



Proposed Hackmatack *National Wildlife Refuge*

Executive Summary

Environmental Assessment, Land Protection Plan, and Conceptual Management Plan

July 2012



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The Refuge is Approved!

The U.S. Fish and Wildlife Service (FWS, Service) has decided to establish a new refuge in southeastern Wisconsin and northeastern Illinois. On July 10, 2012, the Service's Director provided written authorization to proceed with the project. The 11,200 acre Hackmatack National Wildlife Refuge (NWR, Refuge) would be established through transfer, conservation easements, fee-title acquisition, donation, and cooperative agreements.

The first parcel of land acquired will officially establish the Refuge.

The Environmental Assessment (EA) presents four alternatives designed to benefit specific wildlife and plant habitats within the original study area. The boundaries were formulated based on the watersheds, existing conservation areas, habitat requirements of desired wildlife species, public roads, and comments received from the public. The preferred alternative identified by the planning team would link and expand upon existing conservation areas to benefit migratory birds, endangered species, and provide for wildlife-dependent recreation. Land conservation methods for core areas, up to 11,200 acres in total, would include fee purchase from willing sellers, conservation easements, and private initiatives aimed at creating contiguous natural habitat.

The EA is available on this website: <http://www.fws.gov/midwest/planning/Hackmatack/index.html>

Public Response to the Environmental Assessment

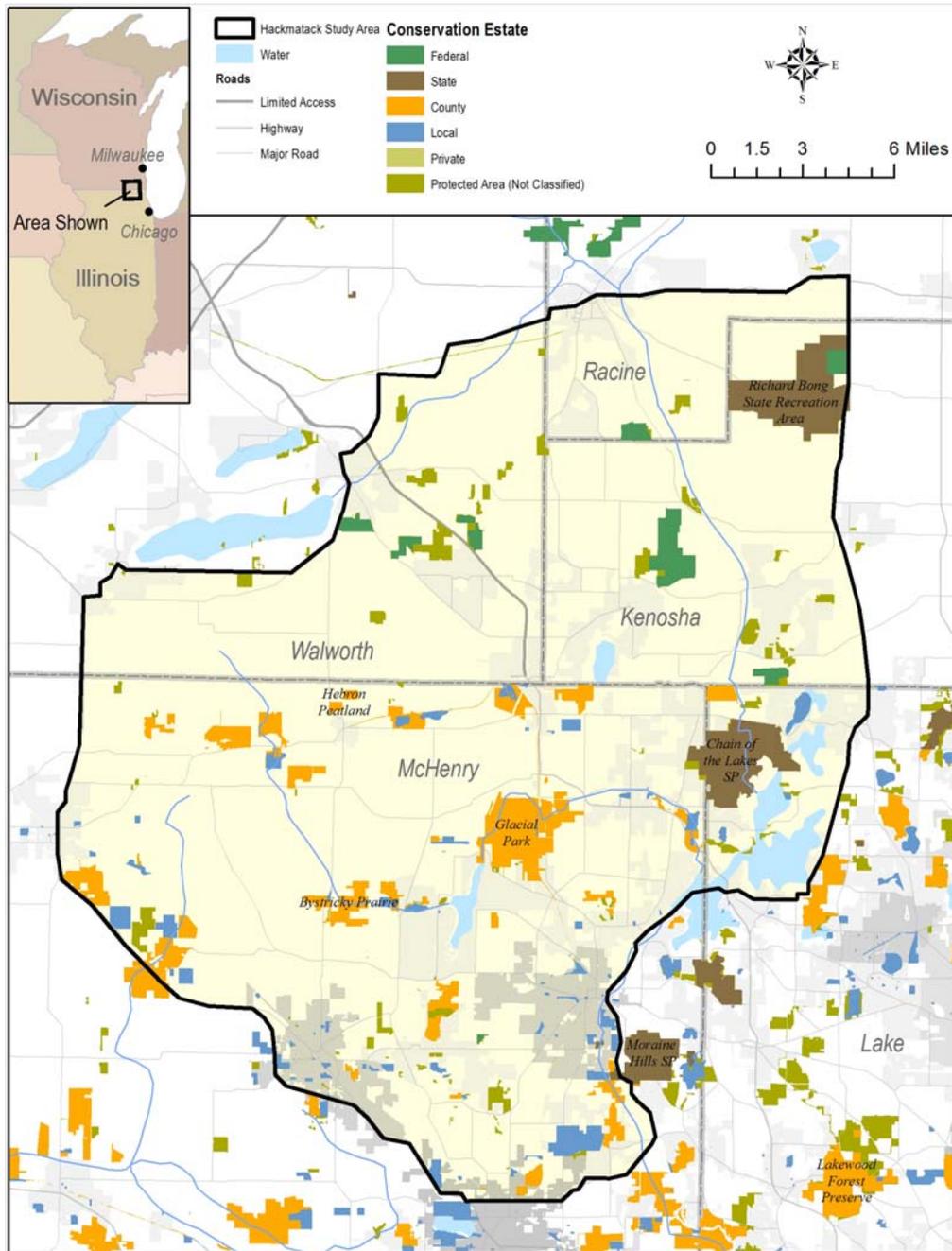
The EA was released for public review in March 2012. During the comment period the Refuge hosted two open house events to obtain comments. Over 400 people attended one or both of these events. By the conclusion of the comment period we received over three thousand written responses by organizations and individuals. Approximately 2,500 of these responses were from an Internet write-in campaign by a non-government organization (NGO). Nearly all respondents endorsed a decision to establish the Refuge.

The Environmental Assessment

The full EA provides the public and agency decision makers with an analysis of the range of options to restore, enhance, and protect wetlands and upland habitats within a new refuge in McHenry County, Illinois and Walworth County, Wisconsin (Figure 1). The EA also publicly discloses the direct, indirect, and cumulative effects of each strategy on the quality of the human environment, as required by the National Environmental Policy Act (NEPA) of 1969. The Conceptual Management Plan found in the appendix of the EA presents a blueprint for management practices and public recreational opportunities on the proposed Hackmatack NWR.

Alternative C, Cores and Corridors, is the Service's action alternative.

Figure 1: Location of Study Area



Need for Action

Several grassland bird species are declining throughout their range. The Service is the primary federal agency responsible for conserving these species. Recent research has shown that large blocks of grasslands such as those proposed in this Refuge project may be key to reversing the downward trend. The Refuge could eventually restore and connect a landscape that includes large blocks of grasslands, wet prairies, and natural stream watercourses.

The Service seeks to provide Refuge visitors with an understanding and appreciation of fish and wildlife resources through environmental education and interpretation and through wildlife-oriented recreational experiences to the extent these activities are compatible with the purposes for which a refuge is established. The official Service land acquisition policy for urban Refuges is to acquire lands and waters in or adjacent to metropolitan statistical areas to protect fish and wildlife resources and habitats that will provide the public wildlife-oriented recreation, education, and interpretation opportunities. The primary purpose for establishment of new urban refuges will be to foster environmental awareness and outreach programs and to develop an informed and involved citizenry that will support fish and wildlife conservation.

In addition, the Refuge would contribute to a long-standing vision held by conservation organizations across the Greater Chicago metropolitan area. These partners have worked to identify key lands for conservation, open space, and greenways aimed at providing a way to connect urban and suburban residents with nature. The establishment of a Refuge would provide an anchor for this broad-based conservation and environmental education initiative.

Conserving Wildlife and Serving People: The U.S. Fish and Wildlife Service

National wildlife refuges are administered by the Service. The Service is the primary federal agency responsible for conserving, protecting, and enhancing the nation's fish and wildlife populations and their habitats. It oversees the enforcement of federal wildlife laws, management and protection of migratory bird populations, restoration of nationally significant fisheries, administration of the Endangered Species Act, and the restoration of wildlife habitat.

Refuge lands are part of the National Wildlife Refuge System (NWRS, Refuge System), which was founded in 1903 when President Theodore Roosevelt designated Pelican Island in Florida as a sanctuary for Brown Pelicans. Today, the system is a network of 555 refuges and wetland management districts covering over 150 million acres of public lands and waters. Over half of these lands and waters (51 percent) are in Alaska, with approximately 16 million acres located in the lower 48 states and several island territories, and the balance in submerged areas of the Pacific Ocean.

The Refuge System is the world's largest collection of lands specifically managed for fish and wildlife. Overall, it provides habitat for more than 5,000 species of birds, mammals, fish, amphibians, reptiles, and insects. As a result of international treaties for migratory bird conservation and other legislation, such as the Migratory Bird Conservation Act of 1929, many refuges have been established to protect migratory waterfowl and their migratory flyways.

Public Involvement

Involvement by local government officials, organizations, landowners, and other interested citizens is integral to planning for any new refuge. Proposals that involve land acquisition by a government agency can be controversial. Open communication with all parties is essential throughout the planning process. Starting in September 2010, the Service had provided and sought information through news releases, media interviews, open house events, a project website, letters to specific organizations, and one-on-one discussions. A website (<http://www.fws.gov/midwest/planning/Hackmatack/index.html>) has been developed to share information with the public in a timely manner.

Background

A Preliminary Project Proposal for a refuge within the Study Area was developed by Service biologists in January 2010. The purpose of this report was to brief the Director of the Service about the resource conservation opportunities of the area and to obtain permission to conduct a study of the merits of the proposal. The proposal was approved by the Director on April 5, 2010.

An interagency Planning Coordination Team was formed in May 2010 that includes representatives from state, local, and regional governments, as well as the Service. Beginning with a public announcement in September 2010 and extending through August 2011, the Refuge project planning staff have held four public open house events, placed or received hundreds of e-mail messages and phone calls, and have given several radio and newspaper interviews concerning the Refuge proposal.

These open house events drew more than 530 people who provided their reaction to the idea of a refuge and identified issues and opportunities that they felt needed to be addressed during the planning process.

The EA was released for public review March 21, 2012; the comment period lasted 37 days and ended April 27, 2012. During the comment period the Refuge hosted two open house events to obtain comments. The first open house was held on Tuesday, April 3, 2012, from 5:00 p.m. to 8:00 p.m. at the Lost Valley Visitor Center in Glacial Park, Route 31 and Harts Road, Ringwood, Illinois. The second open house was held Wednesday, April 4, 2012 from 5 p.m. to 8 p.m. in Genoa City, Wisconsin at the Brookwood Middle School, 1020 Hunter's Ridge Drive. Over 400 people attended one or both of these events.

By the conclusion of the comment period the planning team received over three thousand written responses by organizations and individuals. Approximately, 2500 of these responses were from an internet write-in campaign by a non-governmental organization. In response to all comments we made a number of minor edits to the final document. A response to comments section has been added to this EA.

Issues, Opportunities, and Concerns

The Service received about 360 letters, comment forms, postcards and e-mail messages from people during the initial scoping process in 2010. Comments were received primarily from local residents, non-profit organizations, and governmental offices.

Issues and concerns identified during scoping helped the Service identify and evaluate strategies for the proposed action (Table 1). Individual comments expressed during the open houses or received in writing have included the following themes:

Table 1: Summary of Public Scoping Comments

Category	Topic	Percent of Comments
Habitat/Species	General Concern for the Environment	80%
	Wetland Preservation/Restoration is Needed	
	Grassland Preservation/Restoration is Needed	
	Habitat Fragmentation Exists/Linkages are Needed	
	Conservation of Biodiversity is Desirable	

Category	Topic	Percent of Comments
	Endangered Species Would Benefit	
Recreation/Education		12%
	Increased Recreational Opportunities are Desirable	
	Snowmobile Support	
	Horseback Riding Support	
	Hunting Support	
	Hunting Opposition	
	Environmental Education Support	
Societal Issues		8%
	General Opposition to Government	
	Fear of Increased Government Control	
	Avoid Sand/Gravel Deposits & Consider Restoration	
	Economic/Tourism Boost will Benefit Area	

Summary and Response to Comments on the EA

The EA was released for public review March 21, 2012; the comment period lasted 37 days and ended April 27, 2012. During the comment period the Refuge hosted two open house events to obtain comments. By the conclusion of the comment period we received over three thousand written responses by organizations and individuals. Approximately, 2500 of these responses were from an internet write-in campaign by a non-governmental organization. In response to all comments we made a number of minor edits to the final document.

Nearly all respondents endorsed the selection of Alternative C.

The following is a summary of the comments received on the EA and how the issues are addressed.

Comments Received	How Issues are Addressed
Several thousand individuals and dozens of organizations endorsed the EA as written and recommended establishment of a refuge.	Comments acknowledged. The Service appreciates this endorsement of its proposed plan.
Approximately 30 individuals wrote to express concern that a refuge would result in the closure of existing snowmobile trails.	<p>The issue of snowmobile trails was discussed in the EA and in an e-mail message or letter sent to 60 snowmobile clubs. Motorized vehicles on national wildlife refuges are generally permitted only on designated roads during specified times of the year. Off-road vehicle use, including ATVs and snowmobiles, is generally not permitted due to impacts on vegetation, disturbance to wildlife and other Refuge users, and safety and liability issues. However, the Service's objective is not to eliminate or interrupt existing snowmobile trails.</p> <p>It is possible that at some time in the future a landowner would offer land for sale to the Refuge that contains a portion of an existing snowmobile trail. We do not expect this situation to occur very often. The Service would work with the landowner and snowmobile clubs to either reroute the trail or encourage a third party to obtain a permanent trail easement prior to the federal purchase.</p>

	<p>McHenry County has expressed an interest in working with landowners and the Service to secure trail easements if the situation arises. The Department of Natural Resources in Illinois and Wisconsin, the respective county governments, and local snowmobile clubs may also choose to be involved to secure an existing trail.</p> <p>Please see the EA for a map of known snowmobile trails and more information on this subject.</p>
<p>Several organizations and dozens of individuals asked the Service to consider expanding the Refuge boundaries. Ideas for expansion included connecting corridors to specific conservation lands in Kenosha County, Wisconsin and into Lake County in Illinois. However, the most repeated request was taken from the following letter excerpt:</p> <p>“We recommend the following additions to Concept C:</p> <p>Expand the westernmost core area to include all of the Nippersink Headwaters subwatershed, an area where many conservation-minded private landowners have already banded together to protect the beauty and integrity of the highest glacial landscape in McHenry County.</p> <p>Add the land north of Peterkin Pond which is shown as part of the refuge in Concept B to the preferred option (Concept C) boundaries. This will capture the West Branch of Nippersink Creek in Walworth County. Make use of Nippersink Creek corridors to extend the refuge to build another core area in Wisconsin around the existing Four Seasons Preserve (owned by city of Lake Geneva), Bloomfield Wildlife Refuge and Big Foot Beach State Park (owned by the WI DNR).”</p>	<p>The boundaries of the Core Units and potential connecting corridors in Alternative C were drawn based on soil types, historic natural vegetation, and existing wildlife habitats. The planning team tried to include large blocks of historic prairie soil types in order to enhance the prairie and oak savanna restoration potential. The presence of residential and commercial developments and existing roads also were important in drawing a manageable refuge boundary.</p> <p>The High Point area west of the Preferred Alternative C northwest corner is an area that historically was primarily forest with some smaller areas of mixed forest/prairie and prairie. The area is higher in elevation than the majority of Alternative C areas and is generally well drained to moderately well drained. This reduces the potential areas of wetland or wet prairie found there. Since much of our interest in the Hackmatack area is focused upon grassland birds and wetland associated birds, from a biological standpoint the High Point area does not rank high as judged against our selection criteria. That is not to say that it is not of high biological value.</p> <p>However, with the high level of citizen conservation interest in the area and the presence of McHenry County Conservation District lands, we believe that there is already a good formula in place for conservation gains in that area. It would certainly compliment the Service’s Hackmatack conservation proposal if the High Point area were connected to the proposed Refuge area. However, we feel that it is more consistent with our priorities to not include that area in the preferred alternative and instead support private and county conservation efforts there as opportunities arise.</p> <p>There are several reasons the area north of Peterkin Pond is not included in the proposed Refuge boundaries. The corridor along County H from Genoa City to Lake Geneva is projected to see substantial residential housing development by 2030 in comparison to the majority of the areas identified under Alternative C. This could potentially bisect corridors connecting Big Foot Beach State Park with Four Seasons Preserve or Bloomfield Wildlife Refuge and the main body of the Refuge identified near Peterkin Pond. Extending the authorize boundaries north would also potentially impact a segment of snowmobile trail crossing east-west through Peterkin Pond and adjoining lands.</p> <p>While much of the area falls within historic prairie, other</p>

	<p>areas within Alternative C already ensure good representation of this habitat within the proposed Refuge. The area north of Peterkin pond has much less wet soils compared to other areas of the proposed Refuge, which means less opportunity to restore wet prairie or wetlands, habitats of interest for the project. The Service does not feel the area in question is necessary to achieve the proposed Refuge objectives. However, acknowledging the value of the area and in particular the preservation and enhancement of water quality in the West Branch of the Nippersink Creek that flows through the area, the Service does encourage private, local, and state conservation activity there and may be able to assist in restoration efforts through the Service's Partners for Fish and Wildlife Program.</p> <p>The Service and most of our non-governmental organization partners recognize that Refuge land acquisition will not be the sole tool to achieve conservation success for the Hackmatack project. Everyone concerned with habitat conservation in the area will need to contribute to the goal. Government budget constraints, the presence of willing landowners, and the potential speed of commercial development are all factors in this project. The Service and the proposed Refuge will do its part to aid wildlife, habitat and people in this region.</p>
<p>The Wisconsin Department of Natural Resources requested that we include trapping of furbearing animals as an allowable use on a new refuge.</p>	<p>In general, trapping may be conducted as a wildlife management tool on many national wildlife refuges for furbearers, like muskrat and beavers, which damage infrastructure, and mammalian predators that may negatively impact nesting waterfowl. Trapping is usually conducted by permittees on a sustainable, relatively small scale. Trapping data must indicate that there is no adverse direct effect on the long-term populations of target species or indirect effect on related prey species. As with hunting, trapping is suspended when the populations of target species appear to be low. We will add a paragraph on trapping to the Conceptual Management Plan.</p>
<p>One national organization and several individuals asked us to consider the impact of light pollution on the future Refuge environment.</p>	<p>Comments acknowledged. This will be mentioned in the Conceptual Management Plan and will serve to remind future Refuge managers to consider light pollution and starlight preservation in future Refuge developments and programs.</p>
<p>Several regional organizations endorsed the plan based on the increase in recreational opportunities for local tourism and businesses.</p>	<p>Comments acknowledged. However, it may take many years to build a sufficient land base for some wildlife-dependent recreational activities. Refuge land acquisition will be conducted on a willing seller and available funding basis.</p>
<p>The Forest County Potawatomi Community (FCPC) submitted a letter with substantial information about the ongoing Potawatomi connection to land in the proposed refuge. We identified three major topics in their comments:</p> <p>The desire to "supplement the Draft EA's 'Archeological and Cultural Resources' section...."</p>	<p>We have made edits to the Archeological and Cultural Resources section in the EA to reflect these comments and wrote a response letter to the Potawatomi Community.</p>

<p>The intent to “demonstrate the continuing significance of the lands within the Proposed Refuge to FCPC....”</p> <p>And A “request that FWS consult with FCPC to ensure (1) that future actions related to the Proposed Refuge do not adversely impact culturally sensitive areas or items and (2) that the environmental education and interpretation activity explain the historic Native American stewardship and interdependence on the natural habitat and species within the Proposed Refuge.”</p>	
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Goals of the Proposed Hackmatack NWR

The following goals for the proposed Hackmatack NWR were developed within the framework of the Refuge System’s mission statement, the National Wildlife Refuge System Improvement Act of 1997, the Refuge’s primary purposes, and other Service policy and directives. The goals are intentionally broad statements that describe desired future conditions and would guide the management of the Refuge in the interim period and the development of management objectives and strategies for the Comprehensive Conservation Plan (CCP).

- Protect and enhance habitats for federal trust species and species of management concern, with special emphasis on grassland-dependent migratory birds and protection of wetlands and grasslands.
- Create opportunities for hunting, fishing, wildlife observation and photography, and environmental education and interpretation, while promoting activities that complement the purposes of the Refuge and other protected lands in the region.
- Promote science, education, and research through partnerships to inform land management decisions and encourage continued responsible stewardship of the natural resources of the Hackmatack NWR.

Description of Alternatives

Each of the following four alternatives was designed to benefit specific wildlife and plant habitats within the Study Area. The boundaries were formulated based on the watersheds, existing conservation areas, habitat requirements of desired wildlife species, public roads, and comments received from the public. The recommended protection levels (e.g., fee acquisition, conservation easement, private landowner initiatives, etc.) were based on the Service’s policy to acquire the least interest in land necessary to meet Refuge goals

Alternative A: Current Direction (No Action)

The National Environmental Policy Act of 1969 requires all federal agencies consider a “No Action” alternative. In this case “No Action” means that a refuge would not be established in the Study Area. However, Service involvement in conservation work would continue under existing programs and, in some cases, may increase in future years. The Service would continue to emphasize habitat conservation on private lands through the Partners for Fish and Wildlife Program, Joint Venture projects under the North American Waterfowl Management Plan, the Endangered Species Program, and other federal or partner agency initiatives.

Alternative B: Refuge and Landscape Conservation Area

The Refuge and Landscape Conservation Area alternative would create a large contiguous block of habitat (28,127 acres). The Refuge boundary would seek to connect a series of existing county and state conservation lands to increase block size and promote travel corridors for wildlife (Figures 2 & 3). The larger block sizes would provide sufficient habitat for nesting grassland birds and waterfowl that are sensitive to fragmented habitat and edges. Fee and conservation easement acquisition from willing sellers would be the preferred method of conservation.

Figure 2: Alternative B – Refuge and Landscape Conservation Area (Source: USFWS, Midwest Region)

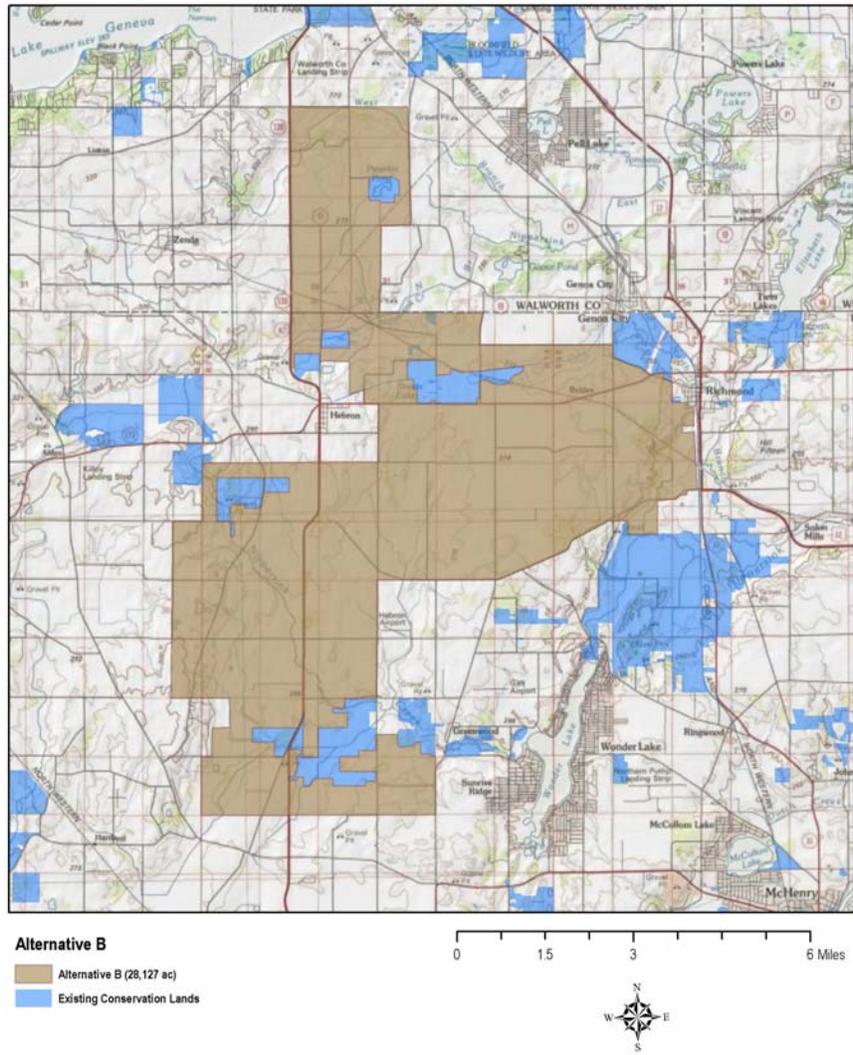
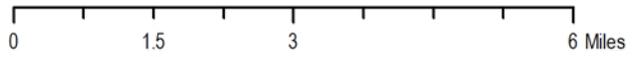
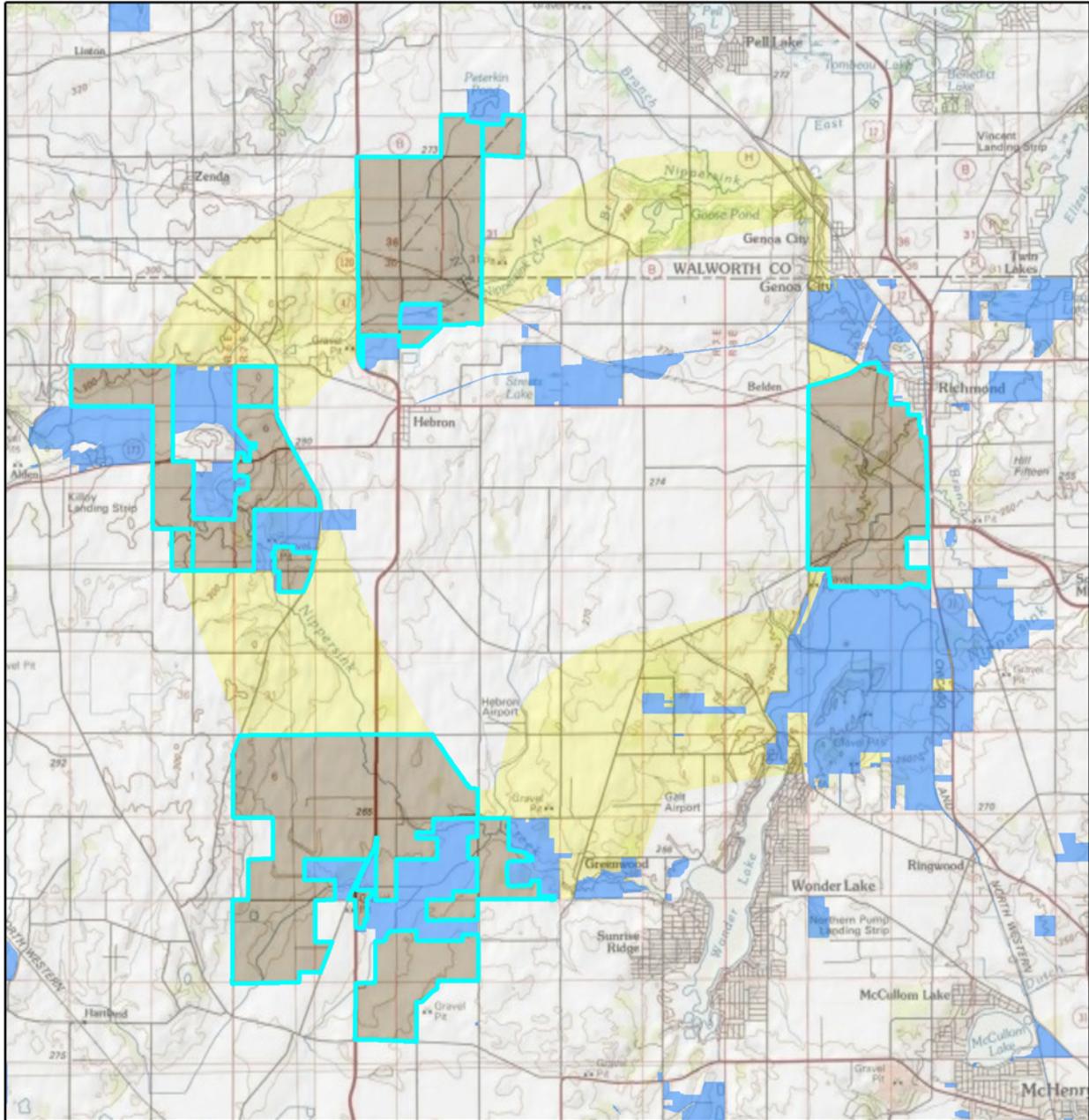


Figure 3: Alternative C – The Approved Refuge, Cores and Corridors (Source: USFWS, Midwest Region)



Alternative C

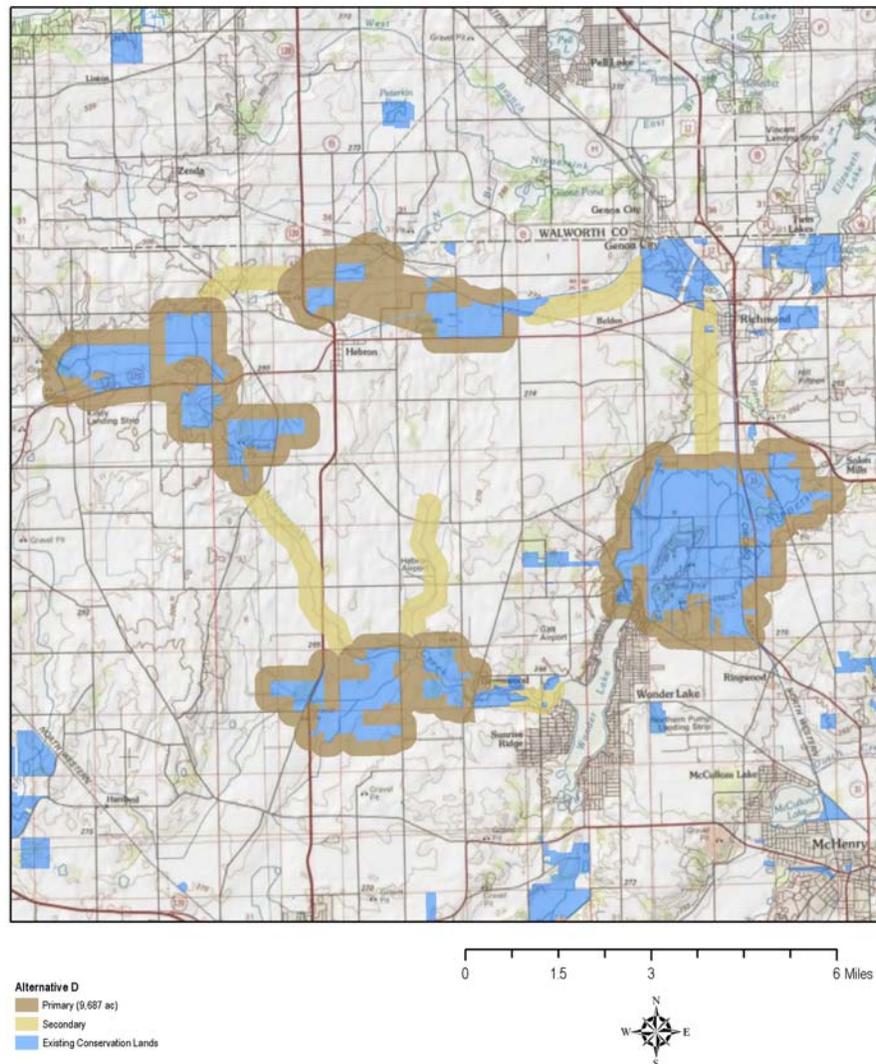
- Existing Conservation Lands
- Conservation Core Area (11,193 ac)
- Conservation Corridor



Alternative C: Cores and Corridors (The Approved Refuge)

Alternative C would link and expand upon existing conservation areas to benefit migratory birds and endangered species. Similar to Alternative B, the larger block sizes associated with the cores would provide sufficient habitat for nesting grassland birds and waterfowl that are sensitive to fragmented habitat and edges. The corridors would assist terrestrial migration of small mammals, herptiles, and plants that may be impacted by a changing climate (Figure 4).

Figure 4: Alternative D – Partnership Initiative (Source: USFWS, Midwest Region)



Land protection methods for the conservation core areas (11,200 acres) would include fee, conservation easement, and Non-Governmental Organizations (NGOs)/private opportunities aimed at creating contiguous natural habitat (Table 2). The conservation corridors would connect the cores primarily through use of partnership efforts and to a lesser degree with fee-simple and easement acquisition. Specific, narrow corridors can't be identified at this time as detailed land status and partnerships would determine the ultimate siting. However, a continuous corridor of a minimum of 600 feet wide would be considered complete.

Table 2: Summary of Potential Conservation Tool Configurations

Area	Primary Conservation Tool	Secondary Conservation Tool
Conservation Core	Fee, easement, agreements	Same as primary tools
Conservation Corridors	Easement, agreement, Partners for Fish and Wildlife	Fee, private landowner initiatives led by others (NGOs, County)
Private Property (Agricultural areas adjacent to core and corridor areas)	Partners and NRCS programs, easements, agreements, private landowner initiatives	Same as primary tools

Cores: These areas serve to round out existing conservation lands to create contiguous natural habitat in 3,000–5,000 acre blocks. Land protection methods would include both fee and easements to conserve and restore lands. Federal programs such as the Service’s Partners for Fish and Wildlife Program and the Natural Resource Conservation Service (NRCS) Wetland Reserve Program would be encouraged to increase efforts in these areas.

Corridors: Conservation corridors used to connect to primary areas. The Service’s Partners for Fish and Wildlife Program would be actively engaged to work with landowners to conserve and restore natural habitat. Private landowners, NGOs, local governments, and other partners would provide the leadership for establishing connecting corridors.

Alternative D: Partnership Initiative

This alternative would seek to increase the amount of conservation land in the area similar to Alternative C but with a reduced acreage footprint (Figure 4). Core areas would encompass 9,687 acres, while the corridors would be similar to those in Alternative C with a minimum width of 600 feet. The emphasis of the Refuge would be to buffer and connect existing conservation lands. The Service would purchase lands if a landowner preferred that option. However, the Service would primarily work with established partners and private landowners on less-than-fee options.

Affected Environment

The Hackmatack Study Area is located in portions of Walworth, Racine, and Kenosha Counties in Wisconsin and McHenry and Lake Counties in Illinois encompassing 350,000 acres (54 square miles). Its approximate boundary is defined by a 30-mile radius from the village of Richmond, Illinois on the state border. The Study Area lies approximately 50 miles from downtown Milwaukee and Chicago. Located 20 miles west of Lake Michigan, the Study Area’s varied landscape of lakes, streams, ridges, and valleys is intersected on the east by the Fox River.

The varied landscape that was left behind after the glaciers finally retreated supported a wide variety of habitats that in turn support a wide variety of species. The Wisconsin portion of the Hackmatack Study Area lies in the Southeast Glacial Plains Ecological Landscape. Historically, this landscape supported a mosaic of prairie, oak forests, oak savanna, maple-basswood forests, marshes, and fens. The Illinois portion of the Study Area lies within the Northeastern Morainal Natural Division (NMND). This landscape historically consisted of wetlands, oak savanna, woodlands, and prairie. Today, with the exception of lands in the existing conservation estate, only small, often isolated pockets of these habitats exist in the Study Area along with sculpted remnants of moraines, kames, kettle marshes, and bogs from its glacial past.

Agricultural and urban land use practices have drastically changed the land cover of the Study Area since Euro-American settlement. The current vegetation is primarily agricultural cropland (over 50 percent). Remaining forests occupy only about 10 percent of the land and consist of oak, maple-basswood, and lowland hardwoods.

Two habitat types account for most of the sensitive species in the Study Area: wetlands and grasslands. Historically, as much as 22 percent of the Study Area may have been wetland while 21 percent may have been grassland; an additional five percent may have been savanna. The remainder of the landscape was most likely forest and mixed forest/prairie. The glacial history of the Study Area produced a rich variety of wetlands and water bodies including fens, bogs, marshes, swamps, ponds, lakes, and streams that attract abundant and diverse wildlife. While prairie was a dominant vegetation community on the landscape historically, only a patchwork of these grasslands too rugged or wet for agriculture still exist today.

Threatened and Endangered Species

The proposed Study Area provides habitat for 109 species of concern that include federal- and state-threatened and endangered species and FWS Birds of Conservation Concern. The list includes 49 birds, five fishes, five mussels, one amphibian, two reptiles, and 47 plants. Sixty-five separate populations of state-listed plants and 92 individual populations of state-listed animals are known to occur in the Illinois section of the Study Area alone.

Several federally protected species in this Study Area occur in McHenry County and include the threatened prairie bush-clover and eastern prairie fringed orchid as well as the endangered whooping crane. Prairie bush-clover is endemic to midwestern prairies and prefers moist microenvironments; therefore, it is often outcompeted by woody competition (U.S. Fish and Wildlife Service *Lespedeza Leptostachya* Recovery Plan; U.S. Fish and Wildlife Service, Twin Cities, Minnesota; 1988). The eastern prairie fringed orchid requires full sun and occurs in tallgrass silt-loam or sand prairies, sedge meadows, fens, and occasionally sphagnum bogs (U.S. Fish and Wildlife Service *Eastern Prairie Fringed Orchid* Recovery Plan; Fort Snelling, Minnesota; 1999).

Once extirpated from most of its historic breeding range, whooping cranes predominately nested in the northern tallgrass prairie but also depended on highly productive wetland ecosystems for nesting, overwintering, and migratory stopover. Today, a newly established flock of over 60 birds, originating from captive-reared birds, uses the Study Area during migration and possibly for breeding in the future.

Recognition of Conservation Values

Data from the McHenry County Conservation District, the Illinois Department of Natural Resources, and the Wisconsin Department of Natural Resources suggest that the Hackmatack Study Area supports richly diverse flora and fauna, including many species listed as state or federally threatened or endangered. In addition, the Service has identified numerous local bird species as Birds of Conservation Concern, a designation meant to stimulate conservation efforts to prevent these species from becoming threatened and endangered.

Two extensive studies support and expand upon these findings. In 2005, both Illinois and Wisconsin completed State Wildlife Action Plans. These plans inventoried the states' natural habitats and wildlife populations, and identified threats to those habitats and species, as well as conservation opportunities for keeping common species common and reversing the decline of sensitive species. These plans provide a scientifically rigorous ecological framework with which to assess the biological implications of creating Hackmatack NWR.

Both the Illinois and Wisconsin State Wildlife Action Plans note that conserving sensitive species requires the protection and restoration of high-quality habitats. Connecting these high quality habitats helps sustain an interdependent web of species and natural communities. Chicago Wilderness (a consortium of 250 regional businesses, conservation organizations, and public agencies in Wisconsin, Illinois, and Indiana) have identified ecological corridors throughout the Hackmatack Study Area that will, if protected and restored, help ensure the long-term sustainability of local ecological systems and sensitive species.

Alternatives and Environmental Consequences

The following section examines the potential environmental consequences, or impacts, of implementing each alternative. Service Planners heard a wide variety of issues, concerns, and opportunities during the public scoping for this plan (Table 3). However, the issues discussed in detail in the EA were deemed by the plan authors to be of primary relevance to Refuge establishment.

Table 3: Summary of Environmental Consequences Identified in Public Scoping by Alternative

Issues/Opportunities	Alternative A: Current Direction	Alternative B: Refuge and Landscape Conservation Area	Alternative C: Cores and Corridors (the Approved Refuge)	Alternative D: Partnership Initiative
Habitat/Species				
General State of the Environment	Stable to decreasing. Existing public and private conservation programs will continue.	Improved through habitat restoration, reduced land development, and environmental education.	Same as B.	Same as B.
Wetland Preservation and Restoration	Steady to gradual increase due to local efforts.	Increased by up to 1,300 acres from current cover.	Increased by up to 880 acres from current cover.	Increased by up to 800 acres from current cover.
Grassland Preservation and Restoration	Steady to gradual increase.	Increased by up to 23,800 acres from current cover.	Increased by up to 8,150 acres from current cover.	Increased by up to 6,100 acres from current cover.
Habitat Fragmentation	Steady to gradual improvement through existing programs.	Connecting corridors increase.	Five new corridors connect new habitat blocks.	Same as C but using private and public partnerships.
Biodiversity	Reduced due to habitat loss.	Stable to slight increase if new species pioneer.	Same as B.	Same as B.
Endangered Species	Steady to gradual decrease in endangered plant populations.	Increased protection for known plant populations on new Refuge lands.	Same as B.	Same as B.
Recreation and Education				
Recreational Opportunities	Stable to slight increase due to demand and ongoing programs.	Moderate increase in wildlife dependent recreation on Refuge lands.	Slight to moderate increase in wildlife dependent recreation on Refuge lands.	Slight increase in wildlife dependent recreation on Refuge lands in coordination with

Issues/Opportunities	Alternative A: Current Direction	Alternative B: Refuge and Landscape Conservation Area	Alternative C: Cores and Corridors (the Approved Refuge)	Alternative D: Partnership Initiative
				partners.
Snowmobile Use	Nominal reduction as land changes ownership and/or development occurs.	Same as A. Also, Refuge and county will work with local clubs if a conflict is identified.	Same as B.	Same as A.
Horseback Riding	Nominal reduction as land changes ownership and/or development occurs.	Same as A. Also, Refuge and county will work with local clubs if a conflict is identified.	Same as B.	Same as B.
Hunting	Nominal reduction as land changes ownership and/or development occurs.	Increased opportunities due to future opening of Refuge lands.	Increased opportunities due to future opening of Refuge lands.	Stable to nominal reduction as land changes ownership and/or development occurs.
Environmental Education	New opportunities focus on existing conservation lands.	Increased due to new programs on Refuge lands.	Same as B.	Same as A.
Societal Issues				
Federal Government	Refuge designation has no effect on the rights, privileges, and responsibilities of adjacent private landowners.	Refuge designation has no effect on the rights, privileges, and responsibilities of adjacent private landowners.	Same as B.	Same as B.
Property Taxes	Stable to slight increase. Will follow local economic needs based on land development.	Stable to slight increase. Undeveloped lands do not require new services.	Stable to slightly less than B. Undeveloped lands do not require new services.	Stable to slightly less than C. Undeveloped lands do not require new services.
Sand and Gravel Deposits	No impact.	Little to no impact. Land purchased for Refuge may include deposits. Refuge will consider inclusion of rehabilitated lands.	Same as B.	Same as B.
Economy and Tourism	Slight increase due to ongoing programs.	Moderate increase in nature-based tourism.	Slight to moderate increase in nature-based tourism due to NWR status.	Slight increase in nature-based tourism.

Appendix A: Land Protection Plan

The Land Protection Plan (LPP) identifies the land conservation boundary for the proposed Hackmatack NWR. The Service, with input from the public, local governments, and numerous organizations, has delineated a region of biologically significant land in the Hackmatack Study Area. These acres are encompassed by the recommend acquisition boundary established in Alternative C: Cores and Corridors of the EA for the proposed Hackmatack NWR. The goal is to protect land throughout core sites and

corridors through fee acquisition, conservation easements, partnerships with local governments, and the voluntary efforts of private landowners. The purposes of this LPP are to:

- provide landowners and the public with an outline of Service policies, priorities, and protection methods for land in the project area,
- assist landowners in determining whether their property lies within the proposed acquisition boundary, and
- inform landowners about the long-standing policy of acquiring land only from willing sellers. (The Service will not buy any lands or easements if the owners are not interested in selling.)

The LPP presents the methods the Service and interested landowners can use to accomplish their objectives for wildlife habitat within the Refuge boundary.

Appendix B: Pre-acquisition Compatibility Determination

A Compatibility Determination is presented as an appendix to the EA. This form documents whether a wildlife-dependent recreational use is occurring on lands within a refuge boundary and whether such uses can continue when lands are purchased for a refuge.

The National Wildlife Refuge System Improvement Act of 1997 specifies six priority uses of the Refuge System (Hunting, Fishing, Wildlife Observation, Wildlife Photography, Environmental Education, and Interpretation). The allowed priority uses will have overall minimal impact to fish and wildlife populations and associated habitat. These uses will be managed in a way to ensure that wildlife and habitat are not negatively impacted. Allowing these uses furthers the mission of the Refuge System by providing renewable resources for the benefit of the American public while conserving fish, wildlife, and plant resources on this tract.

All six uses are known to occur on the public and private lands within the Refuge boundary. Hunting and fishing occur primarily on the rural lands of the area on a limited basis. Housing developments, roads, and intense croplands limit the amount of acreage available for upland game hunting. Fishing occurs along the Fox River and Nippersink Creek and on a few open water bodies within the proposed boundary. Wildlife observation and photography are enjoyed by local residents; especially on the county and state public lands. Environmental education and interpretation are primarily limited to programs sponsored by McHenry County Conservation District and local school initiatives.

All activities on new refuge lands would follow applicable local, state, and federal laws, except where the Refuge designates additional restrictions to ensure compatibility with Refuge purposes.

Appendix C: Conceptual Management Plan

Early in 2010, the Service began to study the merits of establishing a national wildlife refuge along the border of Wisconsin and Illinois. The proposed Hackmatack NWR was presented as a tool to connect the disparate dots of conserved land in southeast Wisconsin and northeast Illinois into a cohesive picture of landscape-level conservation. The concept is to create a new refuge that forms the nucleus of a regional conservation identity. A core conserved area owned and managed by the Service as a refuge would anchor this conservation initiative. Its far-reaching ecological and social impact would come from extensive partnerships with the many public and private landowners committed to furthering conservation in the region.

The initial Study Area encompassed 350,000 acres. The Refuge would ultimately improve or restore almost 12,000 acres of drained wetland basins, historic prairie, and forest habitats; and it would conserve habitat corridors between protected parcels so that the region functions ecologically as an interconnected whole.

The Service developed this Conceptual Management Plan (CMP) to describe the management direction for a proposed Hackmatack NWR, as defined in Alternative C, and outline possible interim habitat management priorities and compatible public uses on newly acquired lands, should a refuge be approved. The activities described in this CMP will direct the pursuit and management of land acquisitions, conservation easements, and other land interests until a Comprehensive Conservation Plan (CCP) is developed. By Service policy, a CCP must be developed within 15 years of the actual establishment of the Refuge (i.e., acquisition of first land parcel). Any major changes in the activities described in this CMP, any new activities, and our development of the CCP would be subject to public review and comment in accordance with the provisions of Service refuge planning policy.

The CMP identifies priorities for management that include: habitat restoration, monitoring and inventory of migratory birds, unique plant communities, and building community support for the refuge. Newly acquired lands would be opened to the six priority uses of the Refuge System (Hunting, Fishing, Wildlife Observation, Wildlife Photography, Environmental Education, and Interpretation) where these activities do not have a significant negative impact on wildlife.

Should the Refuge proposal go forward, the Service and the Refuge System will work toward the biological, cultural, and public use goals that have been outlined in the EA, LPP, and CMP. Partnerships with landowners, neighbors, conservation organizations; and local, county, state, and other federal government agencies are a crucial component of a successful Hackmatack NWR.