

Chapter 4: Management Direction

4.1 Core Values and Guiding Principles

The Refuge holds the core values of quality, credibility, reliability, integrity, and responsiveness as the basis for all Refuge activities. They will be guided by these core values as well as the following guiding principles:

An Ecosystem Approach:

The ecosystem approach is a vision of desired future conditions developed in collaboration with a diverse group of stakeholders that integrates ecological, economic, and social factors. It is applied within a geographic framework (usually watershed) and founded primarily on ecological factors.

Results through Partnerships:

Partnership initiatives require extensive coordination and communication between Federal agencies; state, tribal, and local governments; and stakeholders and customers. Partnerships promote the pooling of resources and expertise to obtain results more quickly and efficiently. Results also tend to be longer lasting because consensus is built over a wide range of stakeholder interests.

Public Involvement:

Refuge management will include a clear, credible, and meaningful role for public input from the full spectrum of social and cultural backgrounds, and will receive full consideration in Refuge decision-making. The Refuge serves local, state, and national constituencies, therefore, public input at each of these levels will be solicited and incorporated into the Refuge's decision making process.

Cornerstones of Biology:

The Refuge will conserve existing, relatively intact ecosystems first, for they are the cornerstones for providing biota and other natural materials needed for future restoration.

Ecological Integrity:

The Refuge will restore ecological integrity, particularly the structure, composition, and natural processes of native biotic communities and physical environments.

Design for Self-Sustainability:

The Refuge will design for self-sustainability of natural systems. The best way to ensure long-term viability of habitat is to minimize the need for continuous maintenance.

Within a Watershed Context:

The Refuge will focus within the watershed and/or broader landscape level context and seek to understand its biological potential. A watershed/landscape has the capacity to become only what its physical and biological setting will support. This

includes climate, geology, hydrology, and biological characteristics.

- Address Degradation:* The Refuge will address ongoing causes of habitat degradation. Conservation, restoration, and management activities will fail if the sources of degradation persist.
- Have Clear Goals and Objectives:* The Refuge will have clear, up-to-date goals, objectives, and strategies, and will include a diverse array of expertise and interests in their development.
- Use Passive Restoration:* The Refuge will use passive restoration and management when appropriate. Where possible, simulate natural hydrological process using low input, low impact, and sustainable measures that capture the energies of the system to perpetuate the resources in question.
- Use Reference Sites:* The Refuge will, whenever available, use reference sites when restoring habitat. Reference sites are areas that are comparable in structure and function to the proposed restoration before it was degraded.
- Adaptive Management Processes:* An adaptive management approach features a structured, iterative process that recognizes that most information used in decision making is incomplete. Adaptive management guides managers in efficiently collecting and using better information, thus enabling appropriate changes in management direction.

4.2 Compatibility

The requirement that an activity or use of a refuge be compatible with the refuge purpose governs whether or not an activity or use can be allowed on the refuge. “Compatible use” means a proposed or existing wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the Refuge Manager, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the major purposes of the affected refuge (the mission of the Refuge System and the purposes of Necedah NWR are described in Chapter 1).

All proposed actions in this CCP are considered compatible based upon site-specific evaluations of the anticipated impacts with the Refuge purpose and Service policies.



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4.3 Strategic Framework

To facilitate the development of future Refuge management direction, the planning team utilized a strategic framework (e.g., purpose, vision, mission, goals, objectives, strategies, projects). For the purpose of this CCP, we define strategic framework as a pattern of purposes, policies, programs, actions, decisions, or resource allocations that define what the Refuge is, what it does, and why it does it. Goals refer to broad-based statements of direction or positions to be achieved. Objectives represent intermediate-term targets

necessary for the satisfaction of goals. Strategies and projects are the means, methods, and approaches used to achieve Refuge objectives.

However, it should be noted that detailed management scenarios and budgets were not developed for each Refuge operational component (e.g., fish and wildlife management, habitat restoration and management, resource conservation, etc.). The planning team instead chose to provide a general overview of future Refuge programs and projects and leave the details of scheduling and budgets to be developed as opportunities for funding and staffing develop. Step-down management plans (e.g., habitat management plan, fire management plan, integrated pest management plan) will be used and/or developed by Refuge staff to provide detailed scenarios and budgets associated with most objectives, strategies, and projects. Projects are described in detail in Chapter 5 and differ from objectives and strategies in that they require additional funding beyond the current station budget.

4.4 Refuge Goals, Objective, Strategies and Projects

4.4.1 Fish and Wildlife Management

4.4.1.1 Waterfowl and Other Migratory Birds

Goal 1: The Refuge will actively conserve, restore, establish and manage diverse and productive populations of waterfowl and other migratory birds within the Refuge and the Yellow River Focus Area, with an emphasis on regional and national species of management concern.

- Objective 1.1:** By 2019, increase the breeding pair population of waterfowl on Refuge land to 700 pairs (e.g., Mallard, Teal, and Pintail) through additional grassland habitat management, in accordance with the North American Waterfowl Management Plan (see Open Landscape Objective 1 and associated strategies). The Refuge currently supports roughly 400 breeding pairs of waterfowl.
- Objective 1.2:** By 2007, eliminate Wood Duck houses on Refuge land in favor of natural nesting cavities (the Refuge will maintain existing Wood Duck houses until they become unusable).
- Objective 1.3:** By 2019, increase the breeding pair population of grassland species of concern (e.g., Dickcissel, Upland Sandpiper, Grasshopper Sparrow, Bobolink) on Refuge land through additional grassland habitat restoration and management, in accordance with the North American Waterfowl Management Plan, Karner Blue Butterfly Recovery Plan, and guidelines developed by Sample and Mossman (1997). See Open Landscape Objective 1 and associated strategies.
- Objective 1.4:** By 2019, increase the breeding pair population of savanna species of concern (e.g., Red-headed Woodpeckers, Field Sparrow, Northern Flicker) on Refuge land through additional savanna habitat restoration and management, in accordance with the North American Waterfowl Management Plan, the Karner Blue Butterfly Recovery Plan, and guidelines developed by Sample and Mossman (1997). See Open Landscape Objective 2 and associated strategies.
- Objective 1.5:** By 2008, increase the breeding pair population of Black Terns on Refuge land to eight nesting pairs through additional wetland habitat management (Region 3 priority species) (see Wetlands Objective 1, strategy D). The Refuge currently supports four nesting pairs.

Objective 1.6: By 2008, increase the breeding pair population of Goshawks on Refuge land (Region 3 priority species)(see Forests Objective 3.7). In the past, the Refuge has supported one nesting pair of Goshawks in select red and white pine plantations.

4.4.2 Listed Species

Goal 2: The Refuge will provide a federal leadership role in the conservation, recovery, and where appropriate the reintroduction of federally listed species (e.g. Karner blue butterfly, Whooping Crane, Eastern timber wolf, Eastern massasauga rattlesnake, Bald Eagle) throughout central Wisconsin over the life of the CCP.

Objective 2.1: Establish and maintain one large population of Karner blue butterflies on the Refuge as stated in the Karner Blue Butterfly Recovery Plan (see Open Landscape Objective 2 and associated strategies). In this context, “large population” refers to >6,000 second flight adults consisting of 25 sub-populations and dispersed over at least 10 square miles. The following strategies pertain to Refuge lands only.

Strategies:

1. Restrict all construction activities in Karner blue butterfly habitat located on Refuge land. The only exception to this will be for the graveling or paving of two hiking trails (Cranberry Loop and Lupine Loop).
2. All silviculture activities in occupied Karner blue butterfly habitat will be designed to avoid or minimize impacts to butterflies. Conservation measures will be written into timber sale contracts when necessary to conserve Karner blue habitat from timber operations. Slash and stumps will not be placed in occupied Karner blue habitat. Skid trails and hauling roads will be designed to avoid or minimize impacts to lupine and butterflies.
3. Refuge visitors will be advised to avoid disturbing lupine plants in occupied Karner blue butterfly areas.

Objective 2.2: Provide technical assistance and staff support to the Whooping Crane Reintroduction program throughout the life of this CCP.

Strategies:

1. Should an experimental population of Whooping Cranes establish themselves on or near the Refuge, manage select Refuge pools and associated habitats to support the population, as directed by the Whooping Crane Recovery Team.
2. Where Whooping Cranes exhibit territorial, breeding and/or nesting behavior, maintain or adjust pool levels to create optimum conditions.
3. Preclude prescribed burning in or near a unit containing an active Whooping Crane nest site.
4. Prohibit human and vehicular traffic in or near Whooping Crane nest sites.
5. Implement any additional Whooping Crane guidelines that may be developed for nest protection.

Objective 2.3: Maintain resident packs of Eastern timber wolves on public lands in central Wisconsin, in accordance with the Eastern Timber Wolf Recovery Plan.

1. All new wolf den and rendezvous sites verified by wildlife biologists as well as den and rendezvous sites used within the last 2 years will be protected through

implementation of the “Management Policy for Wolf Den and Rendezvous Sites” (Wydeven and Schultz 1993).

2. Preclude land use activities, including timber harvest, within 100 meters of a wolf den at any time of the year.
3. Restrict human activity within 100 meters of a den to those activities specifically related to wolf research and which generally are done only when wolves are not active in the area.
4. Maintain volunteer tracking efforts of wolves on the Refuge.
5. Continue to keep Refuge roads closed to public vehicular traffic and continue berming access roads upon completion of timber sales.
6. Continue prohibiting coyote hunting and trapping year-round on the Refuge.
7. Collaborate with the Wisconsin DNR on wolf trapping and radio tracking.
8. Issue an annual press release prior to gun deer season advising hunters of the coyote hunting closure.

Objective 2.4: Continue international management efforts for the Eastern massasauga rattlesnake, including research, to help preclude the need for federal listing (see open landscape habitat objectives and associated strategies).

1. If the Eastern massasauga rattlesnake is listed as federally threatened or endangered, the Refuge will cooperate and support the Federal Recovery Team.
2. Should the Eastern massasauga rattlesnake occur on the Refuge, the protective measures in “The Eastern Massasauga Rattlesnake: A Handbook for Land Managers 2000” (Johnson et al. 2000) will be implemented.
3. Continue to assist landowners in the Yellow River Area, Monroe County, LaCrosse, and Buffalo County with Eastern massasauga rattlesnake management support and surveys, in accordance with “The Eastern Massasauga Rattlesnake: A Handbook for Land Managers 2000.” (Johnson et al. 2000).

Objective 2.5: Protect Bald Eagles nesting on the Refuge from human disturbance throughout the life of this CCP.

1. Enforce protective buffer zones around Bald Eagle nests in accordance with the Refuge’s “Water Management Plan” and the “Northern States Bald Eagle Recovery Plan,” including a one-half mile no fly zone for Air National Guard aircraft.
2. Restrict prescribed burning and water level drawdowns within one-quarter mile of Bald Eagle nests.
3. Continue monitoring Bald Eagle nesting success on the Refuge throughout the life of the CCP.

4.4.3 Habitat Restoration and Management

Goal 3: The Refuge will, in partnership with others, conserve, restore, establish and manage diverse and productive wetland, open landscape, and forest habitats on Refuge land and within the Yellow River Focus Area that benefits listed species, waterfowl and other migratory birds, and native biological diversity.

Table 6 describes desired future conditions by soil type, and Figure 16 and Figure 17 illustrate the future desired vegetation and vegetation management on the Refuge.

Wetlands

Objective 3.1: Emergent Wetlands/Wet Meadows: By 2008, maintain on Refuge land 12,500 acres of emergent wetland (e.g., palustrine) and wet meadow habitat (e.g., sedge meadows) to support nesting, resting, and feeding waterfowl, all types, associated bird species of concern (e.g., Black Terns, American Bittern, Henslow's Sparrow, Sedge Wren), and to promote native biological diversity. The Refuge currently has roughly 10,500 acres of emergent wetlands and wet meadows.

Strategies/Projects

1. Restore and maintain two additional palustrine emergent wetland complexes (approximately 1,000 acres each) on the Refuge by converting 2,000 acres of lowland shrubs (Low Priority). (Project 1)
2. Manage palustrine emergent wetlands for dense annual and perennial vegetation. Burn, mow, and disk as necessary.
3. By 2009, sub-divide Sprague-Mather Pool, the largest impoundment on the Refuge, into three units to enhance water management capability to provide moist soil food production and/or invertebrate availability for migrating waterfowl (High Priority). (Project 2)
4. Beginning in 2005, provide stable water and emergent vegetation for Black Terns by leaving Pool 19 (east and west), Carter-Woggon Pool, Upper Rice Pool, and Rice Pool at "full pool" except for maintenance purposes, in accordance with guidelines developed by Naugle et al. 2000.
5. By 2005, develop internal guidelines for acceptable amounts of woody vegetation in existing Refuge pools. Control as necessary.
6. By 2005, acquire and install staff water gauges in Refuge pools for accurate water level readings (High Priority). (Project 3)
7. By 2006, install a shallow well and a solar-powered pump as a supplemental water source for the Ducks Unlimited Wetland Project (High Priority). (Project 4)

Objective 3.2: Forested Wetlands: For the life of this CCP, maintain on Refuge land 5,700 acres of forested wetland habitat to support forest-nesting waterfowl (e.g., Wood Ducks) and associated bird species of concern (e.g., American Woodcock, Veery, Northern Flicker) and to promote native biological diversity. The Refuge currently has roughly 5,700 acres of forested wetland habitat.

Strategy:

1. Maintain large blocks of forested wetland habitat with mature trees, sparse understory, and within one-half mile of water. Implement disturbance regimes

Table 6: Management Strategies and Vegetation Composition

		Management Strategies		
Soil	Natural Areas	Minimum Management Areas	Maintenance Areas (includes state-managed lands)	Open Landscape Areas
Sandy	<i>Oak and Pine Woodland</i> (26 acres): Oak and pine woodland consisting of Hill's oak, jack pine, red pine, white oak; understory of Pennsylvania sedge, blueberry, huckleberry, sweet fern.	<i>Oak and Pine Woodland</i> (389 acres): Oak and pine woodland consisting of Hill's oak, jack pine, red pine, white oak; understory of Pennsylvania sedge, blueberry, huckleberry, sweet fern.	<i>Oak and Pine Woodland</i> (1,698 acres): Oak and pine woodland to oak and pine savanna/barrens, depending on burning frequency and intensity. Overstory of oak and pine woodland, same as in Natural and Minimum Management Areas; oak and pine savanna/barrens with scattered Hill's oak, jack and red pine, with an understory of little bluestem, big bluestem, Indian grass, Pennsylvania sedge, cricaceous shrubs (e.g. blueberry), goldenrods, and milkweeds.	<i>Oak and Pine Savanna Barrens</i> (2,399 acres): Oak and pine savanna/barrens with scattered Hill's oak, jack, and red pine, with an understory of little bluestem, big bluestem, Indian grass, Pennsylvania sedge, cricaceous shrubs (e.g. blueberry), goldenrods and milkweeds.
Mesic	<i>Mature Hill's Oak, Eliminate Aspen</i> (404 acres): Mature Hill's oak, white oak, red maple, black cherry, bigtooth and trembling aspen, jack, red and white pine; early successional species such as aspen will be slowly eliminated as the stand ages. The understory consists of dewberry, raspberry, mosses, club-mosses, blueberry, Pennsylvania sedge, and wintergreen.	<i>Mature Hill's Oak, Eliminate Aspen</i> (5,875 acres): Mature Hill's oak, white oak, red maple, black cherry, bigtooth and trembling aspen, jack, red and white pine; early successional species such as aspen will be slowly eliminated as the stand ages. The understory consists of dewberry, raspberry, mosses, club-mosses, blueberry, Pennsylvania sedge, and wintergreen.	<i>Mature Hill's Oak, Maintain Aspen</i> (10,997 acres): Mature Hill's oak, white oak, red maple, black cherry, bigtooth and trembling aspen, jack, red and white pine; early successional species such as aspen will be maintained for the diversity of wildlife and plant habitat they provide. The understory consists of dewberry, raspberry, mosses, club-mosses, blueberry, Pennsylvania sedge, and wintergreen.	<i>Young, Shrubby Hill's Oak</i> (5,712 acres): Young, shrubby Hill's oak, white oak, red maple, willow, bigtooth and trembling aspen; pines will be slowly eliminated over time. The understory consists of wool grass, spirea or hardhack, goldenrods, dewberry, raspberry, mosses, club-mosses, blueberry, Pennsylvania sedge, wintergreen and bracken fern.
Peat	<i>Jack Pine/Tamarack</i> (375 acres): Some jack pine and tamarack, sedge meadows, bogs with sphagnum, leatherleaf, cranberry, and cotton grass.	<i>Jack Pine/Tamarack</i> (3,862 acres): Some jack pine and tamarack, sedge meadows, bogs with sphagnum, leatherleaf, cranberry and cotton grass.	<i>Jack Pine/Tamarack and Willow and Reed Canarygrass</i> (5,768 acres): Some jack pine and tamarack, sedge meadows, bogs with sphagnum, leatherleaf, cranberry, and cotton grass. Where the watertable has been significantly altered, willow and reed canarygrass are dominant.	<i>Jack Pine/Tamarack and Willow and Reed Canarygrass</i> (6,847 acres): Some jack pine and tamarack, sedge meadows, bogs with sphagnum, leatherleaf, cranberry, and cotton grass. Where the watertable has been significantly altered, willow and reed canarygrass are dominant.

Figure 16: Desired Future Vegetation, Necedah NWR

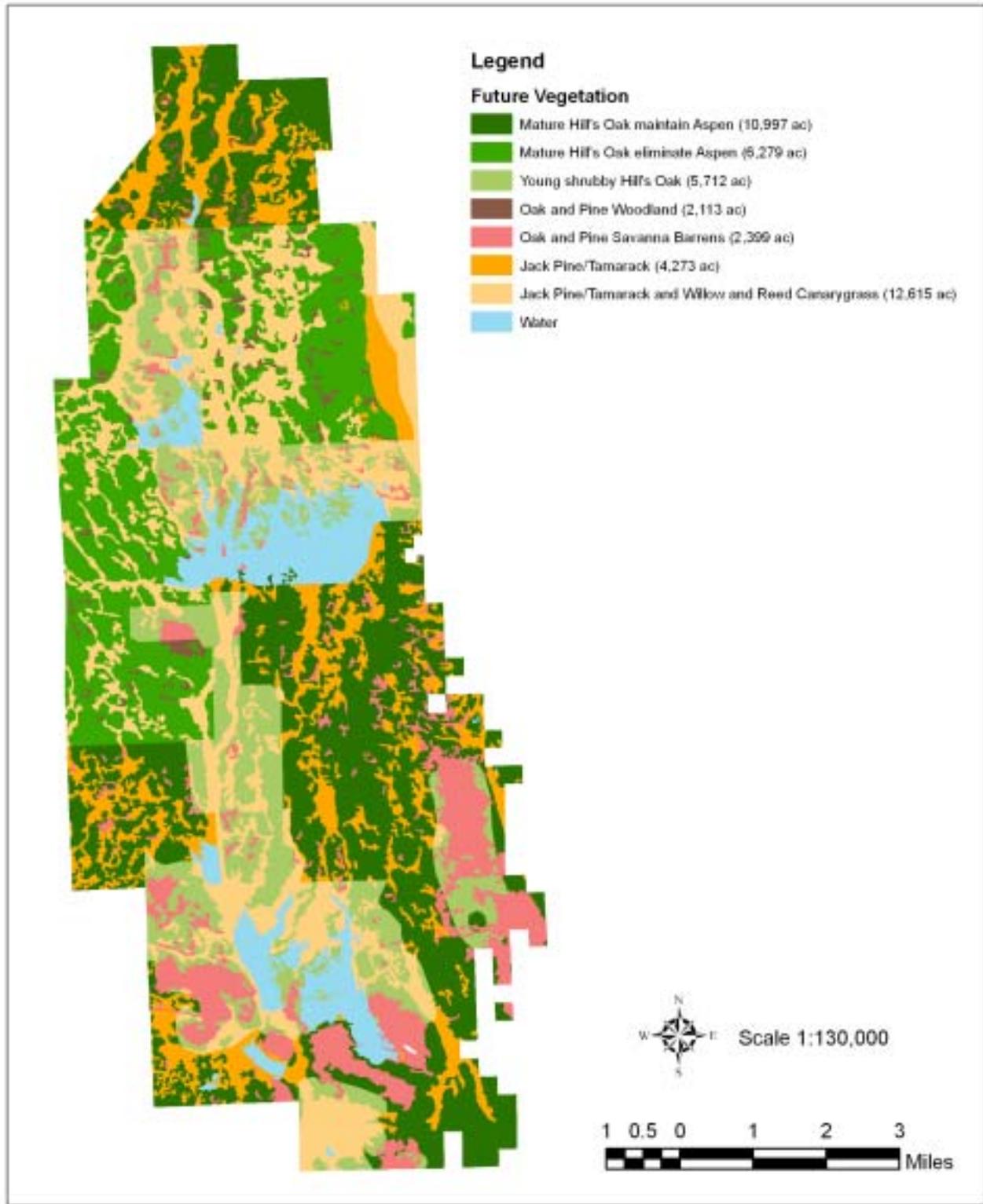
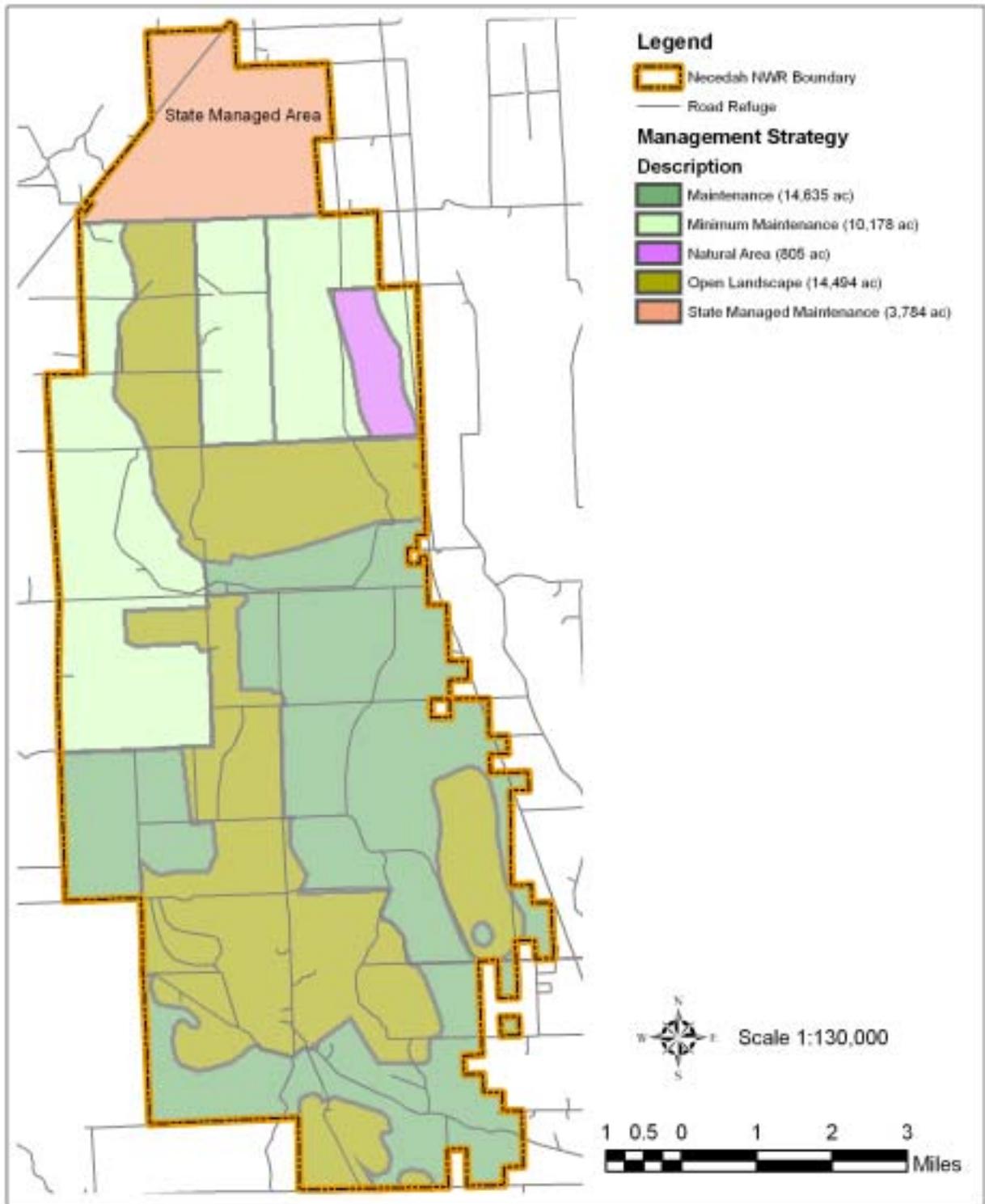


Figure 17: Desired Future Management, Necedah NWR



(e.g., mechanical thinning, burning, mowing) to maintain the desired herbaceous understory (sparse), as necessary (High Priority). (Project 5)

Objective 3.3: Lowland Shrubs: By 2009, maintain on Refuge land 3,500 acres of lowland shrub habitat to support associated bird species of concern (e.g. Blue-winged Warbler, Golden-winged Warbler, Willow Flycatcher) and to promote native biological diversity. The Refuge currently has 5,500 acres of lowland shrubs.

Strategy:

1. Establish and maintain large blocks of lowland shrub habitat with a range of young to mature shrubs and dense understory. Maintain hydrology and active wildfire suppression.

Objective 3.4: Open Water: For the life of this CCP, maintain on Refuge land 1,800 acres of open water habitat to support nesting, resting, and feeding waterfowl (all types), other associated bird species of concern (e.g., Common Loon) and to promote native biological diversity. The Refuge currently has 1,800 acres of open water.

Strategy:

1. Maintain the current water management regime on Refuge pools, which includes leaving pools flooded at full-pool 2 out of 3 years (to setback woody vegetation).

Open Landscapes

Objective 3.5: Grasslands: By 2019, establish and maintain on Refuge land 6,200 acres of native grassland habitat (e.g., midgrass and tallgrass prairies characteristic of the central Wisconsin sand plain subsection (Keys et al., 1995) to support nesting waterfowl (e.g., Mallard, Teal, Pintail), other associated bird species of concern (e.g., Dickcissel, Upland Sandpipers, Grasshopper Sparrows, Bobolink), and to promote native biological diversity, in accordance with the North American Waterfowl Management Plan and guidelines developed by Sample and Mossman (1997). The Refuge currently has roughly 2,700 acres of grasslands.

Strategies:

1. Establish and maintain a mosaic of small (40 acres to 1,000 acres) and medium-sized (1,000 to 5,000 acres) native grasslands comprised of short, medium, and tall height-density patches containing diverse structure (e.g., bare soil, stiff-stemmed forbs, sparse woody vegetation) to provide nesting, brood-rearing, and foraging habitat for grassland birds and to enhance biological diversity. The Refuge will focus on creating blocks of grassland habitat that are structurally open and free of major linear woody edges. In most cases, woody cover will represent less than 5 percent of the grasslands habitat.
2. Convert 200 acres of existing non-native grasslands to native grasslands for the purpose of enhancing native biological diversity. The Refuge currently has roughly 945 acres of non-native cool season grasses.
3. Implement disturbance regimes such as grazing, burning and mowing on all Refuge grasslands to establish and maintain the desired herbaceous covers (e.g., composition, height/density), as necessary (High Priority). (Project 5)

Objective 3.6: Savannas: By 2019, restore and maintain on Refuge land 3,600 acres of native savanna habitat (e.g., oak savanna) characteristic of the central Wisconsin sand plain subsection (Keys et al., 1995) to support Karner blue butterflies, associated bird species of concern (e.g., Red-headed Woodpeckers, Field Sparrows, Flicker), and to promote native biological diversity in accordance with the Karner Blue Butterfly Recovery Plan, Refuge Forest Management Plan, and guidelines developed by Sample and Mossman (1997). The Refuge currently has roughly 1,000 acres of savanna.

Strategies:

1. Restore and maintain an additional 640 acres of oak and pine woodlands and sedge meadow wetlands on the Refuge distributed over at least a 10-square-mile area by 2015, in accordance with the Karner Blue Butterfly Recovery Plan.
2. Implement disturbance regimes (e.g., mowing, burning) to establish and maintain herbaceous cover, as necessary (High Priority).
3. Maintain a mature oak component in savanna restoration units to provide nesting cavities for Red-headed Woodpeckers.
4. Enhance and maintain a warm-season grass component in savanna restoration units to provide nesting cover for Field Sparrows.
5. By 2013, construct an additional 30 miles of firebreaks around savanna restoration units and along the Refuge's eastern boundary, an area with concentrations of hazardous fuels, to allow for periodic fire (High Priority). (Project 6)
6. By 2007, acquire a hydro-axe to maintain open landscape habitats for Karner blue butterflies and other savanna-dependent species (High Priority). Hydro-axe operation in Karner blue butterfly management units will be conducted between August 15 and April 15, and no more than one time per year. (Project 7)

Forests

Objective 3.7: Coniferous Forest: By 2019, maintain on Refuge land 550 acres of coniferous forest habitat to support associated bird species of concern (e.g., Northern Goshawks) and to promote native biological diversity. The Refuge currently has roughly 900 acres. Timber harvest will only occur in areas designated open landscape (Figure 17), except in pine plantations or for safety, operations, or fuel reduction purposes.

Strategies:

1. Maintain select red and white pine plantations as monotypic, even-aged stands to support nesting Goshawks, in accordance with Rosenfield et al. 1998.
2. Within designated maintenance areas of the Refuge (Figure 17), employ approved Timber Stand Improvement techniques, such as proper thinning and harvest schedules, to transition monocultural stands (primarily red and white pine plantations) to mixed composition, uneven-aged stands. Treat stands at least once over the life of this CCP.
3. Prepare and advertise for selective timber harvest on 350 acres of Refuge coniferous forest land, in support of the Refuge's savanna and grassland restoration efforts.

Objective 3.8: Mixed Deciduous/Coniferous Forests: By 2019, maintain on Refuge land 4,500 acres of mixed deciduous and coniferous forest habitat to support associated bird species of

concern (e.g., Pine Warblers, Scarlet Tanager, Whip-poor-will, Black-and-white Warbler) and to promote native biological diversity consistent with the Refuge's Forest Management Plan. The Refuge currently has roughly 10,000 acres. Timber harvest will only occur in areas designated open landscape (Figure 17), except in pine plantations or for safety, operations, or fuel reduction purposes.

Strategies:

1. Maintain large mature stands of oak forest with a white pine component to provide nesting habitat for Scarlet Tanagers and Least Flycatchers.
2. Maintain large mature stands of jack pine with an oak component for nesting Pine Warblers, Whip-poor-wills, and Black-and-white Warblers.
3. Conserve 640 acres of mesic mixed oak/pine forest with interspersed sedge meadows free from active human manipulation to provide a control area (reference site) where successional changes can be monitored and compared to other managed areas. Wildfires will be suppressed in the area to protect adjacent landowners.

Objective 3.9: Broad-Leaf Deciduous Forests: By 2019, maintain on Refuge land 5,350 acres of broad-leaf deciduous forest habitat to support associated bird species of concern (e.g., Wood Thrush) and to promote native biological diversity. The Refuge currently has roughly 10,000 acres. Timber harvest will only occur in areas designated open landscape (Figure 17), except in pine plantations or for safety, operations, or fuel reduction purposes.

Strategy:

1. Maintain large mature stands of oak forest with a diverse, dense understory component, to provide nesting habitat for Yellow-billed Cuckoo, Chestnut-sided Warbler, and Wood Thrush.

4.4.3.1 Other Habitat Management Actions

Objective 3.10: Fire Program

Strategies:

1. Maintain a fire management program that supports habitat objectives and reduces damage associated with wildfires throughout the life of this CCP. Contain 100 percent of wildfires occurring on the Refuge before they cross Highway 80 moving east and Highway 21 moving south.
2. By 2007, acquire an additional pump engine to increase the effectiveness of both prescribed burning and fire suppression (Medium Priority). (Project 8)
3. By 2007, construct a storage building that can be heated to protect fire management vehicles from the weather (Medium Priority). (Project 9)
4. Reduce the density of jack pine and remove slash from at least one unit with significant overmature and standing dead timber biannually with emphasis on the Refuge's eastern boundary to aid in fire control. All treated units will be within designated Maintenance Areas of the Refuge Figure 17.

Objective 3.11: Pest Management

Strategies:

1. By 2005, develop an Integrated Pest Management step-down plan that will reduce populations of exotic and invasive species from current levels, restrict the distribution of pest plants (e.g., leafy spurge, spotted knapweed, reed canary grass) to their current acreage, and reduce the impact pest plant species have on rare plant communities, throughout the life of this CCP.
2. Beginning in 2006, complete a rare plant inventory, and inventory every 5 years thereafter (Medium Priority). (Project 10)

Special Refuge Management Areas

Restoration and management of the above mentioned habitats will be accomplished through the development of six special management areas on the Refuge Figure 17. Figure 17 represents a blueprint (long-term) for what the Refuge landscape might consist of within these special management areas. Table 7 describes how these areas would be managed to achieve the Refuges wildlife, habitat, and people commitments.

4.4.4 Resource Conservation

Goal 4: The Refuge will, in partnership with others, conserve Refuge resources (e.g., fish and wildlife, cultural and archaeological, water and visitor experiences) for future generations.

4.4.4.1 Law Enforcement

Objective 4.1: Increase compliance of Refuge regulations on Refuge land throughout the life of this CCP.

Strategies:

1. By 2007, review and revise Refuge visitor regulations for consistency and compatibility.
2. Increase the public's knowledge of Refuge visitor regulations and the boundaries of Fish and Wildlife Service lands, throughout the life of this CCP.
3. By 2007, add one full-time law enforcement officer.

4.4.4.2 Land Conservation

Objective 4.2: By 2019, conserve 3,750 acres of wetland, upland, and riparian habitats within the Yellow River Focus Area (willing seller only). (Table 4 on page 15).

Strategies:

1. Maintain working relationships with landowners in the Yellow River Focus Area.
2. By 2006, ensure landowners in the Yellow River Focus Area have viable options for restoring, enhancing, and conserving their land for the benefit of wildlife.
3. Acquire voluntary partnership agreements, conservation easements, and fee-title ownerships on approximately 250 acres per year from willing landowners within the Yellow River Focus Area (High Priority). The Service will acquire the minimum interest necessary to accomplish natural resource goals and only acquire land from willing sellers. (Project 11)

Table 7: Special Refuge Management Areas

Management Area	Description of Management
<i>Set-aside Area</i>	This area will be set aside to serve as a wilderness-like area for Refuge visitors. The area currently has two unpaved roads that will be maintained as hiking trails, with the possibility of being connected in the future to form a loop. The only management activities that will occur in this area will be trail maintenance and alteration of drainage ditches to restore a natural hydrologic regime wherever possible. Prescribed fire will be allowed in this area if it is determined to be an ecological benefit and if it will assist in maintaining the wild character of the area. Standards for fire breaks and rehabilitation options have yet to be developed.
<i>Minimal Management Areas</i>	These are areas where manipulative management activities, such as timber harvest, prescribed fire, and water management are only practiced on a limited basis. Prescribed fire will be allowed in this area on a limited basis, if determined to be ecologically beneficial. Standards for fire breaks and rehabilitation options will not be as stringent as those for the Wildland Set-Aside Area.
<i>Maintenance Areas</i>	These areas are subject to manipulative management for the benefit of wildlife, plants and public use. This includes timber harvest, prescribed fire, mowing, and water management, and any other activity deemed necessary to maintain the desired habitat. Except for small, isolated openings that will be allowed to close, these areas will be maintained close to their current character and condition.
<i>Open landscape Areas</i>	Due to the significant nation-wide decline in many grassland and barrens species, the Refuge has designated several areas to be managed as an open landscape. Most of these areas expand upon existing open lands to provide suitable habitat for those species that need large, open vistas. The area running from Sprague Pool to Pool 2 will serve as a corridor, connecting the northern and southern blocks of grassland and barrens habitat. These areas will be subject to timber harvest, prescribed fire, mowing, water management, and other manipulative management for the purpose of creating and maintaining open habitat for rare and declining trust species.
<i>Full-pool Management</i>	These pools will be maintained as full, except when drainage is necessary for maintenance.
<i>Variable Pool Management</i>	These pools will be maintained at various water levels, both seasonally and yearly.

4. By 2008, develop a land stewardship and natural history slide presentation for the Yellow River to raise awareness of its unique ecological value and need for conservation (High Priority). (Project 12)

Objective 4.3: By 2011, actively manage 100 percent of all existing Farm Service Agency Conservation Easement land under the jurisdiction of the Refuge.

Strategies:

1. By 2007, develop habitat management plans for all Conservation Easements.

2. By 2008, survey and post all of the Refuge's conservation easement lands (High Priority). (Project 13)
3. By 2011, implement active management, according to developed plans, on 50 percent of existing conservation easements, and on 100 percent of easements by 2015 (Medium Priority). (Project 14)
4. Beginning in 2006, annually monitor each of the Refuge's easement lands for posting and compliance (Medium Priority). (Project 15)

Objective 4.4: *Archaeological and Cultural Resource Management:* By 2019, in accordance with the Archaeological Resources Protection Act, protect 100 percent of the known archaeological and cultural resources on the Refuge.

Strategies:

1. By 2007, develop a step-down 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.
2. By 2008, contract with a cultural resources professional to complete a Cultural Resources Management Plan including a geomorphological study of potential living surfaces (Medium Priority). (Project 16)
3. Notify the Regional Historic Preservation Officer early in the planing process for each construction and development action and upon receiving requests for archaeological investigations on Refuge land.

Objective 4.5: *Contaminant Investigations/Cleanup:* Maintain a contaminant status on Refuge land that does not negatively impact fish and wildlife populations, human health, or create liability issues, throughout the life of this CCP.

Strategies:

- A. Investigate all potential contamination sites on Refuge lands within 2 weeks of their discovery.
- B. Conduct a level I contaminant investigation on all land considered for acquisition.

Objective 4.6: *Water Rights Management:* Maintain 1997 baseline water flows throughout the Refuge over the life of this CCP.

1. By 2008, research and document Refuge water rights and establish baseline water quality/quantity standards for receiving waters (Medium Priority). (Project 17)

4.4.5 Monitoring and Studies

Goal 5: Quality scientific research and monitoring will guide Refuge management decision making.

Objective 5.1: *Studies and Investigations:* Ensure that research conducted on the Refuge is published in an appropriate scientific journal no later than 2 years after the completion of the field work.

Objective 5.2: By 2007, establish coordinated research programs to expand our understanding of the Refuge and Yellow River Area natural resources.

Strategies:

1. By 2008, conduct at least two studies of rare sedge meadow habitat (Medium Priority). (Project 18)
2. By 2007, complete a baseline inventory and cover type mapping for the Refuge and the Yellow River Focus Area (High Priority). (Project 19)

Objective 5.3: Surveys and Censuses: In accordance with the Refuge's wildlife inventory step-down plan, the Refuge will continue to conduct/support the following surveys throughout the life of this CCP:

- Spring Waterfowl Breeding Pair Surveys
- Fall Waterfowl Surveys
- Waterfowl Banding
- Sandhill Crane Fly-out Surveys
- Mourning Dove Coo Surveys
- Woodcock Surveys
- Songbird Point Counts
- Karner Blue Butterfly Surveys
- Massasauga Rattlesnake Population Surveys
- Wolf Howling Surveys
- Wolf Tracking Surveys
- Midwest Sandhill Crane Counts

4.4.6 Coordination Activities

Goal 6: Strong, long-term, mutually-beneficial working relationships with Refuge stakeholders will lead to healthy sustainable fish and wildlife populations within the Refuge and the Yellow River Focus Area.

Objective 6.1: *Interagency Coordination:* Beginning in 2005, hold annual joint management plan reviews with the Wisconsin DNR to facilitate management and coordination of Meadow Valley Wildlife Area, Wood County Wildlife Area, Sandhill Wildlife Area, and scattered parcels in Jackson County.

Objective 6.2: Enhance communications with the Air National Guard by participating in at least one meeting per year to discuss the routing of low-flying aircraft in relation to wildlife and visitor use impacts.

Objective 6.3: Work with natural resource management agencies in Juneau, Wood, and Adams counties to enhance Service trust resource management throughout the life of this CCP.

Strategies:

1. Conduct one coordination meeting per year with Juneau County forestry personnel (including the county's advising Wisconsin Department of Natural Resources forester).

2. Participate in the annual Adams County and Juneau County interagency meeting.
3. Beginning in 2005, meet annually with Wisconsin DNR Bureau of Endangered Resources staff to enhance cooperation in identification of rare species on the Refuge.

Objective 6.4: Tribal Coordination: Ensure open communication and provide technical assistance to local Tribal Nations, as requested, throughout the life of this CCP.

Objective 6.5: Private Lands Activities: Restore a minimum of 15 wetlands per year on private land within the Necedah Private Lands District to provide for a diversity of fish and wildlife values throughout the life of this CCP.

Objective 6.6: Private Lands Activities: Restore a minimum of 60 acres per year of native grasslands on private land within the Necedah Private Lands District to provide for a diversity of wildlife values throughout the life of this CCP.

Objective 6.7: Cooperative/Friends Organizations: Actively support the “Friends of Necedah National Wildlife Refuge, Inc.” throughout the life this CCP.

Strategies:

1. Maintain a staff liaison to the Friends of Necedah National Wildlife Refuge, Inc.
2. Provide office space and use of office equipment to Friends volunteers over the life of this Plan.

4.4.7 Visitor Services

Goal 7: The Refuge will provide the public quality wildlife-dependent uses of the Refuge (e.g. wildlife observation and photography, hunting, fishing, environmental education and interpretation) to foster the public’s understanding and appreciation of the Refuge, the National Wildlife Refuge System, and Service trust resources, and to expand the role the public plays in their stewardship.

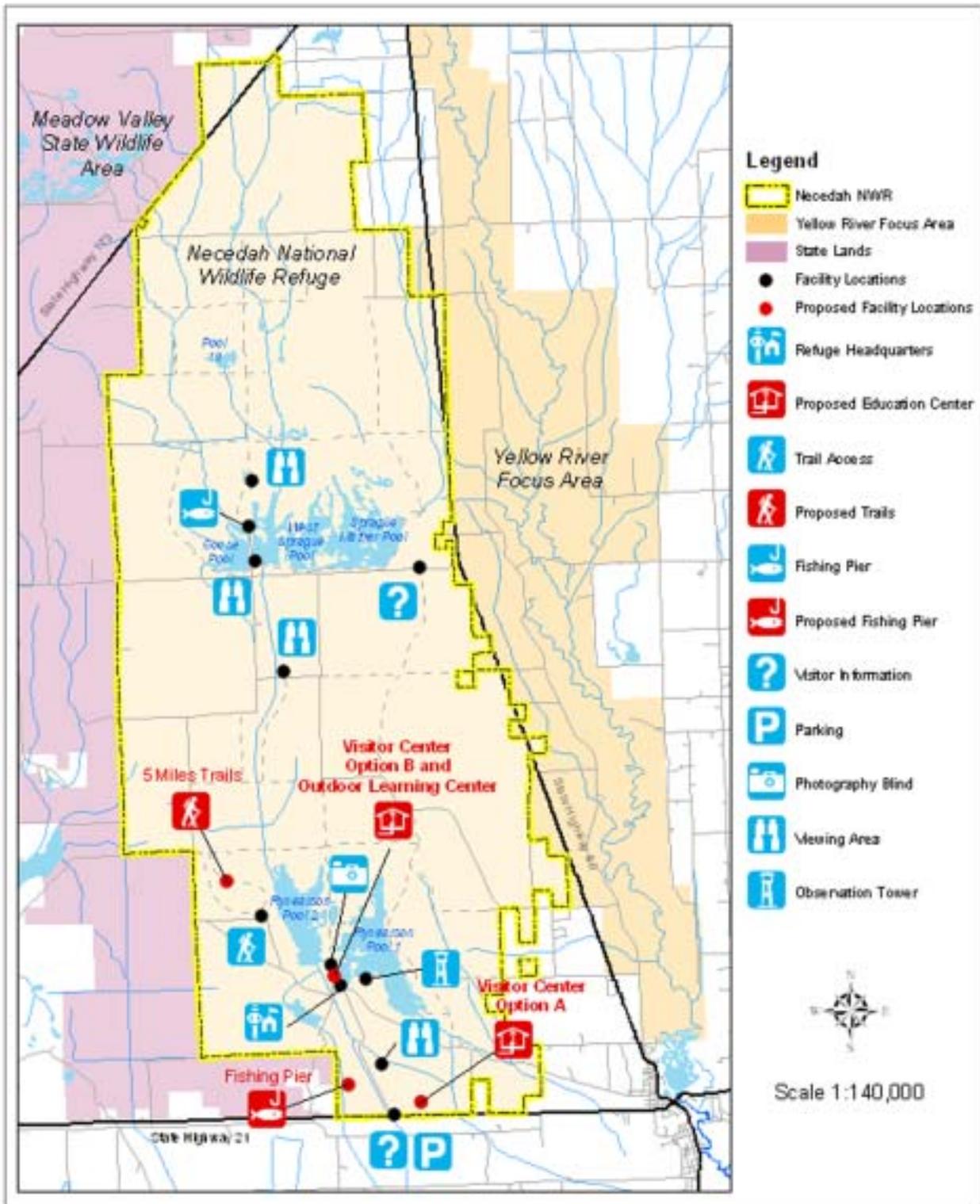
Objective 7.1: *Wildlife Observation and Wildlife Photography:* By 2012, increase wildlife observation and wildlife photography use-days on Refuge land by 20 percent (in 2001, roughly 154,000 visits were made to the Refuge for wildlife observation and 25,000 for photography).

Strategies:

1. In partnership with local, regional, and national tourism groups, promote the Refuge as a “Watchable Wildlife” destination in central Wisconsin.
2. Increase/establish new signage on Interstate 90/94.
3. Develop a local Intelligent Transportation System (radio messaging) to inform motorists about the Refuge and Refuge events.
4. By 2008, develop an observation tower at Carpenter Field to enhance wildlife viewing opportunities (Medium Priority). (Project 20)

Objective 7.2: *Hunting:* Provide the public safe, quality hunting opportunities on Refuge land where hunters will have a reasonable chance of success for waterfowl and other migratory birds, deer, turkey, and small game, throughout the life of this CCP.

Figure 18: Future Desired Conditions, Visitor Services, Necedah NWR



Strategies:

1. Beginning in 2005, coordinate with the Wisconsin DNR to participate in local annual hunter education program.
2. By 2006, determine appropriate Refuge deer hunter use-day numbers from safety, deer population, and hunter satisfaction standpoints. Incorporate findings into the Visitor Services step-down plan (hunting plan).
3. By 2007, develop and maintain two additional off-road parking areas on the Refuge (Low Priority). (Project 21)
4. Continue to emphasize special Refuge hunts for the disabled and youth.

Objective 7.3: *Fishing:* By 2014, increase fishing use-days on Refuge land by 10 percent (in 1999, roughly 3,500 fishing visits were made to the Refuge for the purpose of fishing).

Strategies:

1. Promote and host National Fishing Day events in coordination with the Wisconsin DNR and other partners.
2. Cooperate and coordinate with Wisconsin DNR and Service fishery biologists on Refuge fishery management issues.
3. By 2006, develop a fishing pier and trail at Harvey's Pond to enhance Refuge fishing opportunities (Medium Priority). (Project 22)

Objective 7.4: *Education and Interpretation:* By 2010, expand the Refuge's education and interpretation efforts by 20 percent over 1999 estimates (in 1999, the Refuge reached an estimated 300,000 people through its on-site and off-site efforts, excluding media contacts).

Strategies:

1. By 2005, complete the Ellen Allen Outdoor Learning Center to facilitate additional on-site outdoor learning opportunities (High Priority). (Project 23)
2. Enhance coordination with local and regional educators and partner organizations to promote Refuge-specific themes and the National Wildlife Refuge System.
3. Develop a comprehensive guide to interpretation and education for teachers and other community members interested in Refuge wildlife and nature. The guide will list slide shows, videos, activities, and "topic trunks" like the wetlands trunk, as well as appropriate audiences and running times.
4. By 2007, design and print a nature guide, coloring book, and activity guide for elementary students that features endangered species and unique habitats to increase knowledge of and interest in the Refuges fish, wildlife, plants, and their interrelationships (Medium Priority). (Project 24)
5. By 2009, in partnership with the Wisconsin DNR, develop and install new signage that welcomes and orients visitors to the Necedah Wildlife Management Area (Low Priority). (Project 25)
6. By 2006, develop five additional miles of interpretive trails on the Refuge (High Priority). (Project 26)
7. By 2007, develop and install new interpretative signs on the Refuge, including two interpretive kiosks and site interpretation signage (High Priority). (Project 27)

8. The Refuge, in conjunction with the Friends of Necedah, will coordinate at least five public events per year.

Objective 7.5: *Outreach:* By 2007, develop and maintain a comprehensive communication strategy for the Refuge (communication step-down plan) focusing on five target audiences (e.g., Congress, conservation organizations, communities, communications media, corporations). The communication plan will focus on achieving the following outcomes:

- By 2019, 75 percent of landowners within the four townships surrounding the Refuge will perceive the Refuge as an enduring asset to their community.
- By 2019, 50 percent of landowners within the four townships surrounding the Refuge will know the Refuge is a federal property managed by the Service.
- By 2019, 50 percent of high school seniors taking biology within the 17-county Refuge Management District will perceive 1) the National Wildlife Refuge System as a national treasure, 2) the Refuge as a place where wildlife come first, and 3) the Refuge as part of a national system of refuges comprising the world's largest collection of land and water managed specifically for wildlife.
- By 2010, 85 percent of landowners in the Yellow River Focus Area will recognize that ecosystem as an area worth conserving.
- By 2005, all elected officials representing the Refuge area will be aware of all large or important Refuge events (prior to happenings).

Strategies:

1. Enhance cooperation with local and regional media. Issue a minimum of one news release per month and one news release for every Refuge special event to all local written and broadcast media. Hold an annual media event focusing on the Refuge and the National Wildlife Refuge System.
2. Develop and maintain (update quarterly) the Refuge's web site over the life of this CCP.
3. Annually, brief Wisconsin's conservation organizations about the National Wildlife Refuge System and how any changes may affect their organizations.
4. Participate with the Juneau County Economic Development Committee and work with local corporations on natural resource-related projects that will benefit local communities.

Objective 7.6: In conjunction with the Wisconsin Waterfowl Association, maintain sponsorship (and funding) for the Wisconsin Federal Junior Duck Stamp contest throughout the life of this CCP. (Project 28)

Strategies:

1. Maintain a database of teachers and individuals that have participated in or expressed interest in the Federal Junior Duck Stamp program.
2. Attend conferences and special events, and follow up on referrals to increase awareness of the Federal Junior Duck Stamp program.
3. Acknowledge the contributions of the Wisconsin Waterfowl Association to the Federal Junior Duck Stamp program's success through various medias.

4.4.7.1 Facilities and Services

Objective 7.7: By 2019, 75 percent of Refuge visitors completing a Refuge “customer service feedback form” will rate their overall Refuge experience as good to excellent.

Strategies:

1. Maintain and develop Refuge facilities and services that encourage quality visitor experiences.
2. By 2006, in cooperation with other federal, state, and local partners, complete site selection and preliminary planning for a visitor center that will serve as a first point of contact for Refuge visitors, office space for Refuge staff, and classrooms and meeting space for educators. Construction could occur in 2008. (Figure 18 on page 76) (High Priority). (Project 29)
3. By 2008, facilitate the development of housing to accommodate Refuge volunteers and other stakeholders living outside the commuting area. (Project 38)

Objective 7.8: By 2010, improve the accessibility of Refuge visitor groups with special needs.

Strategies:

1. By 2010, construct one additional universally accessible blind, and hard surface trail or boardwalk (High Priority). (Project 30)
2. By 2009, have available at the Refuge universally accessible versions of select brochures (braille) and videos (close-captioned) (Medium Priority). (Project 31)

4.4.8 Planning And Administration

Goal 8: Necedah NWR will be a safe and healthy environment for employees, volunteers and visitors and will be pro-active in addressing a wide-range of conservation opportunities and issues.

Objective 8.1: By 2009, review and revise all Refuge step-down management plans.

Objective 8.2: Hold the number of work-related injuries to two per year or less.

Strategies:

1. Support a trained safety officer that will conduct annual safety inspections.
2. Hold monthly safety meetings for Refuge staff and volunteers.
3. By 2006, construct suitable containment facilities for hazardous materials such as petroleum-based products, laboratory supplies, and pesticides (Medium Priority). (Project 32)

Objective 8.3: Maintain a safe and palatable water supply for Refuge staff and visitors.

Strategies:

1. Maintain and test the Refuge’s new drinking water treatment system consistent with Service policies (High Priority). (Project 33)
2. By 2005, install a carbon filter to supplement the Refuge’s drinking water treatment system.

Objective 8.4: By 2005, identify all property stewardship needs and complete the following projects that have already been identified.

Strategies:

1. By 2006, construct a 50-foot by 100-foot storage building to protect vehicles, heavy equipment, and other maintenance implements (Medium Priority). (Project 34)
2. By 2006, update the Refuge's security system (Medium Priority). (Project 35)

4.4.9 Work Force

Goal 9: Technically skilled and diverse employees with high morale and job satisfaction will achieve high levels of stakeholder satisfaction.

Objective 9.1: Provide all Refuge staff members with an opportunity to participate in 40 hours of training annually.

Objective 9.2: Hold weekly staff meetings to facilitate staff communication and coordination of Refuge activities.

Objective 9.3: Fill all staff vacancies within 1 year of creation.

Objective 9.4: Ensure diverse candidates are on every hiring certificate, in compliance with Region 3 diversity directives.

Strategies:

1. Utilize the Student Temporary Employment Experience Program and the Student Career Experience Program whenever possible.
2. Maintain contacts with colleges.

Objective 9.5: By 2006, hire one additional full-time Private Lands employee (Medium Priority). (Project 36)

Objective 9.6: By 2005, hire one additional full-time Wage Grade employee (Medium Priority). (Project 37)

Objective 9.7: By 2005, add one full-time Refuge law enforcement officer.

Objective 9.8: By 2008, increase Refuge volunteer participation by 20 percent over 1999 levels.

Strategies:

1. By 2008, remodel the Annex Building to make it suitable housing for volunteers and interns (High Priority). (Project 38)
2. By 2006, complete a kit of volunteer recruitment and orientation tools, including a volunteer slide show, volunteer opportunities leaflet, and a list of volunteer recruitment outlets (Medium Priority). (Project 39)

Objective 9.9: Continue to support work training programs such as the Youth Conservation Corps and the Private Industry Council's youth training program each year throughout the life of this CCP.

Objective 9.10: By 2010, hire one additional park ranger interpretative specialist in conjunction with the new visitor center and increased public use.