	x
Common Goldeneye	c	-	f	f
Bufflehead	f	-	f	u
Hooded Merganser*	f	u	c	u
Common Merganser	c	-	u	f
Red-breasted Merganser	c	x	f	u
Ruddy Duck*	c	u	c	u
Turkey Vulture*	f	u	x	-
Osprey	u	x	x	x
Bald Eagle*	c	c	c	c
Northern Harrier	f	r	f	f
Sharp-shinned Hawk	f	x	u	x
Cooper's Hawk*	f	x	r	u
Red-shouldered Hawk*	u	x	x	x
Broad-winged Hawk	u	x	x	-
Swainson's Hawk	-	x	x	-
Red-tailed Hawk*	c	c	c	c
Rough-legged Hawk	f	-	r	f
Golden Eagle	x	x	x	-
American Kestrel*	f	u	f	f

<b>Common Name</b>	<b>S</b>	<b>s</b>	<b>F</b>	<b>W</b>
Merlin	r	x	x	-
Peregrine Falcon	r	x	r	-
Gyrfalcon	x	-	x	x
Ring-necked Pheasant*	f	f	f	f
Northern Bobwhite	x	x	x	-
King Rail*	r	x	x	x
Virginia Rail*	u	r	r	x
Sora*	c	u	u	-
Common Moorhen*	u	u	u	x
American Coot*	c	f	c	u
Sandhill Crane	r	-	x	-
Black-bellied Plover	c	u	f	x
Lesser Golden Plover	f	x	f	-
Semipalmated Plover	c	u	f	-
Piping Plover	x	-	x	-
Killdeer*	c	c	c	u
American Avocet	-	x	r	-
Greater Yellowlegs	c	u	c	x
Lesser Yellowlegs	c	u	c	-
Solitary Sandpiper	c	u	f	-
Willet	x	x	r	-
Spotted Sandpiper*	c	c	c	-
Upland Sandpiper*	u	r	r	-
Whimbrel	x	x	x	-
Hudsonian Godwit	x	x	u	-
Marbled Godwit	x	x	r	-
Ruddy Turnstone	u	u	u	-
Red Knot	x	x	u	-
Sanderling	r	x	f	x
Semipalmated Sandpiper	f	u	c	-
Western Sandpiper	r	x	u	-
White-rumped Sandpiper	u	r	u	-
Baird's Sandpiper	x	-	u	-
Pectoral Sandpiper	f	u	c	-
Dunlin	f	u	c	r
Stilt Sandpiper	x	r	f	-
Buff-breasted Sandpiper	-	-	r	-
Ruff	x	x	x	-
Short-billed Dowitcher	f	u	c	-
Long-billed Dowitcher	x	x	f	-
Common Snipe*	c	x	f	r
American Woodcock*	u	r	u	-
Wilson's Phalarope*	r	r	u	-
Red-necked Phalarope	x	-	r	-

<b>Common Name</b>	<b>S</b>	<b>s</b>	<b>F</b>	<b>W</b>
Red Phalarope	-	-	x	x
Franklin's Gull	x	x	r	-
Bonaparte's Gull	f	x	c	f
Ring-billed Gull*	c	c	c	f
Herring Gull*	c	c	c	f
Iceland Gull	x	x	-	-
Glaucous Gull	x	-	-	x
Great Black-backed Gull	f	u	c	f
Caspian Tern	f	u	c	-
Common Tern*	f	f	c	x
Forster's Tern	f	u	c	-
Black Tern*	u	r	u	-
Rock Dove*	f	f	f	u
Mourning Dove*	c	c	c	c
Black-billed Cuckoo*	u	u	u	-
Yellow-billed Cuckoo*	f	c	c	-
Barn Owl*	x	x	-	-
Eastern Screech Owl*	u	r	u	u
Great Horned Owl*	c	f	f	c
Snowy Owl	x	-	x	x
Long-eared Owl	u	-	-	x
Short-eared Owl	r	-	-	r
Northern Saw-whet Owl	u	-	x	x
Common Nighthawk*	u	-	u	-
Whip-poor-will	u	-	x	-
Chimney Swift*	f	u	f	-
Ruby-throated Hummingbird*	u	u	f	-
Belted Kingfisher*	f	u	f	r
Red-headed Woodpecker*	f	u	f	u
Red-bellied Woodpecker*	u	x	r	f
Yellow-bellied Sapsucker	f	-	c	x
Downy Woodpecker*	c	f	c	c
Hairy Woodpecker*	u	x	u	u
Northern Flicker*	c	c	c	u
Olive-sided Flycatcher	u	x	u	-
Eastern Wood-Pewee*	c	c	c	-
Yellow-bellied Flycatcher	u	u	u	-
Acadian Flycatcher*	u	r	x	-
Willow Flycatcher*	f	c	u	-
Least Flycatcher	c	u	f	-

<b>Common Name</b>	<b>S</b>	<b>s</b>	<b>F</b>	<b>W</b>
Eastern Phoebe*	c	r	f	-
Great Crested Flycatcher*	c	f	u	-
Eastern Kingbird*	c	c	c	-
Horned Lark*	c	f	u	f
Purple Martin*	c	c	c	-
Tree Swallow*	c	c	c	x
Northern Rough-winged Swallow*	f	u	u	-
Bank Swallow*	f	u	f	-
Cliff Swallow*	u	x	u	-
Barn Swallow*	c	c	c	-
Blue Jay*	c	c	c	c
American Crow*	f	r	u	u
Black-capped Chickadee*	u	x	r	r
Tufted Titmouse*	f	u	u	f
Red-breasted Nuthatch	u	-	u	x
White-breasted Nuthatch*	u	u	f	f
Brown Creeper	f	-	c	f
Carolina Wren*	x	x	x	x
House Wren*	c	c	c	-
Winter Wren	f	-	c	u
Sedge Wren*	x	x	x	-
Marsh Wren*	f	f	f	r
Golden-crowned Kinglet	c	-	c	u
Ruby-crowned Kinglet	c	-	c	x
Blue-gray Gnatcatcher	c	u	x	-
Eastern Bluebird*	u	x	x	-
Veery	f	x	u	-
Gray-cheeked Thrush	f	x	f	-
Swainson's Thrush	c	r	c	-
Hermit Thrush	f	-	f	x
Wood Thrush*	c	c	x	-
American Robin*	c	c	c	f
Gray Catbird*	c	c	c	x
Northern Mockingbird*	r	x	r	u
Brown Thrasher*	c	f	f	x
American Pipet	f	-	u	x
Cedar Waxwing*	f	f	f	r

<b>Common Name</b>	<b>S</b>	<b>s</b>	<b>F</b>	<b>W</b>
Northern Shrike	x	-	x	r
Loggerhead Shrike	r	-	x	x
European Starling*	c	c	c	c
White-eyed Vireo*	f	x	x	-
Solitary Vireo	f	x	u	-
Yellow-throated Vireo*	f	-	x	-
Warbling Vireo*	c	c	c	-
Philadelphia Vireo	f	x	f	-
Red-eyed Vireo*	c	c	c	-
Blue-winged Warbler	f	-	x	-
Golden-winged Warbler	u	-	x	-
Tennessee Warbler	c	x	f	-
Orange-crowned Warbler	u	-	x	x
Nashville Warbler	c	-	f	-
Northern Parula	u	-	x	-
Yellow Warbler*	c	c	c	-
Chestnut-sided Warbler	f	x	u	-
Magnolia Warbler	c	x	f	-
Cape May Warbler	c	-	c	-
Black-throated Blue Warbler	c	x	u	-
Yellow-rumped Warbler	c	x	c	x
Black-throated Green Warbler	c	x	f	-
Blackburnian Warbler	f	x	u	-
Yellow-throated Warbler	x	-	-	-
Pine Warbler	x	-	x	-
Kirtland's Warbler	x	-	-	-
Prairie Warbler	x	-	x	-
Palm Warbler	c	-	f	-
Bay-breasted Warbler	c	x	f	-
Blackpoll Warbler	c	r	f	-
Cerulean Warbler	u	-	-	-
Black-and-white Warbler*	c	x	f	-
American Redstart*	c	f	f	-
Prothonotary Warbler*	f	f	u	-
Worm-eating Warbler	x	-	-	-
Ovenbird*	f	x	u	-
Northern Waterthrush	f	x	u	x
Louisiana Waterthrush	x	-	x	-
Kentucky Warbler	x	x	x	-
Connecticut Warbler	u	x	x	-
Mourning Warbler	f	r	x	-
Common Yellowthroat*	c	c	f	r
Hooded Warbler*	r	-	x	-
Wilson's Warbler	c	r	f	-
Canada Warbler	c	r	f	-
Yellow-breasted Chat*	u	r	-	-
Summer Tanager	x	-	-	-

<b>Common Name</b>	<b>S</b>	<b>s</b>	<b>F</b>	<b>W</b>
Scarlet Tanager*	c	r	u	-
Northern Cardinal*	c	c	c	c
Rose-breasted Grosbeak*	c	u	u	-
Indigo Bunting*	c	c	c	-
Dickcissel*	x	x	f	-
Eastern Towhee*	c	u	u	r
American Tree Sparrow	c	-	c	c
Chipping Sparrow*	f	r	u	-
Field Sparrow*	c	c	c	x
Vesper Sparrow*	f	u	r	-
Savannah Sparrow*	f	f	u	x
Grasshopper Sparrow*	r	u	x	-
Henslow's Sparrow	x	-	x	-
Sharp-tailed Sparrow	x	-	x	-
Fox Sparrow	c	-	c	-
Song Sparrow*	c	c	c	c
Lincoln's Sparrow	f	x	f	-
Swamp Sparrow*	c	u	f	c
White-throated Sparrow	c	-	c	u
White-crowned Sparrow	c	x	f	f
Dark-eyed Junco	c	-	c	f
Lapland Longspur	x	-	x	r
Smith's Longspur	x	-	-	-
Snow Bunting	u	-	f	f
Bobolink*	f	f	f	-
Red-winged Blackbird*	c	c	c	c
Eastern Meadowlark*	f	f	f	u
Western Meadowlark	r	x	-	-
Yellow-headed Blackbird*	u	x	x	x
Rusty Blackbird	f	x	f	u
Brewer's Blackbird	x	-	x	x
Common Grackle*	c	c	c	u
Brown-headed Cowbird*	f	c	f	u
Orchard Oriole*	f	f	u	-
Northern Oriole*	c	c	f	-
Purple Finch	f	-	r	x
House Finch*	r	x	u	u
Common Redpoll	u	-	x	r
Pine Siskin	u	-	x	r
American Goldfinch*	c	c	c	c
Evening Grosbeak	r	-	x	x
House Sparrow*	c	c	c	c

**Accidentals:**

Red-throated Loon	Gannet	Wood Stork
American Flamingo	Ross Goose	Ruddy Shelduck
Fulvous Whistling Duck	Harlequin Duck	Cinnamon Teal
Eurasian Wigeon		Bohemian Waxwing

Barrow's Goldeneye	King Eder	Yellow Rail
Black Rail	Wilson's Plover	Purple Sandpiper
Black-necked Stilt	Pomarine Jaeger	Long-tailed Jaeger
Great Skua	Little Gull	Lesser Black-backed Gull
Black-legged Kittiwake	Least Tern	Groove-billed Ani
Barred Owl	Western Kingbird	Harris' Sparrow
Black-billed Magpie	Boreal Chickadee	Bewick's Wren
Townsend's Solitaire	Muscovy	Townsend's Warbler
Black-headed Grosbeak	Blue Grosbeak	Pine Grosbeak
Hoary Redpoll	Red Crossbill	White-winged Crossbill
Oregon Junco	Lark Sparrow	Bachman's Sparrow
Clay-colored Sparrow	Black-chinned Sparrow	
Smith's Longspur	Common Black-headed Gull	
Spotted Towhee		

## Large Mammals

River otter	<i>Lutra canadensis</i>
white-tailed deer	<i>Odocoileus virginianus</i>
coyote	<i>Canis latrans</i>
red fox	<i>Vulpes vulpes</i>
gray fox	<i>Urocyon cinereoargenteus</i>
feral dog	<i>Canis familiaris</i>
feral cat	<i>Felis catus</i>
raccoon	<i>Procyon lotor</i>
opossum	<i>Didelphis virginiana</i>
striped skunk	<i>Mephitis mephitis</i>
wood chuck	<i>Marmota monax</i>

## Medium Mammals

eastern cottontail rabbit	<i>Sylvilagus floridanus</i>
muskrat	<i>Ondatra zibethicus</i>
mink	<i>Mustela vison</i>
long-tailed weasel	<i>Mustela frenata</i>
fox squirrel	<i>Sciurus niger</i>
gray squirrel	<i>Sciurus carolinensis</i>
13-lined ground squirrel	<i>Spermophilus tridecemlineatus</i>
red squirrel	<i>Tamiasciurus hudsonicus</i>
southern flying squirrel	<i>Glaucomys volans</i>
chipmunk	<i>Tamias striatus</i>
Norway rat	<i>Rattus norvegicus</i>

## Small Mammals

masked shrew	<i>Sorex cinereus</i>
least shrew	<i>Cryptotis parva</i>
short-tailed shrew	<i>Blarina brevicauda</i>
eastern mole	<i>Scalopus aquaticus</i>
hairy-tailed mole	<i>Parascalops breweri</i>
star nosed mole	<i>Condylura cristata</i>
meadow vole	<i>Microtus pennsylvanicus</i>
white-footed mouse	<i>Peromyscus leucopus</i>
prairie deer mouse	<i>Peromyscus maniculatus bairdii</i>
meadow jumping mouse	<i>Zapus hudsonius</i>
southern bog lemming	<i>Synaptomys cooperi</i>
house mouse	<i>Mus musculus</i>
least weasel	<i>Mustela nivalis</i>

## Reptiles

### Definitions:

**a** - abundant (very common, likely to be seen anytime from spring through fall).

**c** - common (likely to be seen under favorable habitat/weather conditions)

**u** - uncommon (occasionally seen, often restricted in habitat or density)

**r** - rare (very restricted) in range and numbers, unlikely to be seen)

**p** - probable (probably occurs in the area, though not yet recorded)

**h** - hypothetical (unlikely to be found in the area)

### Cedar Point National Wildlife Refuge

Blanding's turtle	c
Midland painted turtle	a
Snapping turtle	c
Northern watersnake	a
Kirtland's watersnake	r
Queen snake	u
Eastern garter snake	
normal phase	a
melanistic phase	c
Butler's garter snake	u
Brown snake	u
Fox snake	c
Bullfrog	c
Northern leopard frog	a
Map turtle	h
Five-lined skink	r
Mole salamanders	p
Green frog	u
Fowler's toad	p
American toad	p

### Ottawa National Wildlife Refuge

Blanding's turtle	c
Midland painted turtle	a
Northern watersnake	a
Queen snake	u
Eastern garter snake	
normal phase	a
melanistic phase	c
Butler's garter snake	u
Fox snake	c
Bullfrog	c
Northern leopard frog	a
Snapping turtle	c
Brown snake	u
Blue racer	h
Five-lined skink	r
Mole salamanders	p

Green frog	c
Fowler's toad	p
American toad	p

**Navarre Marsh**

Blanding's turtle	c
Midland painted turtle	a
Five-lined skink	c
Northern watersnake	a
Eastern garter snake	
normal phase	a
melanistic phase	c
Brown snake	u
Fox snake	c
Bullfrog	c
Green frog	c
Northern leopard frog	a
Snapping turtle	c
Queen snake	p
Butler's garter snake	p
Fowler's toad	r
American toad	u

**Darby Marsh**

Blanding's turtle	c
Midland painted turtle	a
Northern watersnake	c
Eastern garter snake	
normal phase	a
melanistic phase	c
Fox snake	c
Bullfrog	c
Northern leopard frog	a
Snapping turtle	c
Five-lined skink	h
Queen snake	p
Butler's garter snake	p
Brown snake	p
Green frog	c
Fowler's toad	p
American toad	p



# **Appendix F**

## **Compliance Requirements**



# Appendix F

## Compliance Requirements

*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:* 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 the 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) as amended by the National Wildlife Refuge System Improvement Act (1997)* 16 U.S.C. 668dd668ee. (Refuge Administration Act): 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. This Act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

*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 (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*. E.O. 11990 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.

*Executive Order 12372 (Intergovernmental Review of Federal Programs)*: Directs the Service to send copies of the Environmental Assessment to State Planning Agencies for review.

*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.

*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.

*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 (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 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 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):* Considered the “Organic Act of the National Wildlife Refuge System. Defines the mission of the System, designates priority wildlife-dependent public uses, and calls for comprehensive refuge planning.

*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.

*National Trails System Act:* Assigns responsibility to the Secretary of Interior and thus the Service to protect the historic and recreational values of congressionally designated National Historic Trail sites.



**Appendix G**  
**Summary of Public Involvement,**  
**Comments and Consultant Coordination**



# Appendix G

## Summary of Public Involvement/ Comments and Consultant/Coordination

### Focus Group Results

### Ottawa National Wildlife Refuge Complex

August 26 and 27, 1997

John Schomaker  
Division of Realty – Ascertainment and Planning  
September 19, 1997

### Summary

The Service is preparing a Comprehensive Management Plan (CMP) for Ottawa National Wildlife Refuge Complex. The CMP will provide other agencies and the public with a clear understanding of the desired conditions for the Ottawa NWR and how the Service will implement management strategies. Public input into this planning process is encouraged and desired. As a first step in getting public input, focus groups were held at the refuge on August 26 and 27, 1997.

Refuge personnel identified people who had expressed interest or participated in refuge activities in the past. From this sample, 17 people were invited to attend the discussions. Eight persons attended the first group, seven the second group. State and local agencies and organizations were represented, as well as private citizens.

To aid the planning effort, we sought to learn how the people viewed the refuge, what they saw as positive and negative about the refuge, how they saw the refuge fitting into the community, and what they thought the most important thing the refuge could do in the next 15 years.

The focus group participants recognize the biological importance of the refuge and its importance to wildlife, especially migrating species. They also see the refuge as having important social and economic values. In their view, the refuge is a great resource that provides opportunities for education and recreation and thus draws tourists to the area. They also see the refuge as reminding people of their connection to the natural environment.

The focus group participants see the refuge as not known or understood by the public. There was a general feeling that the refuge is underutilized by the public. They felt the refuge was limited by its funding, number of staff, and its acreage. Participants perceive that some in the community have negative feelings toward the refuge because some of the land was acquired through eminent domain.

The participants see increased support for the refuge through an educated public and partnership. The refuge will be challenged by development in the area and government downsizing.

The participants see the refuge as playing a role in the economic well being of the community through tourism, providing greenspace, and public education, among other issues.

The main theme for future activities of the refuge was to expand public outreach opportunities while expanding and maintaining its habitat programs.

## **Background**

### Problem Statement

What are the issues and concerns related to the Ottawa National Wildlife Refuge Complex? Within a strategic planning framework, what are the strengths, weaknesses, opportunities, and threats related to the refuge.

### Methods

Refuge personnel identified people to invite to the focus groups. Persons were invited who had expressed interest or participated in refuge activities in the past. Potential participants were contacted first by the refuge manager by telephone to establish their interest and availability. A follow-up written invitation was sent from the Division of Realty in the Regional Office.

The focus groups were held at the conference table at the headquarters of the Ottawa NWR. John Schomaker moderated the groups, Larry Martin was present as an observer, and Rebecca Lewis recorded main ideas on a flip chart during the discussion. Audio recordings were made of the sessions.

The sessions began at 6:30 p.m. and lasted approximately 1½ hours. Snacks and beverages were provided.

### Participants

Participants in the August 26 group included:

- Two managers from the Ohio Division of Wildlife
- A professor from School of Natural Resources, Ohio State University
- Ottawa County Administrator (and owner of a neighboring marsh)
- Manager of neighboring private marsh
- Representative from Ottawa Soil and Water District (and Pheasants Forever)
- Representative from Ohio Audubon Council
- An environmental education teacher

Participants in the August 27 group included:

- Representative from the Black Swamp Bird Observatory

Representative from the Ottawa County Visitors Bureau  
Representative from Ducks Unlimited  
Representative from the Toledo Naturalist Association  
Representative from Lucas Soil and Water Conservation District  
Outdoor News Editor from the Toledo Blade  
Private landowner and marsh manager living near proposed expansion area

#### Key Questions

The questions that guided the discussion were:

What do you see positive about the refuge?

On the other side, what do you see negative about the refuge?

In your view, how does the public perceive the refuge?

What changes do you see coming from outside influences that will help the refuge?

What changes do you see coming from outside influences that will challenge the refuge?

How do you see the refuge fitting into the community?

What is the most important thing the refuge can do in the next 15 years?

#### Results

*What do you see positive about the refuge?*

#### **August 26**

The participants pointed out that the refuge provides opportunities for education and recreation, preserves wildlife habitat, has economic and quality-of-life benefits for the community, and has a quality staff that provides good service and maintains the dike infra-structure.

A dominant theme throughout the first focus group was the value of the refuge in education. The refuge is seen as contributing to the education of school children, the general public, portions of the public with special interests such as waterfowl hunters and birdwatchers, and students who will go on to have professional roles in natural resource management. Specifically mentioned as valuable and something that should be continued were the Fifth Grade Conservation Tours that are conducted annually on the refuge with the local soil and water conservation district.

Recreation opportunities that were mentioned included waterfowl hunting, youth hunts, and bird watching. The opportunities were seen as community benefits of eco-tourism, as well as aesthetic and inspirational benefits for the individual. The state wildlife participants stressed the important economics contributions of waterfowl hunters.

The refuge is seen as important in preserving wetlands with subsequent benefits of preserving bio-diversity, sources of environmental indicators, and as a place to conduct biological research.

Ottawa County cites the refuge as an important asset in its applications for funding.

“From a teacher’s point of view this is a tremendous resource for education.”

“People come from hundreds, even thousands of miles to visit this area during the migrations to see birds. There is an economic value to it, also in terms of tourism. Ecotourism, I think, would be a good name for it. People just coming to see the birds”

“Lack of habitat is probably one of the key issues in northwestern Ohio. The presence of Ottawa National being a part of the marsh complex and Lake Erie makes it an invaluable natural resource.”

“The sportsmen of Ohio have spent millions of dollars to support this refuge for the migrations and the waterfowl that it supports.”

“I welcome the opportunity to be in a pristine marsh environment and harvest waterfowl in the fall.”

“The hunts that are allowed here now are really a good thing. ... One of the greatest things they have done here is special hunts for youth—the kids’ hunts.”

“A major portion of the Great Lakes flyway between here and Canada. If we close that off, we’ve lost a tremendous biological resource. And, the implications of that we can not hardly begin to imagine. We don’t know what preserving that gene pool really means until we start losing all these different kinds of species.”

“There should be some kind of system of assistance for private marshes—some kind of tax incentive program.”

### **August 27**

Participants see the refuge as having a high value and unique because it is the only NWR in Ohio, it is the last, large piece of Lake Erie marsh wetland remaining, and preserves habitat that is important for migratory birds. In addition, West Sister Island is the only designated wilderness in Ohio, and it contains the largest heronry in the Great Lakes.

The refuge’s role in providing a resting area for migratory waterfowl was emphasized.

Participants recognize and value the recreation opportunities that the refuge provides. These opportunities include birding, hunting, photography, and hiking.

The participants pointed out the value of the refuge as a reminder of the natural and cultural heritage of the area—the Black Swamp. The refuge is a reminder of what was once there.

The refuge is seen as having an economic value to the community through the birders and hunters that are attracted to the area. The study authored by Kerlinger was cited as a conservative estimate of the economic impact.

The biological value of the refuge is seen to include the protection of endangered animals and, presumably, unknown plants as well as improving water quality.

The participants see the refuge as a resource for wetlands research and as an outdoor laboratory for wetlands and fish research.

“It’s been since the beginning of time a spot where the migratory birds move into, I think it should be maintained and kept at the best level that it can be for the continued well-being of the migratory fowl that come through here.”

“It serves as a good reminder of what was once here—a natural heritage.”

“Provides a good place for wildlife, wetlands, or fishery research.”

*On the other side, what do you see negative about the refuge?*

### **August 26**

A major theme with wide support from all participants throughout the discussion of the first focus group was that the refuge suffered from not having a visitor center and that one should be provided. This idea arose in many different contexts.

The main themes in the first focus group were that the refuge lacked identification within the community and accessibility to the public. There was a general feeling that the refuge is underutilized by the public.

Points made during the discussion were that the value and assets of the refuge are not communicated to the public. Participants thought that publicity (video, newspapers) and media events should be a bigger part of refuge activities.

Opportunities for the public are seen as limited. There is the perception that the refuge is off-limits, in general, and hunters, in particular, feel that they are given poor quality hunting opportunities and that the refuge is underutilized for hunting. This perception leads to a lack of support from sportsmen.

A desire for more access by vehicles for wildlife viewing was expressed. A contrast between what is available for viewing from a car at Ottawa and the nearby state area was made. A desire for trails that could be used by persons with ambulatory challenges was expressed.

A participant questioned the level of protection of cormorants and great blue herons. His feeling was that the birds were reducing the fish populations too much. As part of the discussion, the need for more research and education about this issue was pointed out.

A participant thought that several negative aspects of the refuge resulted from its being too small and that increased acreage would be a good thing.

There are still negative feelings in the community from when the refuge was established.

A participant asked why private lands work could not be done on CRP lands.

“I think Ottawa is underutilized, especially for the sportsmen. It has the aura about it. People are afraid to set foot here, because of the unknown and the fact that you have to buy a Duck Stamp to walk on the property.”

“One of the reasons I come here is that there are fewer people here.”

“The one thing we really lack here is a visitor center.”

“Next door at Magee you do get a tremendous view just from your vehicle.”

“I think it is important that if we are going to have a hunt here, that it be a quality hunt. Something that we can be proud of.”

“Some of the bird protection programs, they go overboard on them. I can’t see the reason to have protection on cormorant. The lake is full of them, and they are eating fish—the prize fish. There should be studies on these birds.”

“You’ve got a crown jewel here. It is the only such place in the entire State of Ohio. Within 500 miles, you’ve got two-thirds of the population of the United States. So, you have a tremendous opportunity for outreach.”

“They want to see the area. It comes down, I think, really to one of the main things is that visitor center, interpretive center, where you can tell what the area is, the value of it, how it is used, and make more of it accessible..... There are people who might only walk a few hundred feet, but they are out in the open.”

“There has to be a balance between the refuge program and a disturbance there or you lose use by the wildlife.”

## **August 27**

Participants said that the refuge, and the refuge system, lacked identity with the public. Their perception is that the public, even users of the refuge, do not understand the refuge’s mission. A participant thought many in the public were intimidated about coming on to the refuge.

A participant thought the entrance signage could be more welcoming.

Most telling among the participants’ comments was the outdoor news editor commenting on the countless articles that he has written about the refuge and his still meeting many people who are not clear about the refuge.

Participants see the budget and personnel as inadequate. One person mentioned that no staff are available on weekends to greet visitors and weekends are when most people are present.

There was significant disagreement within the group dealing with funding priorities. Some felt strongly that any available money should be used to acquire additional lands whenever possible. Others felt that the current facilities should be brought up to a standard and maintained before additional land is acquired. One participant thought that the way projects were funded was a problem. He perceives that special projects are funded based on decisions at upper levels in the agency and that routine operation and maintenance are ignored in the funding process.

A participant noted that quite a lot of remaining marsh is in private ownership. He sees pressure to change the use of the land and thinks a tax incentive for marsh management and dike maintenance would help preserve habitat and be cheaper than land acquisition by the government. He referred to recommendations in the Lake Erie Marsh Management Plan.

Participants see a lack of respect and visibility as a problem for the refuge.

Participants' impression is that some neighbors view the refuge negatively because of crop damage caused by wildlife that moves from the refuge on to private land to feed.

A participant felt that the refuge has suffered because of frequent changes in the staff, particularly the manager. There has been a lack of consistency.

Participants noted that caution should be used in encouraging more use. Too much use will destroy what is being preserved, in their view.

"The public does not understand the wildlife refuge system. ... It's a problem that really needs to be tackled. I don't know how to go about it. But, you want to identify problems, that's one I see."

"A lot of people get confused over the identity of the place."

"There are misconceptions of what is available here. ... It is intimidating. They are not quite sure that it is open to the public. They're not quite sure that they are welcomed here."

"The message can be gotten out through partnerships. It takes awhile, but it is beginning to work."

"The working hours (of the staff) don't match the use hours."

"There are units that I never get to visit—ever."

"There is a lot, still, considerable bad feelings, because, you know, some people were run off this property. They didn't go voluntarily."

"The refuge holds the birds. The migratory birds, especially geese, leave the property in the spring, in the fall, into the wheat fields and , especially in the spring, do considerable damage. How is that perceived? Especially, when there are geese everywhere and this is the only place where you can kill just one."

“There has been a rapid turnover in staff, particularly the refuge manager, which has caused some inconsistency. About the time the refuge manager learns the area, off they go.”

*In your view, how does the public perceive the refuge?*

### **August 26**

The participants felt that a very small percentage of the nearby public (perhaps 10-20%) were aware of the refuge and what it does. The feeling was that many see the refuge as inaccessible and off-limits.

### **August 27**

The participants felt that a very small percentage of the public understands the refuge. There is a memory among the public about past condemnation. There are also negative views because of wildlife damage to crops. The perception is that among some of the public that they are not welcome on the refuge.

“So many different user groups with special interests, to balance the interest of the special groups with the mission of the refuge. That’s the challenge.”

“It’s your very own fish people, your waterfowl people, everybody else. No one has any care of continuity. Everybody wants their thing and to hell with everybody else. And, until you straighten up your own house (within the Service), don’t expect to get someone else’s house straightened up. There should be continuity. ... Put the dollars to the refuge first and then special projects get the money later.”

*What changes do you see coming from outside influences that will help the refuge?*

### **August 26**

Participants saw increased support for the refuge from children as they move through environmental education in school, from zoos, and from the local media. Participants thought more support would come from sportsmen if they knew how the refuge benefitted them.

Participants felt that the refuge would be valued more as surrounding lands are developed.

The refuge will continue to garner support from Audubon and other birdwatching organizations.

### **August 27**

Among participants the theme was partnerships and working together as the way to accomplish things. Projects under the North American Waterfowl Management Plan and the Lake Erie Wing Watch Program were cited as a successes.

Participants identified existing and potential partners as local businesses, non-governmental organizations, the public through volunteering, and state-federal cooperation.

Partnerships were mentioned as a partial answer to solving the problem of identity and encouraging use.

*What changes do you see coming from outside influences that will challenge the refuge?*

### **August 26**

Participants listed the following challenges: development of lands in the area, groups that oppose hunting and fishing, and government downsizing resulting in limited funds and personnel. An additional challenge will arise if the refuge attempts to expand its acreage. There are strong feelings about protecting good farmland, and any attempt to expand acreage that is perceived as taking good farmland will be opposed by political leaders.

“I am not opposed to more refuge area. But, you have to make sure that you deal with the issue of farmland and not taking away good farmland.”

### **August 27**

Participants saw the refuge challenged by a lack of funds. They also saw potential challenges from too many people competing for the refuge (many special interests) and from people who don't care about the refuge and its mission.

An increase in deer and goose populations were mentioned as a challenge that the refuge would need to address.

A participant thought that there was a lack of consistency in the approach to management from within the Service—fisheries and wildlife are not coordinated. There is also a lack of continuity of management. The participant perceives a lack of a clear, consistent mission for the refuge.

Participants see the development of neighboring lands and subsequent fragmentation a challenge to the refuge.

A participant sees the refuge challenged by the additional need of restoring lands over more passive preservation.

Neighbors to refuge will continue to offer challenges to the refuge over issues of drainage and ditch maintenance and use.

“I see it as a great beneficial greenspace which I would hope would be here forever.”

“The refuge serves as a reminder of nature and our roots in it. We need that so badly. We are losing touch as a culture with our roots. The more remote we get from that, the tougher it is to sell the idea that we are on a planet and that we are a part of it.”

“Access and good management will do a tremendous amount. If the local people know the area is managed well and the people who come out here to see the place, the word of mouth will travel faster than advertisements, because the person who’s telling it is telling it with feeling.”

*How do you see the refuge fitting into the community?*

### **August 26**

Participants wanted the refuge to be more open and accessible to the public and have a feeling of user friendliness. The refuge has a role in the economics and tourism of the area. And, the refuge has a role in public outreach and education.

As part of this discussion, one participant mentioned that sportsmen have expressed interest in a museum that would relate to Lake Erie marshes. Participants pointed out that the refuge needs to be sensitive to feelings in the community about the conversion of farmland. Participants also recognized that more publicity and public outreach (generally perceived as a good thing) could bring too much use and undesirable effects.

“To fit in you have to have accessibility—whether it is to the area, to its staff, knowledge of the programs that are going on. I think there is sort of question mark, at least with a lot of the local people, just what does go on at the refuge. Is it just one big block of wetlands that is closed to the public and don’t come near it. ... You have to be a little more user friendly.”

### **August 27**

Participants see the refuge as providing a great, beneficial greenspace, economic benefits through eco-tourism, and relieving recreational pressure from public lands. They also see the refuge as serving as a reminder of our roots in nature where people can learn proper outdoor ethics and lead to community appreciation.

There was a feeling that proper access and good management will lead to increased support for the refuge.

“I see it as a great beneficial greenspace which I would hope would be here forever.”

“The refuge serves as a reminder of nature and our roots in it. We need that so badly. We are losing touch as a culture with our roots. The more remote we get from that, the tougher it is to sell the idea that we are on a planet and that we are a part of it.”

“Access and good management will do a tremendous amount. If the local people know the area is managed well and the people who come out here to see the place, the word of mouth will travel faster than advertisements, because the person who’s telling it is telling it with feeling.”

*What is the most important thing the refuge can do in the next 15 years?*

### **August 26**

The main themes for the future activities of the refuge were to expand public outreach and opportunities while maintaining the habitat programs and environmental integrity of the refuge.

Specifically, the following points were made: provide a visitor center that would include classroom space, work with the local visitors bureau, make people aware of what the refuge is, expand and improve waterfowl hunting, increase wetland protection, and maintain and improve biodiversity.

Participants recognized a challenge and need to work for increased funding and staffing.

“Increase in size or increase in wetland protection, however you do it through easements, leases, or outright purchase and increase in utilization (hunting). The eco-tourism will take care of itself.”

“A visitor center would be the most helpful. But, keep it a refuge. Don’t open it up like a zoo.”

“Make people aware of what’s here.”

### **August 27**

Participants thought the refuge should acquire land, establish partnerships, expand staff and operation and maintenance funds concurrent with land acquisition, seek continuity and consistency within the organization, restore lands.

One participant stated his fantasy of an area twice as large as now exists with first class interpretive facilities, a 15 mile auto tour route, and more access to the refuge by people who appreciate nature.

“This is such a unique, wonderful area. It is a shame not to give it a top-drawer kind of treatment. It’s fabulous. It’s a great area.”



# **Appendix H**

## **List of Preparers**



# Appendix H

## List of Preparers

The following individuals contributed their time, ideas or written comments toward the preparation of the EA/CCP.

### **List of Preparers:**

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**Focus Group Participants:**

The focus group discussion held on August 26-27, 1997, included representatives of the following organizations:

- Black Swamp Bird Observatory
- Ottawa County Visitors Bureau
- Ducks Unlimited
- Toledo Public Schools
- Ohio State University
- Toledo Naturalist Association
- Lucas County Soil and Water Conservation District
- The Toledo Blade
- Ohio Division of Wildlife
- A private landowner and marsh manager