

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

NATURAL RESOURCES DEFENSE COUNCIL,
INC.; CENTER FOR BIOLOGICAL DIVERSITY;
FRIENDS OF MINNESOTA SCIENTIFIC AND
NATURAL AREAS,

Plaintiffs,

v.

UNITED STATES FISH AND WILDLIFE
SERVICE, MARTHA WILLIAMS, in her official
capacity as Principal Deputy Director of the
U.S. Fish and Wildlife Service; UNITED STATES
DEPARTMENT OF THE INTERIOR,

Federal Defendants.

Civ. No. 1:21-cv-00770-ABJ

DECLARATION OF THOMAS E. CASEY

I, Thomas E. Casey, declare as follows:

1. I am currently a member of the Friends of Minnesota Scientific and Natural Areas (FMSNA) and serve as Chair of FMSNA's Board of Directors. FMSNA is a Minnesota non-profit, 501(c)(3) organization founded to advocate for the establishment, use, management, and perpetuation of Minnesota's Scientific and Natural Areas (SNA) in an undisturbed natural state. SNAs are public lands designated by the Minnesota Department of Natural Resources (DNR) as exceptional places where native plants and animals flourish; where rare species are protected; and where citizens can conduct scientific research and educate the public about Minnesota's exceptional natural features.
2. My service also includes: Chair of the Legislative Subcommittee of the DNR Commissioner's Natural Heritage Advisory Committee; member of the Minnesota

Environmental Partnerships' Government Relations Committee, and member of the Animal Law Section Council of the Minnesota State Bar Association.

3. I am also a certified Master Naturalist after taking a citizens' course in 2008, dedicating more than the required 40 volunteer hours/year on conservation issues, as a volunteer attorney and citizen advocate.

4. I live on the outskirts of the Twin Cities in Minnesota, about 25 minutes from downtown Minneapolis. The area is within five minutes of open farm country, and close to an excellent regional park system that I regularly enjoy.

5. I have been fascinated with the natural world since my childhood. I was born on the Minnesota Iron Range and was constantly immersed in fishing and other outdoor activities as a child. I frequently took trips to the border lakes, along with the Boundary Waters Canoe Area Wilderness, which I continue to visit as an adult.

6. Nearly every day, I spend time outdoors in the Twin Cities region, visiting natural areas and looking for rare and interesting wildlife. I am an avid amateur nature photographer, so I always bring my camera with me to capture any wildlife I encounter. These hikes and walks are a very big part of my routine; I once had a 6-month streak during which I walked at least 10,000 steps each day. I usually have a target species in mind whenever I go out for a walk or hike, which helps to keep me motivated and focused. I keep journals to record the natural history that I have identified.

7. I first became aware of the rusty patched bumble bee around 2015, when it was being considered for listing as an endangered species. During this time, I learned that the Twin Cities region was one of the last remaining strongholds for this rare bee.

8. I first saw a rusty patched bumble bee during the summer of 2018, when I was able to photograph the bee in Lone Lake Park in Minnetonka, MN. I went to the park with Heather Holm, a noted author and pollinator conservationist, who was able to help me identify the bee. We went out specifically to look for the rusty patched bumble bee, as Ms. Holm knew it existed there. I was very excited to find one—it was kind of like finding the holy grail. Even better, I was able to get good pictures of the bee. Below is one of the pictures that I took of the bee on that day:



9. In July 2020, I saw a rusty patched bumble bee again along an old railroad right-of-way in St. Paul, MN. This time, I was out looking for endangered frogs with a friend of mine who does work for the state of Minnesota related to endangered species. We were talking about the rusty patched bumble bee and just so happened to come upon one.

10. I plan to continue going on my daily walks and hikes and will always be on the lookout for anything on a flower in the hopes of spotting another rusty patched bumble bee.

Some of the places I plan to visit include parks like Gale Woods Farm and Carver Park Reserve (within the Three Rivers Park District System), and Minnesota Valley Natural Wildlife Refuge. Although I haven't seen the bee in these areas yet, I think it's likely I might find them there because I know they are within "High Potential Zones" and "Low Potential Zones" identified by the U.S. Fish and Wildlife Service.

11. I am aware that the U.S. Fish and Wildlife Service has developed a Comprehensive Conservation Plan (Plan) that governs many activities within the Minnesota Valley National Wildlife Refuge (Refuge), where I often visit and look for the bee. The Service's webpage (a true and correct copy of which is attached as Exhibit A) states that the Plan was developed in 2004, and that the agency anticipated that it would update the Plan every five to ten years. Given that the Plan has not been updated since 2004, it seems likely that it is due to be updated.

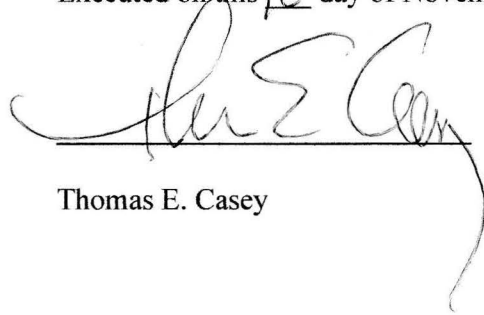
12. In reviewing the Plan and accompanying Environmental Assessment (excerpts from a true and correct copy attached as Exhibit B), I was disappointed that there was no mention of the rusty patched bumble bee or its habitat at all, even though parts of the Refuge are within the "High Priority Zones" identified by the Service. Furthermore, I'm concerned that the Plan sets forth activities that, by their nature, could easily affect the bee and its habitat, such as chemical control of invasive plants, construction of housing and trails, and periodic controlled burns. I think it is likely that, if critical habitat were designated in this area, it could lead to management decisions that avoid or minimize harm to the bee's habitat within the Refuge. For these reasons, I am concerned that the Service's failure to designate any critical habitat makes it likely that management activities would inadvertently harm the bee's habitat and, therefore, reduce my likelihood of seeing and enjoying the bee within the Refuge.

13. If the rusty patched bumble bee were to disappear, it would feel like another nail in the coffin for the natural world. I would be incredibly disappointed. Through the years, people have exterminated so many species that I think there should be a Memorial Day dedicated to all the species that we have lost—maybe even a dedicated museum. It saddens me to think about all of these extinct species. I hope that the rusty patched bumble bee does not join them.

14. I think people in the Twin Cities area would be especially disappointed if the bee were to disappear. Not only is the rusty patched bumble bee Minnesota's "state bee", but this region is one of the bee's last strongholds.

15. I am aware that the U.S. Fish and Wildlife Service has decided not to designate critical habitat for the rusty patched bumble bee, despite its listing as an endangered species. When I heard about the decision, I was very disappointed. I had hoped that critical habitat protections would add another layer of protection for Minnesota's state bee. Now I am afraid that continued loss and degradation of habitat will reduce my likelihood of seeing and photographing the rusty patched bumble bee in the future.

Executed on this ^{4th} 10 day of November, 2021, in Mound, Minnesota.

A handwritten signature in cursive script, appearing to read "Thomas E. Casey", is written over a horizontal line. A long, thin vertical stroke extends downwards from the end of the signature.

Thomas E. Casey

Exhibit A

Minnesota Valley National Wildlife Refuge Comprehensive Conservation Plan,
<https://www.fws.gov/midwest/planning/MinnesotaValley/index.html> (last visited
Dec. 3, 2021)



Branch of Conservation Planning Midwest Region

Minnesota Valley National Wildlife Refuge Comprehensive Conservation Plan

Comprehensive Conservation Plan Completed
Minnesota Valley NWR and Wetland Management District
Request a Copy
Where We Are in the Planning Process

Comprehensive Conservation Plan Completed

In September 2004, the U.S. Fish and Wildlife Service announced the completion of the comprehensive conservation plan, or CCP, for the Minnesota Valley National Wildlife Refuge and Wetland Management District.

The CCP is intended to outline how the Refuge will fulfill its legal purposes and contribute to the National Wildlife Refuge System's wildlife, habitat and public use goals. The plan articulates management goals for the next 15 years and specifies the objectives and strategies needed to accomplish these goals. While the planned future condition is long-term, we anticipate that the plan will be updated every 5 to 10 years based on information gained through monitoring habitat and wildlife as well as recreational usage.

Minnesota Valley NWR and Wetland Management District

The **Minnesota Valley National Wildlife Refuge** was established in 1976 through the efforts of a group of citizens seeking to preserve the river valley along the Minnesota River. Now part of a 34-mile corridor of land and water that stretches from Fort Snelling to Jordan, Minnesota, the Refuge totals over 12,000 acres in eight units. Aptly describe as an "urban refuge," the Visitor Center is located one mile east of the Mall of America in Bloomington. Approximately 5,000 acres are protected as Waterfowl Production Areas and easements through Refuge management of a 14-county Wetland Management District that heads south from the Twin Cities to Owatonna and Mankato. Bird watching is popular on the Refuge, especially when annual migrations funnel hundreds of thousands of waterfowl, songbirds, and raptors through the valley. Wetland, grassland and oak savanna habitat are preserved and restored through water level management, grassland management, exotic species control, and water quality monitoring.

Request a Copy

The CCP is available in a variety of formats. It is available as a portable document format (.pdf) through this website; it is available as a pdf on CD-ROM; and in October 2004 paper copies will be available. Both paper copies and CD-ROMs will be available in libraries in communities surrounding the Refuge. To request a copy, call the Refuge at 952/858-0701 or write to the Refuge at:
Minnesota Valley National Wildlife Refuge
3815 American Blvd. East
Bloomington, MN 55425

Where Are We in the Planning Process?

These are the steps that the U.S. Fish & Wildlife Service follows in comprehensive conservation planning; the step that Minnesota Valley NWR has reached is highlighted:

1. Preplanning: Plan the Plan

2. Initiate Public Involvement and Scoping
3. Review Vision Statement and Goals and Determine Significant Issues
4. Develop and Analyze Alternatives, Including the Proposed Action
5. Prepare a Draft CCP and NEPA (National Environmental Policy Act) Document
6. Prepare and Adopt Final CCP

7. Implement Plan, Monitor and Evaluate

8. Review and Revise the Plan

Exhibit B

U.S. Fish and Wildlife Service, *Minnesota Valley National Wildlife Refuge and Wetland Management District: Comprehensive Conservation Plan and Environmental Assessment*, available at <https://www.fws.gov/midwest/planning/MinnesotaValley/index.html>

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Finding of No Significant Impact

Environmental Assessment and Comprehensive Conservation Plan for the Minnesota Valley National Wildlife Refuge and Wetland Management District, Minnesota

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

Alternative A: Public Use Emphasis

This alternative would encourage a minimal approach to managing habitats while allowing for significantly more public recreational uses and an expanded environmental education program. Staff time, emphasis and resources would be shifted to allow for more public activities in all areas of the Refuge and District. No land for Refuge units would be acquired outside of the current boundaries. Waterfowl Production Area acquisitions would proceed at current or reduced levels.

Alternative B: Current Situation (No Action)

The Current Situation alternative would favor existing, or status quo, refuge management and public outreach practices. Refuge staff would continue to restore and maintain existing wetland, grassland, forest and oak savanna habitats. New Refuge lands would be acquired to complete the current approved boundary. Waterfowl Production Area acquisitions would proceed at current levels. The environmental education program would receive minor improvements in existing facilities, exhibits and interpretive materials.

Alternative C: Balanced Public Use and Habitat Management (Preferred)

This alternative would promote active management of existing habitats, higher quality recreational experiences for visitors and improved public outreach strategies. Up to 10,000 acres of additional Refuge lands would be acquired beyond the current boundaries. The District's Waterfowl Production Area program would also expand as worthy sites are identified. The environmental education program could see a new visitor education facility upriver with needed improvements in existing exhibits and interpretive materials. Additional staff, along with volunteers and interns, would be essential to implement an expanded public use program.

Environmental Assessment

Minnesota Valley National Wildlife Refuge and Wetland Management District Comprehensive Conservation Plan

Chapter 1 – Purpose and Need

Purpose

The purpose of the proposed action is to specify a management direction for Minnesota Valley National Wildlife Refuge (Refuge) and Wetland Management District (District) for the next 15 years. This management direction will be described in detail through a set of goals, objectives, and strategies in a Comprehensive Conservation Plan.



Photograph by Scott Starkey

The action is needed because adequate, long-term management direction does not exist for the refuge. Management is now guided by a Comprehensive Plan that was published in 1984 and by several general policies and short-term plans. Also, the action is needed to address current management issues and to satisfy the legislative mandates of the National Wildlife System Improvement Act of 1997, which requires the preparation of a Comprehensive Conservation Plan for all national wildlife refuges.

The purposes for the Refuge were established by Congress in 1976 through the Minnesota Valley National Wildlife Refuge Act (*Public Law 94-466; October 8, 1976*). In general, its purposes are to (1) provide habitat for a large number of migratory waterfowl, fish, and other wildlife species; (2) to provide environmental education, wildlife recreational opportunities, and interpretive programs for hundreds of thousands of Twin Cities residents; (3) to protect important natural resource areas from degradation; and to (4) protect the valley's unique social, educational, and environmental assets.

We prepared this Environmental Assessment (EA) using guidelines established under the National Environmental Policy Act of 1969. The Act requires us to examine the effects of proposed actions on the natural and human environment. In the following sections we describe four alternatives for future Refuge management, the environmental consequences of each alternative, and our preferred management direction. We designed each alternative as a reasonable mix of fish and wildlife habitat prescriptions and wildlife-dependent recreational opportunities, and then we selected our preferred alternative based on their environmental consequences and their ability to achieve the refuge's purpose.

Need for Action

The CCP ultimately derived from this EA will set the management direction for the

Refuge and the District for the next 15 years. The Refuge is currently guided by a Master Plan published in 1984 and the District has no long-term management plan. Management actions are now mostly guided by general policies and short-term plans. This EA will present four management alternatives for the future of the Refuge and District. The preferred alternative will be selected based on its ability to meet identified goals. These goals may also be considered as the primary need for action. Goals for the Refuge and District were developed by the planning team and encompass all aspects of Refuge and District management including public use, habitat management and maintenance operations. Each of the four management alternatives described in this EA will be able to at least minimally achieve these goals.

Floodplain Forest: To restore, protect, and maintain natural species diversity while emphasizing priority wildlife and plants characteristic of floodplain forests within the northern tallgrass prairie ecosystem.

Discussion: The forested floodplain of the Minnesota River Valley provides migration and production habitat for several bird species that are significant locally or are included in the Region 3 Regional Conservation Priority list. These include the Red-headed Woodpecker, Red-shouldered Hawk and Wood Duck. Numerous songbird species nest within or migrate along floodplain forests. Bald Eagles also use floodplain forests on the Refuge or throughout the Wetland Management District for either migration or nesting habitat. Wading birds, such as the Great Blue Heron and Black-crowned Night-Heron, nest in colonies within the floodplain. These colonial nesting sites are vulnerable to human disturbance and destruction by high winds. The endangered dwarf trout lily also occurs in floodplain forests within part of the Wetland Management District.

Wetlands: To restore, protect, and maintain natural species diversity while emphasizing priority fish, wildlife and plants characteristic of wetlands within the northern tallgrass prairie ecosystem.

Discussion: Refuge and District wetlands contribute migration and production habitat for waterfowl, waterbirds, and shorebirds. Several of these key species are regional conservation priorities including the Mallard, Blue-winged Teal, Canvasback, Wood Duck, American Bittern, and Black Tern. Other wildlife species of local significance that use these wetlands include Great Blue Heron, Great Egret, river otter, mink, muskrat and several amphibian species. Floodplain and riverine wetlands located on the Refuge also provide important spawning and nursery habitats for resident fish.

Upland Forest: To restore, protect, and maintain natural species diversity while emphasizing priority wildlife and plants characteristic of upland forests within the northern tallgrass prairie ecosystem.

Discussion: Upland forests, primarily those located along the bluffs of the river valley, provide migration and production habitat for several species of songbirds that are significant locally or are included in the Region 3 RCP list. Among these species are Red-headed Woodpecker, Northern Flicker, and Loggerhead Shrike. Several locally or regionally significant raptors also use upland forests on the Refuge or throughout the Wetland Management District for either migration, nesting, and in some cases wintering habitat. These species include the Bald Eagle, Red-shouldered Hawk, and Long-eared Owl. The endangered dwarf trout lily also occurs in upland forests within part of the Wetland Management District.

Grasslands and Oak Savanna: To restore, protect, and maintain natural species diversity while emphasizing priority grassland-dependent wildlife and plants characteristic of the northern tallgrass prairie ecosystem.

Discussion: Refuge and Wetland District grasslands, especially those within the uplands of Waterfowl Production Areas, have the potential to provide benefits for birds that require large blocks of grasslands for nesting success and population viability. Oak savannas, historically found throughout the Minnesota River Valley, also afford critical habitat for some of these birds. This is important because populations of many Region 3 Regional RCP “grassland” bird species, such as Bobolink, Grasshopper Sparrow and Eastern Meadowlark have shown steady declines over the last 35 years. Large grassland patches (over 250 acres), or smaller connected grasslands or those in proximity to other non-forested habitats, provide the best nesting conditions for many area-sensitive bird species. Larger grassland blocks will also increase the nesting success of RCP waterfowl such as Mallards and Blue-winged Teal. In addition, several reptile and butterfly species of Special Concern in the State of Minnesota, such as five-lined skink, racer, gopher snake and western hognose snake, and the Arogos, Leonardus, and Powesheik Skippers will benefit from native grassland management.

Land Protection: To enhance the integrity of lands within the authorized boundary of the Refuge and contribute to the protection and restoration of fish and wildlife habitats within the Minnesota River watershed.

Discussion: Local communities and state agencies have worked together for years to restore and protect the unique natural qualities of the Minnesota River Valley. Efforts within the last decade have focused on reducing the sediment and pollutant load within the river to make it “swimmable and fishable” as soon as possible. The Service would like to contribute to that effort. The river and its riparian habitat is important to Federal trust species such as waterfowl, migratory songbirds and endangered plants. Land acquisition for new refuge units, either in fee or through conservation easements, and subsequent habitat restoration is one way the Service can contribute to the collective goal of a clean river and abundant and healthy fish, wildlife and plant communities.

Public Use: To provide quality wildlife-dependent recreational and environmental education opportunities to a diverse audience. These activities will promote understanding, appreciation and support for Minnesota Valley National Wildlife Refuge and the Wetland Management District as well as the entire National Wildlife Refuge System.

Discussion: Under the National Wildlife Refuge System Improvement Act of 1997, the Service must provide opportunities for six priority uses: hunting, fishing, wildlife observation, wildlife photography, environmental education, and environmental interpretation. These uses will be encouraged where they do not conflict with the primary purposes of the Refuge and Management District.

Decision Framework

The Regional Director for the Great Lakes-Big Rivers Region will need to make two decisions based on this EA: (1) select an alternative and (2) determine if the selected alternative is a major Federal action significantly affecting the quality of the human environment, thus requiring preparation of an Environmental Impact Statement. The

planning team has recommended Alternative C to the Regional Director. The Draft CCP was developed for implementation based on this recommendation.

Authority, Legal Compliance, and Compatibility

The National Wildlife Refuge System includes federal lands managed primarily to provide habitat for a diversity of fish, wildlife and plant species. National wildlife refuges are established under many different authorities and funding sources for a variety of purposes. The purposes for the Refuge were established by specific legislation and are listed in the previous section. The District's Waterfowl Production Areas are also part of the Refuge System and are acquired using receipts from the Migratory Bird Conservation Fund (Duck Stamp Fund).

Additional authority delegated by Congress, federal regulations, executive orders and several management plans guide the operation of the Refuge and Wetland District. The appendix of the CCP contains a list of the key laws, orders and regulations that provide a framework for the proposed action.

Scoping of the Issues

The planning process began in October 1998 when a team comprised of Service employees and a representative each from the Minnesota Department of Natural Resources and the Friends of the Minnesota Valley met to review the original Comprehensive or Master Plan (1984) and identify a number of issues and concerns that would likely affect the future of the Refuge and the District. The team agreed to a process for obtaining public input and for completion of the Refuge and District CCP. Public input was obtained using several methods including open houses, issue-based focus groups, public use surveys, and personal contacts. Please see Chapter 2 of the CCP for more detail on the scoping of issues.

Issues and Concerns

An array of issues, concerns, and opportunities were addressed during the planning process. Numerous discussions among citizens, focus group participants, resource specialists, and Refuge planning staff brought to light several recurring themes. In general, themes centered on appropriate recreational uses, confusing rules and regulations on public lands in the valley, land protection and watershed activities, and maintenance of Refuge and District facilities. Some of the issues raised during internal and public scoping included:

- Degradation of Minnesota River Water Quality
- Land Use and Development Adjacent to Refuge
- Loss in Quality of Visitor Facilities
- Completion of the Minnesota Valley State Trail
- Control of Exotic/Invasive Plants
- Mountain Biking
- Horseback Riding
- Low Public Awareness of Refuge and Resource Protection Goals

A complete listing and further discussion of these issues and concerns can be found in Chapter 2 of the CCP and Chapter 2 of this EA.

Chapter 2 – Description of the Alternatives

Formulation of Alternatives

Four management alternatives were developed by the planning team based on issues, concerns and opportunities presented during the CCP scoping process. The issues that are discussed came from individuals, cooperating agencies, conservation organizations and Refuge staff. A summary of the four alternatives is provided in Table 1 on page 113.

The following four management alternatives were developed to generally fit within the current Refuge and Wetland District budget. In other words, the alternatives were formulated under the assumption that a large budget increase for refuge operations is unlikely during the life of the plan. If an alternative calls for one program to increase significantly in size or scope other refuge programs would need to be reduced. However, we did provide for the possibility of new private resources (volunteers, grant funds, etc.) and a modest refuge program and/or staff funding increase. In addition, the airport mitigation Trust Fund established in 2000 will be able to contribute toward land acquisition, new facilities and some program increases.

The four management alternatives were developed to address most of the issues, concerns and opportunities identified during the CCP planning process. Specific impacts of implementing each alternative will be examined in seven broad issue categories;

Habitat: What level of habitat restoration and maintenance is appropriate given funding constraints and desired future conditions?

Fish, Wildlife and Plants: How should we deal with the overpopulation of some wildlife species, such as carp, white-tailed deer and beaver, that can cause negative impacts to vegetation and habitat management capabilities? Can we protect critical migratory bird habitats, such as heron colonies and Bald Eagle nests? Will the proposed management scenario benefit natural biodiversity?

Recreation: What is the appropriate level of recreational activities on Refuge and District lands? Does the Refuge adequately meet the mandate to provide quality wildlife-dependent recreation?

Secondary Recreational Uses: What are appropriate non-wildlife dependent recreational activities on Refuge and District lands?

Resource Threats: What aspects of surrounding land uses threaten the integrity of ecological processes on the Refuge and Waterfowl Production Areas? What can the refuge do to control or reduce negative impacts?

Land Protection: Will the Refuge and District continue to grow and for what reasons? Can the Refuge, and the U.S. Fish and Wildlife Service, play a larger role in resource conservation in the Minnesota River watershed?

Environmental Education: Will the quality of environmental education, both on-site and through outreach, be improved in the future? How can the airport mitigation Refuge Trust Fund be used to replace lost opportunities and/or expand the environmental education program?

Alternative A. Public Use Emphasis

This alternative would encourage a minimal approach to managing habitats while allowing for significantly more public recreational uses and an expanded environmental education program. Staff time, emphasis and resources would be shifted to allow for more public activities in all areas of the refuge. Additional wetlands, grasslands or oak savannas would not be restored on existing refuge lands. No land for Refuge units would be acquired outside of the current boundaries. Waterfowl Production Area acquisitions would proceed at current or reduced levels. Control of exotic plant or nuisance wildlife populations would be kept to a minimal and reactive level.

No new restrictions on recreational uses such as canoeing, horseback riding and mountain biking would occur under this alternative. The environmental education program could see a new visitor education facility, exhibits and interpretive materials. Additional staff and/or volunteers would be added in an effort to increase on-site public contacts throughout the Refuge.

Further site-specific detail, public involvement and planning under the National Environmental Policy Act will occur prior to construction of a visitor education facility or other major facility.

Alternative B. Current Situation–2002 (No Action)

The No Action alternative would favor existing, or status quo, refuge management and public outreach practices. Refuge staff would continue to restore and maintain existing wetland, grassland, forest and oak savanna habitats. New Refuge lands would be acquired to complete the current approved boundary. Biological controls and harvest methods would be used to control exotic plant or nuisance wildlife species. Current restrictions or prohibitions remain in place on canoeing, snowmobiling, horseback riding and off-trail biking. The environmental education program could see a new visitor education facility upriver but only minor improvements in existing exhibits and interpretive materials.

Alternative C. Balanced Public Use and Habitat Management (Preferred Alternative)

The Service planning team has identified Alternative C, a balanced public use and habitat management approach, as the preferred alternative. Alternative C was selected and developed based on public input and the best judgement of the planning team. The strategies presented in the CCP were developed as a direct result of the selection of Alternative C.

The preferred alternative would promote active management of existing habitats, quality recreational experiences for visitors and improved public outreach strategies. Refuge staff would continue to restore and maintain existing wetland, grassland and floodplain forest areas. Oak savanna habitats could receive new and intensive maintenance applications. New Refuge lands could be acquired up to 10,737 acres (see Appendix I: Land Protection Plan). The District's Waterfowl Production Area program would also expand as worthy sites are identified. Integrated biological controls and harvest methods would be used to control exotic plant or nuisance wildlife species. Horseback riding and

Table 1: Summary of Management Alternatives for the Minnesota Valley National Wildlife Refuge and Wetland District.

Issues	Alternative A Public Use Emphasis	Alternative B Current Situation (No Action)	Alternative C Balanced Public Use and Habitat Management (Preferred Alternative)	Alternative D Habitat Management Emphasis
<i>Habitat</i>				
<i>Wetlands</i>	No active management.	Mitigative management.	Manage intensively with new water control structures	Same as Alt. C.
<i>Grasslands / Oak Savanna</i>	No active management.	Restoration and management (hydro-ax and burn).	Prairie eco-type planting scheme and intensive management.	Restoration with component of native trees, shrubs and forbs.
<i>Floodplain Forest</i>	No active management.	Natural regeneration.	Intensive restoration (plant trees).	Intensive restoration with full complement of native trees and shrubs.
<i>Upland Forest</i>	No active management.	Natural regeneration.	Intensive restoration (tree planting).	Intensive restoration with full complement of native trees and shrubs.
<i>Fish, Wildlife and Plants</i>				
<i>Exotic Plant Species</i>	No control measures.	Limited control (2 species), minimal biological control.	Control of target species and integrated biological control.	Full control of all species and integrated biological control.
<i>Nuisance Wildlife Control</i>	Reactive control and public education.	Proactive control (i.e. deer hunts and beaver control).	Same as Alt. B.	Same as Alt. B, but consider adding species to active control list.
<i>Critical Migratory Bird Nesting Areas</i>	Enforce minimum legal protection.	Limited access and protection (some nesting areas not closed).	Minimum level of protection as stated under MnDNR guidelines (case-by-case).	Maximum level of protection as stated under MnDNR guidelines.
<i>Endangered and Threatened Species (Federal)</i>	Possible limited disturbance of Bald Eagle nests.	Limited closures to protect Bald Eagle nests.	Limited closures to protect Bald Eagle nests.	Increased closures to protect Bald Eagle nests.

Table 1: Summary of Management Alternatives for the Minnesota Valley National Wildlife Refuge and Wetland District (Continued)

Issues	Alternative A Public Use Emphasis	Alternative B Current Situation (No Action)	Alternative C Balanced Public Use and Habitat Management (Preferred Alternative)	Alternative D Habitat Management Emphasis
Recreation				
<i>Hunting</i>	Allow on all refuge units upstream of of I-35W consistent with state regulations.	Allow within select units/areas (identified in hunting brochure).	Hunting program designed to improve quality (limited permits system).	Significantly decrease hunting on refuge.
<i>Fishing (Minnesota River, side-channels and Refuge lakes)</i>	Open to all fishing (non-motorized boats only). Improved or new boat and shore-line access.	Bank fishing only on Minnesota River.	Improve quality of fishing and access with active management (i.e., Long Meadow and Chaska lakes.	Bank fishing with seasonal closures near sensitive wildlife habitats.
<i>Recreational Trail System</i>	Complete trails as proposed in 1984 Master Plan	Same as Alt. A plus maintain existing trails.	Partner with DNR to help complete State Trail. Possible trail development for all refuge units. Provide trail maps.	Same as Alt. B
Secondary Recreational Uses				
<i>Bicycling</i>	Allowed on State Trail and existing refuge trails.	Allowed on State Trail and existing refuge trails.	Limited access routes to State Trail and designated refuge trails.	Allowed on State Trail only.
<i>Horseback Riding</i>	State Trail, Fisher Lake, Rice Lake and Blue (unregulated).	State Trail, Fisher Lake, Rice Lake and Blue (unregulated).	Allowed on State Trail and across limited access routes.	Same as Alt. C
<i>Canoeing (excluding Minnesota River, non-motorized only)</i>	Unregulated (will be allowed on all Refuge waters).	No canoeing.	Increase in canoe trip interpretive programs.	No canoeing.
Resource Threats				
<i>Storm water, spills and persistent contaminants</i>	No action.	Reactive actions only with minimal monitoring.	Proactive, work with cities and include routine monitoring.	Same as Alt. C.
<i>Land use and development adjacent to Refuge</i>	No action.	React to immediate threats to Refuge resources.	Proactive. Work with partners and decision-makers.	Same as Alt. C.

Table 1: Summary of Management Alternatives for the Minnesota Valley National Wildlife Refuge and Wetland District (Continued)

Issues	Alternative A Public Use Emphasis	Alternative B Current Situation (No Action)	Alternative C Balanced Public Use and Habitat Management (Preferred Alternative)	Alternative D Habitat Management Emphasis
Land Protection				
<i>Land Protection: Wetland Management District</i>	No new WPA acquisitions.	Average 500-1,000 acres per year in fee and easements.	Acquire approximately 750 acres per year.	Acquire 25,000 acres in total.
<i>Land Protection: Existing Refuge and Beyond</i>	No or limited acquisitions. Only manage lands within existing Refuge boundary.	Acquire and manage lands only within existing Refuge boundary (14,000 acres total).	Add up to 10,737 acres to Refuge	Protect up to 100,000 acres up-river based on 1994 Citizens Advisory Committee recommendations.
Environmental Education				
<i>Need for New Facilities</i>	Add visitor education facility, possibly at Chaska, Rapids Lake, or Louisville.	Add visitor education facility, possibly at Chaska, Rapids Lake, or Louisville.	Add visitor education facility, possibly at Chaska, Rapids Lake, or Louisville.	Decrease effort directed toward public education and use of Refuge.
<i>Underused Existing Facilities and Interpretive Media</i>	Improve outreach media and interpretive materials.	No change in quality and quantity of outreach efforts.	Same as Alt. A.	Decrease effort directed toward public education and use of Refuge.
<i>Outdated Exhibits</i>	Replace and actively maintain exhibits. Create a multi-purpose room.	Minimal maintenance with occasional improvements.	Replace and actively maintain exhibits. Create a multi-purpose room.	Minimal maintenance with occasional improvements.
<i>Low Public Awareness of Refuge and Protection Goals</i>	Increase in staffing. Explore new techniques for outreach and enforcement.	No increase in outreach or law enforcement.	Increase in staffing. Explore new techniques for outreach and enforcement.	No increase in outreach or law enforcement.

the use of snowmobiles and mountain bikes would be limited to authorized segments of the Minnesota Valley State Trail. The environmental education program could see a new visitor education facility upriver with needed improvements in existing exhibits and interpretive materials. Additional staff, along with volunteers and interns, would be essential to implement an expanded public use program.

Alternative D. Habitat Management Emphasis

Alternative D would emphasize the pro-active management of existing habitats. Available staff and discretionary funding would be applied to fish and wildlife habitat enhancements such as prescribed burning of grasslands and oak savannas, planting trees in converted bottomland forests and invasive plant control. The biological research and monitoring program would also receive more attention. In contrast to the expanding habitat work, new recreational opportunities for visitors would not be pursued and environmental education and outreach programs would remain at the year 2001 level or below.

Refuge staff would restore and maintain existing wetland, grassland and floodplain forest areas. Oak savanna habitats would receive intensive maintenance applications including hand cutting of woody plant invasives. New Refuge lands could be acquired up to a 100,000-acre maximum (see Appendix I: Land Protection Plan). The District's Waterfowl Production Area program would also expand as worthy sites are identified. Integrated biological controls and harvest methods would be used to control exotic plant or nuisance wildlife species. Horseback riding and the use of snowmobiles and mountain bikes would be limited to authorized segments of the Minnesota Valley State Trail. The environmental education program could see a new visitor education facility upriver but only minor improvements in existing exhibits and interpretive materials.

Chapter 3 – Affected Environment

Minnesota Valley National Wildlife Refuge is located along 40 miles of the lower Minnesota River from Minneapolis, Minnesota, upstream to the town of Jordan, Minnesota. The Refuge, with a current approved boundary of 14,000 acres, was established by Congress in 1976. The Minnesota Valley Wetland Management District was established in 1994 and the 14-county District includes conservation easements and fee ownership of over 5,000 acres. The following section briefly describes the Minnesota River Valley downstream from the Cottonwood River at New Ulm to its confluence with the Mississippi River at Fort Snelling. More detail is included in Chapter 3 of the CCP.

Lower Minnesota River: Major vegetation community types found within the Refuge and the lower Minnesota River Valley include floodplain forest, upland forest, oak savanna and native prairie. The floodplain forests, which can flood in the spring or after a heavy rainfall, are dominated by water tolerant tree species such as silver maple, cottonwood and black willow. The upland forests consist of oak forest in well drained areas and maple-basswood forests in wetter sites such as ravines and moist terrace slopes. Existing oak savannas are primarily grazed pastures with scattered bur and northern pin oak trees. Remnant prairies, with a mix of warm season grasses and forbs, are generally found at sites along the river bluff (known locally as goat prairies) or are maintained on state and county park lands.

Middle Minnesota River: From the air, the midsection of the Minnesota River appears as a ribbon of green stretching through a vast patchwork of crop fields, roads and prairie settlements. The river corridor, at the historic juncture of the Northern Tallgrass Prairie and the Big Woods, still includes remnant prairies, deciduous upland forests, floodplain



Photograph by Scott Sharkey

forests, oak savannas, and at least eight types of wetlands. Downstream from the City of New Ulm, numerous small streams and several major tributaries, including the Le Sueur, Blue Earth and Cottonwood Rivers enter the Minnesota River. These rivers flow slowly as the range of elevations in the Minnesota River Valley and surrounding uplands, some of the lowest in the State, varies only from 600 to 800 feet.

More than 260 species of birds use the area during migration and 100-150 of these species nest in the Minnesota River Watershed. Bald Eagles use the area for nesting and feeding each spring and fall. Every year, 30,000-40,000 waterfowl congregate in the lower portion of the Minnesota River Valley prior to fall migration. This avian diversity is complemented by approximately 50 species of mammals and 30 species of reptiles and amphibians. At least 10 game fish species are found in the river and tributaries including walleye, sauger, largemouth bass and channel catfish.

Threatened and Endangered Species

One federally listed species (Bald Eagle) and two state-listed species (Loggerhead Shrike and Common Tern) bird species use the Minnesota River Valley during part of their life cycle. Blanding's turtle, a state-listed reptile, is also found in suitable habitat.

Four more federally listed species have historically occurred on or near the Refuge or District, or are undocumented but may be found in suitable habitat. The Karner blue butterfly (*Lycæides samuelis*), a federally listed threatened species, and its larval host plant, wild blue lupine (*Lupinus perennis*) have not been found but, although they are rare, could exist in the region. The dwarf trout lily (*Erythronium popullans*), a federally listed endangered species, occurs in Rice County and so may be found within the Refuge or District. Prairie bush clover (*Lespedeza leptostachya*), a federally listed threatened species, may occur in the western portion of the District since suitable habitat exists. The Higgins eye pearly mussel (*Lampsilis higginsii*), a federally listed endangered species, historically occurred in large rivers and, although it is listed as rare or absent, could occur in the Minnesota River.

Archeological and Cultural Values

Archeological records show evidence of the presence of all cultural periods from the retreat of the glaciers to the present day on the Refuge and the District. Known and potential sites include prehistoric isolated finds, camps, villages, subsistence and procurement stations, quarries, and mounds and human burials; and post contact (Western culture) Indian villages, trading posts, homesteads, farmsteads (buildings and land), other rural buildings and structures, cemeteries, trails, roads, and railroads, ferries, conservation projects, drainage ditches, open pit mines (e.g., gravel), sacred sites, cultural hunting and gathering areas, and battlefields.

To date, archeological investigations have covered about 1,500 acres of Refuge and District land. Through these studies and from other sources, 80 cultural resource sites have been identified. Most Refuge and District lands are in close association with larger bodies of water and permanent streams, the same landforms that appear to have been preferred by prehistoric inhabitants as well as more recent settlers. The number of reported sites is expect to be a small fraction of the total number of sites actually present on Service land.

Chapter 4 – Environmental Consequences

Effects Common to all Alternatives

Specific environmental and social impacts of implementing each alternative are examined in the seven broad issue categories; habitat, fish/wildlife/plants, recreation, secondary recreational uses, resource threats, land protection and environmental education. However, a few potential effects will be the same under each alternative and are summarized below:

Air and Water Quality: Habitat management involving prescribed burning may occur and only under ideal conditions of weather. Smoke management practices will be implemented during all burning events. Refuge management activities and visitor use should not negatively affect water quality. Future land acquisition in erosion-prone areas and encouraging municipal storm water treatments will improve water quality in the Minnesota River and tributaries.

Cultural Resources: The U.S. Fish and Wildlife Service is responsible for managing archeological and historic sites found on federal land. At the start of the CCP planning process, the Service contracted with U.S. West Research, Inc. to produce a Cultural Resource Management Plan for the Refuge and the District's Waterfowl Production Areas (Godfrey 1999). The three volume plan was delivered in June 1999. There are 77 known historical sites located on Service lands. Sites include ferry/steamboat landings, farmsteads, trading posts, bridges, townsites, etc. Many sites have not been evaluated regarding their eligibility for the National Register of Historic Places. However, at least 24 sites have been determined to be ineligible.

The Cultural Resource Management Plan will be used by Refuge managers to ensure compliance with relevant federal, tribal, state and local laws and regulations. Prior to all habitat and facility maintenance activities, appropriate efforts will be made to identify known and possible cultural resources within the area of potential impact. Avoidance of cultural resources would be the preferred treatment.

Environmental Justice: Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” was signed by President Clinton on February 11, 1994, to focus Federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order directed Federal agencies to develop environmental justice strategies to aid in identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The Order is also intended to promote nondiscrimination in Federal programs substantially affecting

human health and the environment, and to provide minority and low-income communities access to public information and participation in matters relating to human health or the environment.

None of the management alternatives described in this EA will disproportionately place any adverse environmental, economic, social, or health impacts on minority and low-income populations. Implementation of any action alternative that includes public use and environmental education will actually provide a benefit to urban residents living in the Twin Cities Metro Area.

Climate Change Impacts: The U.S. Department of the Interior issued an order in January 2001 requiring federal agencies under its direction that have land management responsibilities to consider potential climate change impacts as part of long range planning endeavors.

The increase of carbon within the earth's atmosphere has been linked to the gradual rise in surface temperature commonly referred to as global warming. In relation to comprehensive conservation planning for national wildlife refuges, carbon sequestration constitutes the primary climate-related impact to be considered in planning. The U.S. Department of Energy's "*Carbon Sequestration Research and Development*" (U.S. DOE, 1999) defines carbon sequestration as "...the capture and secure storage of carbon that would otherwise be emitted to or remain in the atmosphere."

The land is a tremendous force in carbon sequestration. Terrestrial biomes of all sorts – grasslands, forests, wetlands, tundra, perpetual ice and desert – are effective both in preventing carbon emission and acting as a biological "scrubber" of atmospheric carbon monoxide. The Department of Energy report's conclusions noted that ecosystem protection is important to carbon sequestration and may reduce or prevent loss of carbon currently stored in the terrestrial biosphere.

Preserving natural habitat for wildlife is the heart of any long range plan for national wildlife refuges. The actions proposed in this Comprehensive Conservation Plan would preserve or restore land and water, and would thus enhance carbon sequestration. This in turn contributes positively to efforts to mitigate human-induced global climate changes.

Summary of Effects by Alternative

The following section describes the environmental consequences of adopting each refuge management alternative. Table 2 (pages 120-122) addresses the likely outcomes for specific issues and is organized by broad issue categories.

Alternative A: Public Use Emphasis

This alternative would emphasize recreational uses and environmental education while maintaining a low maintenance approach to managing habitats. Staff time and resources would be shifted to allow for more public activities in all areas of the refuge. Wetlands, grasslands or oak savannas would not be actively restored on existing refuge lands. No land for Refuge units would be acquired outside of the current boundaries. Hillside forests and goat prairies adjacent to the refuge would continue to be lost due to subdivision and housing developments.

Table 2: Summary of Environmental Consequences for Management Alternatives for the Minnesota Valley National Wildlife Refuge and Wetland Management District

Issues	Alternative A Public Use Emphasis	Alternative B Current Situation (No Action)	Alternative C Balanced Public Use and Habitat Management (Preferred Alternative)	Alternative D Habitat Management Emphasis
<i>Habitat</i>				
<i>Wetlands</i>	Decreased. No active management.	Slight increase. Mitigative management.	Increased. New water control structures.	Same as Alt. C.
<i>Grasslands / Oak Savanna</i>	Decreased. No active management.	Increased through restoration and active management.	Increased through planting and intensive management.	Increased through restoration of native trees, shrubs and forbs.
<i>Floodplain Forest</i>	Decreased. No active management.	Increased through natural regeneration.	Increased through intensive restoration (plant trees).	Increased by restoration with full complement of native trees and shrubs.
<i>Upland Forest</i>	Decreased. No active management.	Increased through natural regeneration.	Increased through intensive restoration (tree planting).	Increased by intensive restoration with native trees and shrubs.
<i>Fish, Wildlife and Plants</i>				
<i>Exotic Plant Species</i>	Loss of habitat due to lack of control measures.	Loss of habitat due to limited control measures.	Slight gain of habitat due to target species and integrated biological control.	Gain of habitat due to full control of all species and integrated biological control.
<i>Nuisance Wildlife</i>	Stable to increased populations due to reactive control and public education.	Stable to decreased populations due to proactive control.	Same as Alt. B.	Same as Alt. B, but consider adding species to control list.
<i>Critical Migratory Bird Nesting Areas (Bald Eagle, Hérons)</i>	Increase in disturbance. Enforce minimum legal protections.	Limited disturbance through limited access and some area closures.	Limited disturbance through minimum level of protection as stated under MnDNR guidelines.	Decreased disturbance through maximum level of protection as stated under MnDNR guidelines.
<i>Endangered and Threatened Species (Federal)</i>	Stable to increased disturbance of Bald Eagle nests.	Stable. Limited closures to protect Bald Eagle nests.	Stable. Limited closures to protect Bald Eagle nests.	Reduced disturbance through more area closures around Bald Eagle nests.

Table 2 (Continued): Summary of Environmental Consequences for Management Alternatives for the Minnesota Valley National Wildlife Refuge and Wetland Management District

Issues	Alternative A Public Use Emphasis	Alternative B Current Situation (No Action)	Alternative C Balanced Public Use and Habitat Management (Preferred Alternative)	Alternative D Habitat Management Emphasis
Recreation				
<i>Hunting</i>	Increased. Allow on all Refuge units upstream of I-35W consistent with State regulations.	Stable. Allow within select units/areas (identified in hunting brochure).	Stable. Same as Alt. B except that program will be designed to improve quality of experience.	Stable to decreased hunting opportunities.
<i>Fishing (Minnesota River, side-channels and Refuge lakes)</i>	Increased. Open to all fishing (non-motorized boats only). Improved or new boat and shore-line access.	Stable. Bank fishing only on Minnesota River.	Increased. Improved quality of fishing and access.	Decreased. Bank fishing with seasonal closures near sensitive wildlife habitats.
<i>Recreational Trail System</i>	Increased. Complete trails as proposed in 1984 Master Plan.	Same as Alt. A, plus maintain existing trails.	Increased. Partner with DNR to help complete State Trail. Possible trail development for most Refuge units.	Same as Alt. A with less emphasis on maintaining existing trails.
Secondary Recreational Uses				
<i>Bicycling</i>	Stable to increased. Allowed on State Trail and existing Refuge trails.	Same as Alt. A.	Stable to decreased. Limited access routes to State Trail and designated Refuge trails.	Decreased. Allowed on State Trail only.
<i>Horseback Riding</i>	Limited to State Trail, Fisher Lake, Rice Lake and Blue (unregulated).	Same as Alt. A.	Decreased. Allowed on State Trail and across limited access routes only.	Same as Alt. C.
<i>Canoeing (Excluding Minnesota River, non-motorized only)</i>	Increased. Would be allowed on all Refuge waters.	No canoeing.	Increased. More interpretive canoe trips.	Same as Alt. B.
Resource Threats				
<i>Storm Water, Spills and Persistent Contaminants</i>	No action.	Stable protection. Reactive actions only with minimal monitoring.	Increased protection due to proactive work with cities and routine monitoring.	Same as Alt. C.
<i>Land Use and Development Adjacent to Refuge</i>	No action.	Stable protection, reaction to immediate threats to Refuge resources.	Increased protection due to more work with partners and decision-makers.	Same as Alt. C.

Table 2 (Continued): Summary of Environmental Consequences for Management Alternatives for the Minnesota Valley National Wildlife Refuge and Wetland Management District

Issues	Alternative A Public Use Emphasis	Alternative B Current Situation (No Action)	Alternative C Balanced Public Use and Habitat Management (Preferred Alternative)	Alternative D Habitat Management Emphasis
<i>Land Protection</i>				
<i>Land Protection: Wetland District</i>	Decreased. No new WPA acquisitions.	Slight increase. Average 500-1,000 acres per year in fee and easements.	Increased. Acquire ~ 750 acres per year.	Increased. Acquire 25,000 acres in total.
<i>Land Protection: Existing Refuge and Beyond</i>	Decreased. No or limited acquisitions. Only manage lands within existing Refuge boundary.	Stable. Acquire and manage lands only within existing Refuge boundary.	Increased. Add up to 10,737 acres to Refuge.	Increased. Protect from 50,000 to 100,000 acres.
<i>Environmental Education</i>				
<i>Public Use Facilities</i>	Increased. Add visitor education facility or facilities.	Same as Alt. A.	Same as Alt. A.	Decreased. Less effort directed toward outreach and use of Refuge.
<i>Quality of Interpretive Media</i>	Increased. Improved outreach media and materials.	Stable. No change in quality and quantity of outreach efforts.	Same as Alt. A.	Decreased. Less effort directed toward education.
<i>Quality of of Exhibits</i>	Increased. Replace and actively maintain exhibits. Create a multi-purpose room.	Slight increase. Occasional improvements.	Increased. Replace and actively maintain exhibits. Create a multi-purpose room.	Same as Alt. B.
<i>Public Awareness of Refuge and Resource Protection Goals</i>	Increased. More staff and new techniques for outreach and enforcement.	Stable. No increase in outreach or law enforcement.	Same as Alt. A.	Same as Alt. B.

Control of exotic plants or nuisance wildlife populations would be kept to a minimal and reactive level. Purple loosestrife would continue to pioneer into new areas with a resultant loss in wetland value for wildlife. However, the deer herd could be controlled through public hunting that would be expanded to new areas under this alternative.

Secondary recreational uses such as horseback riding and mountain biking would be allowed on existing trails. However, no new areas would be opened to these uses. The environmental education program could see a new visitor education facility, exhibits and interpretive materials. Additional staff and/or volunteers would be added in an effort to increase on-site public contacts throughout the Refuge.

Alternative B: The Current Situation (No Action)

Existing Refuge management and public outreach practices would be favored under this alternative. Refuge staff would continue to restore and maintain existing wetland, grassland, forest and oak savanna habitats. Land would be acquired to complete the current approved boundary of 14,000 acres. Approximately 500-1,000 acres of habitat in Waterfowl Production Areas would be added within the District each year.

Current restrictions or prohibitions remain in place on canoeing, snowmobiling, horseback riding and off-trail biking. A new visitor education facility would be constructed upriver using Trust funds. Minor improvements would occur for existing exhibits and interpretive materials.

The Current Refuge and District Program portion within Chapter 4 of the CCP contains more detail about the current situation.

Alternative C: Balanced Public Use and Habitat Management (Preferred Alternative)

The preferred alternative would promote active management of existing fish, wildlife and plant habitats and quality recreational experiences for visitors. Refuge staff would continue to restore and maintain existing and new wetland, grassland and floodplain forest areas. Oak savanna habitats could receive new and intensive maintenance applications. Forest restoration would include active strategies such as planting trees and protecting them from browsing damage. Integrated biological controls and harvest methods would be used to control exotic plant or nuisance wildlife species.

New Refuge lands could be acquired up to a 10,737-acre maximum (see Appendix I: Land Protection Plan). The District's Waterfowl Production Area inventory would also expand as worthy sites are identified.

Horseback riding and mountain bike use would be limited to authorized segments of the Minnesota Valley State Trail. The environmental education program would see a new visitor education facility upriver. Some improvements in existing exhibits and interpretive materials would also occur. New public outreach strategies would result in greater public understanding and advocacy for Refuge and District resources.

Alternative D: Habitat Management Emphasis

Alternative D emphasizes the active management of existing fish, wildlife and plant habitats. Available staff and discretionary funding would be applied to habitat enhance-

ments such as prescribed burning of grasslands and oak savannas, tree plantings in converted bottomland forests and invasive plant control. The biological research and monitoring program would also receive more attention.

Refuge staff would restore and maintain existing wetland, grassland and floodplain forest areas. Oak savanna habitats would receive new and intensive maintenance applications. New Refuge lands could be acquired up to a 100,000 acre maximum (see Appendix I: Land Protection Plan). The District's Waterfowl Production Area program would expand to 25,000 acres. Integrated biological controls and harvest methods would be used to control exotic plant or nuisance wildlife species.

In contrast to the expanding habitat work, new recreational opportunities for visitors would not be pursued and environmental education and outreach programs would remain at the year 2001 level or below. Horseback riding and the use of mountain bikes would be limited to authorized segments of the Minnesota Valley State Trail. The environmental education program could see a new visitor education facility upriver but only minor improvements in existing exhibits and interpretive materials. A slight increase in public awareness of the Refuge and District is expected due to land protection efforts and the new visitor facility.

Cumulative Impact Analysis

“Cumulative impact” is the term that refers to impacts on the environment that result from the incremental impact of the proposed action when added to other past, present and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. In this section, the cumulative impacts of each of the four alternatives are discussed in terms of migratory birds, wetlands and floodplain habitat, and prairie and oak savanna restoration.

Migratory Birds

The Refuge and District contains habitat important to numerous bird species including waterfowl, songbirds, marsh and wading birds, shorebirds, raptors, and upland game birds. Some of the factors relevant to migratory birds are offered in the following list; Chapter 3 of the CCP offers greater detail.

- More than 260 species of birds use Refuge and District lands during migration and up to 150 species nest there.
- In the Refuge and District, 48 birds identified as “species of concern” are rare, declining, or dependent on vulnerable habitats, including 43 that breed there.
- About 44 percent of the species of concern depend on some type of grassland habitat.
- In North America, grassland birds have exhibited steeper declines than any other avian group.

- It is important to maintain a mosaic of grassland habitats to meet the varying needs of grassland birds.

Each alternative would have a different effect on migratory birds. The cumulative benefit of Alternative 3 and 4 would be the most positive because the habitat base increases and is enhanced, and management is intensified. In the long-term, Alternative 1 would have a negative impact on migratory birds. The needs of area-sensitive species that are declining, such as Northern Harrier, Upland Sandpiper, Henslow's Sparrow and Savannah Sparrow, would not be met in the existing small Waterfowl Production Areas that average 200 acres in size or less. Population declines would likely continue in the region.

Maintaining current management and land holdings as described in Alternative 2 (Current Situation) would have a neutral to slight benefit for migratory birds. If other conservation organizations are not actively acquiring land, this alternative would have a greater long-term benefit even if land is not restored immediately because it would mean that habitat is at least being set aside for conservation purposes. If other agencies and organizations do pursue land acquisition, and if those lands adjoin Service lands, this alternative provides an even greater benefit.

Under Alternative 3 and 4, the combination of acquiring land and expanding management would contribute to improved breeding and nesting success. This alternative would position the Service to contribute to improved migratory bird population numbers, and benefits would be even greater if the Minnesota Department of Natural Resources and non-government conservation organizations also focused acquisition and management efforts on migratory birds.

Wetlands and Floodplain Habitat

All alternatives will include management of wetland and floodplain habitats. The positive cumulative impact of Alternative 3 & 4 will be the greatest because of focused wetland restoration, management and acquisition; especially throughout the District. Restoration of floodplain forest habitats on the Refuge would also be accelerated under these two alternatives.

The prairie pothole region once included about 20 million acres of small wetlands.

- Today, only about 5.3 million acres remain in 2.7 million basins within five states; drainage has been so extensive that in many areas the water table has been lowered and the hydrology of the entire region has been transformed.
- Nearly two out of three of the remaining wetlands in Minnesota are privately owned; consequently, they are vulnerable to continued drainage, development, and pollution.
- Loss of productive floodplain forest habitats on the Minnesota River and tributaries has occurred due to conversion to cropland, timber harvesting, and gravel mining.

Wetland restoration and management are high priorities on the District. Under Alternative 1, wetlands and riparian habitat would not gain increased benefit and may actually degrade as adjacent land use impacts water quality.

Conservation efforts by the Minnesota Department of Natural Resources and nongovernment conservation organizations could mitigate this impact if they acquired land adjoining the Waterfowl Production Areas and restored wetlands. Restoration efforts on wetlands and streams adjoining Service-owned lands could improve water quality and wetland functions.

Alternative 2 would benefit wetlands and riparian areas somewhat on individual Waterfowl Production Areas and Refuge units as lands are acquired over time. Although restoration may not be immediate, land uses that impact water quality, such as growing crops and grazing cattle, would likely be discontinued. These benefits would be augmented if other conservation entities acquired and restored land, but the benefits provided under Alternative 2 would not be diminished if others did not pursue land acquisition.

With land acquisition and expanded management components, Alternative 3 and 4 would provide the most benefits to wetland and floodplain forest habitat. Healthier wetland and riparian complexes in bigger blocks of land would benefit all wetland-dependent species. The positive benefits would be greater if the Minnesota Department of Natural Resources and non-government conservation organizations were also acquiring and restoring habitat, however the positive impacts would not be diminished if others did not pursue the same course.

Prairie and Oak Savanna Restoration

All alternatives would increase the amount of prairie and oak savanna but the positive cumulative impacts of alternatives 3 and 4 will be greatest because of the focused and strategic land acquisition and prairie restoration with native prairie species.

- There is perhaps no ecosystem on earth that has been so completely altered.
- Prairie and oak savanna landscapes once covered much of western and south-central Minnesota; now, less than 1 percent of the original prairie and virtually none of the oak savannas are left.
- Prairie landscapes contain hundreds of species of plants, invertebrates, and wildlife. Some prairies contain as many as 200 plant species.
- Over the past decade, virtually all plantings of upland cover on Waterfowl Production Areas have been with native grasses. In recent years, a more diverse mixture of native forbs and warm and cool season native grasses have been used.

Over time, Alternatives 2-4 would benefit prairie and oak savanna habitats as lands were acquired and restored. Benefits to prairie and oak savanna habitats would be greatest under Alternatives 3 and 4. The habitats would be restored at a faster pace than under Alternative 2. Block sizes may be greater, allowing for a higher diversity of plant species. If the Minnesota Department of Natural Resources and conservation organizations discontinued acquiring and restoring these habitats, there would be a negative impact to the species that require grasslands.

Chapter 5 – List of Preparers

Please see Appendix K

Chapter 6 – Consultation and Coordination With the Public and Others

The Minnesota Valley NWR Comprehensive Conservation Plan and Environmental Assessment has been written with the participation of Service staff, Refuge users and the local community. The CCP planning process began in October 1998 with the formation of a refuge planning team. Subsequently, the planning team hosted a series of open houses in communities along the river. Individuals from state agencies, non-profit organizations, and others were invited to join one of five small discussion groups. Each group dealt with a certain topic; refuge management and biology, environmental education and interpretation, threats and conflicts, and refuge expansion and watershed activities. The recommendations from these working groups provided valuable information for the authors of this plan. Please see Chapter 2 of the CCP for more information on the public scoping process.

Chapter 7 – Public Comments on the Draft Environmental Assessment

The Draft CCP/EA was available for public review and comment from May 8, 2002, through July 31, 2002. The Service received 32 letters and e-mail comments during the review period. However, only a few comments were directed toward information presented in the Draft EA. Nearly all reviewers limited their comments to specific objectives and strategies under the preferred alternative presented in the CCP. These verbal and written remarks received from the public contributed to several modifications in the CCP document. Please see Chapter 2 of the CCP for more details.

A comment we received that was specific to the Draft EA was that the Refuge Mitigation Trust Should not be considered the primary funding source for future land acquisition, but only one of many partnership sources. Another reviewer suggested that the land evaluation criteria should include an emphasis on calcareous fens as a desired wetland type. In addition, several writers simply endorsed the future direction of Refuge management or land protection goals presented in the preferred alternative.

Chapter 8 – References and Literature Cited

Please see Appendix H

Appendix A Exhibit 1: Goals, Objectives and Strategies by Management Alternative

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Alternative A: Public Use Emphasis Alternative B: Current Situation Alternative C: Balanced Public Use/Habitat Management (Preferred Alternative) Alternative D: Habitat Management Emphasis				
Biological Goals				
Goal 1. Floodplain Forest: To restore, protect, and maintain natural species diversity while emphasizing priority wildlife and plants characteristic of floodplain forests within the northern tallgrass prairie ecosystem.				
1.1 Objective: By 2017, provide 4,700 acres of floodplain forest along the Minnesota River and major tributaries to benefit Bald Eagles, cavity-nesting birds such as Wood Ducks, colonial-nesting wading birds and rare plant communities.		X	X	X
Strategy: 1.1.1 Through research and investigation, determine the long-term viability of the floodplain forest community that exists on Refuge lands.		X	X	X
Strategy 1.1.2 Employ a senior wildlife biologist (GS 11/12). This position will benefit all of the biological goals set forth in this CCP.		X	X	X
Strategy 1.1.3 Continue to acquire important floodplain forests that provide valuable wildlife habitats within the Minnesota River Valley and throughout the Wetland Management District. Where possible, block sizes greater than 100 acres should be acquired.		X	X	X
Strategy 1.1.4 Protect existing Bald Eagle nests and heron and egret nesting colonies from human disturbance throughout the breeding season.	X	X	X	X
Strategy 1.1.5 Complete a forest management plan by 2005 that establishes long-term objectives for each block of floodplain forest that exists on Refuge Units.			X	X
Strategy 1.1.6 Using native species from a tree nursery and root propagation methods, continue to restore no fewer than 100 acres of floodplain forest each year until all potential floodplain forest is restored.		X	X	X
Strategy 1.1.7 Develop a root propagation nursery using local sources of tree species.			X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 1.1.8 Develop and implement a floodplain forest monitoring protocol designed to assess restoration success, vegetative changes, and wildlife response.			X	X
Goal 2. Wetlands:				
To restore, protect, and maintain natural species diversity while emphasizing priority fish, wildlife and plants characteristic of wetlands within the northern tallgrass prairie ecosystem.				
2.1 Objective: By 2017, provide 7,400 acres of wetlands within the floodplain of the Minnesota River and 4,600 acres of prairie pothole wetlands in the Wetland Management District to benefit priority waterfowl species, marsh, shore and wading birds and healthy aquatic ecosystems.		X	X	X
Strategy 2.1.1 Maintain the productivity of Refuge wetlands through the installation of water control structures and the active management of water levels through an annual water management plan.		X	X	X
Strategy 2.1.2 Continue to actively manage wetlands, wet meadows, and fens located on Refuge and Wetland Management District lands through periodic prescribed burning to control invasion of brush and other woody vegetation.		X	X	X
Strategy 2.1.3 Continue to seek Environmental Management Program funding and other sources of funding to improve, maintain, restore, and manage wetland habitats on Refuge.	X	X	X	X
Strategy 2.1.4 Develop monitoring protocols to determine effectiveness of wetland management actions upon vegetative diversity and use by wildlife.		X	X	X
Strategy 2.1.5 Continue to acquire important wetlands and associated habitats for both the Refuge and Wetland Management District.		X	X	X
Strategy 2.1.6 Manage and protect the Savage Fen Unit, in cooperation with the MnDNR and others, for as long as the Refuge administers the area.	X	X	X	X
Strategy 2.1.7 Inventory aquatic species (fish and macro-invertebrates) in Refuge streams, creeks and lakes using volunteers, students, and Refuge staff. Biologists from the Service's Fishery Resource Office in LaCrosse, Wisconsin, will conduct sampling surveys at least once every 5 years to detect trends in fish abundance and distribution.	X	X	X	X
Strategy 2.1.8 Restore Continental Grain berm along Eagle Creek to prevent creek degradation.	X	X	X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 2.1.9 Develop and implement a comprehensive water quality monitoring program designed to obtain baseline information and document impacts of storm water events and other adjacent land uses upon Refuge wetland flora and fauna.		X	X	X
Strategy 2.1.10 Work with partners and continue to identify and seek funding for a variety of research and monitoring projects associated with the Refuge and WMD. More specifically, support the 3-year study entitled Land Stewardship, Habitation Protection, and Avian Occurrence in the Minnesota Valley National Wildlife Refuge and Wetland Management District. Likewise, continue to support the development of a multi-faceted GIS for the Refuge and WMD.	X	X	X	X
Strategy 2.1.11 Seek operational funds to employ up to two biological technicians (GS-404-5/7) to address the District's workload.	X	X	X	X
Strategy 2.1.12 Obtain operational funds to employ a maintenance worker (WG-4749-6/7) to assist in restoring and maintaining Wetland District fee and easement lands.	X	X	X	X
2.2 Objective: Control and ultimately reduce the distribution of exotic plant species on wetlands primarily through biological control methods.	X	X	X	X
Strategy 2.2.1 Continue to monitor and release purple loosestrife beetles into Refuge wetlands where purple loosestrife exists.	X	X	X	X
Strategy 2.2.2 Control the spread of purple loosestrife using biological control methods such as purple loosestrife beetles (<i>Galerucella</i> sp.). In cooperation with others, establish a purple loosestrife field nursery to be used as a source of beetles for release on Refuge, Wetland Management District, and other suitable locations.	X	X	X	X
Strategy 2.2.3 Within staff and time limitations, seek methods to reduce and control the presence of giant reed grass (<i>Phragmites</i>) that exists on Refuge lands.		X	X	X
2.3 Objective: Control wildlife populations at levels consistent with available habitat to address public safety concerns and to allow effective management of wetlands.	X	X	X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 2.3.1 For aircraft safety reasons, continue to cooperate with the Metropolitan Airports Commission in the removal of Canada Geese from the Long Meadow Lake Unit.	X	X	X	X
Strategy 2.3.2 Continue to use trapping as a management tool to control beaver populations.	X	X	X	X
2.4 Objective: Maintain Round Lake at full basin water level (2001 level) to provide migration habitat for Bald Eagles, waterfowl such as Canvasbacks, and Common Loons. Maintain the capability to actively manage water levels in the future upon assurances that periodic drawdowns and reflooding would not cause undue risk to the ecosystem.	X	X	X	X
Strategy 2.4.1 Assist the U.S. Army and other agencies with studies to determine the threat, if any, of contaminants on aquatic communities.	X		X	X
Strategy 2.4.2 Develop partnership with educational institutions in the area, such as the nearby Bethel College, to monitor water quality, migratory bird use and collect baseline wildlife data.	X		X	X
Strategy 2.4.3 Maintain year-round closure of lake to fishing and boating.		X	X	X
Strategy 2.4.4 Maintain the existing partnership with the City of Arden Hills to provide trail connection through the west side of the unit to complement the City's trail system and to facilitate wildlife observation.	X	X	X	X
Goal 3. Upland Forest:				
To restore, protect, and maintain natural species diversity while emphasizing priority wildlife and plants characteristic of upland forests within the northern tallgrass prairie ecosystem.				
3.1 Objective: By 2017, provide 1,000 acres of upland forest along the Minnesota River, in 50-acre or larger blocks throughout the Wetland Management District, to ensure migration and nesting habitat for Bald Eagles, Red-headed Woodpeckers and songbirds.		X	X	X
Strategy 3.1.1 Through research and investigation, determine the long-term viability of the upland forest community that exists on Refuge lands.		X	X	X
Strategy 3.1.2 Continue to acquire upland forest habitats within the Minnesota River Valley and throughout the Wetland Management District. Block sizes greater than 100 acres should be a priority for acquisition.		X	X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 3.1.3 Complete a forest management plan by 2005 that sets long-term objectives for each block of hillside forest that exists on Refuge Units.			X	X
Strategy 3.1.4 Plant a shrub understory using native species from a tree nursery and/or root propagation nursery.			X	X
3.2 Objective: Control and ultimately reduce the distribution of exotic plant species on upland forests primarily through biological control methods.	X	X	X	X
Strategy 3.2.1 To the extent possible, and with the use of volunteer and youth groups, seek to control and reduce the distribution of European buckthorn in forested areas through hand cutting and treatment with chemicals.		X	X	X
3.3 Objective: Control wildlife populations at levels consistent with available habitat to address public safety concerns and to allow effective land management.	X	X	X	X
Strategy 3.3.1 In cooperation with the MnDNR and local communities, maintain whitetail deer populations at levels consistent with the carrying capacity of available habitat. Allow public hunting where feasible and sharpshooting when needed to maintain populations of 15-25 deer per square mile.	X	X	X	X
Goal 4. Grasslands and Oak Savanna:				
To restore, protect, and maintain natural species diversity while emphasizing priority grassland-dependent wildlife and plants characteristic of the northern tallgrass prairie ecosystem.				
4.1 Objective: By 2017, provide 800 acres of original native prairie and 8,700 acres of restored native grasses in block sizes of over 50 acres and with varying grass height, density and grass/forb ratios to benefit grassland-dependent wildlife such as Boblinks, Grasshopper Sparrows and five-lined skinks.		X	X	X
Strategy 4.1.1 Maintain the vigor and productivity of Refuge grasslands by emphasizing the use of a progressive prescribed burning regime under the Fire Management Plan. On an annual basis, burn no less than 1,500 acres located on the Refuge and District.		X	X	X
Strategy 4.1.2 Assess newly-acquired lands as to their suitability for conversion to native grassland and initiate appropriate conversion practices.		X	X	X
Strategy 4.1.3 Monitor wildlife and vegetation response using procedures developed in the Refuge's Inventory and Monitoring Plan.		X	X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 4.1.4 Initiate or continue oak savanna restoration efforts on the Louisville Swamp, Wilkie and Rapids Lake units through removal of unwanted trees and a progressive prescribed burning regime.	X	X	X	X
Strategy 4.1.5 Establish prairie and forb nurseries using local ecotype seeds for harvesting and use in restoration of native prairie.			X	X
Strategy 4.1.6 Identify hillside goat prairies on the Refuge and maintain or restore as necessary. Methods would include brush removal by volunteers and prescribed burning by trained staff.			X	X
4.2 Objective: Control spread and ultimately reduce the distribution of exotic or nuisance plant species on grasslands and oak savannas primarily through biological control methods.	X	X	X	X
Strategy 4.2.1 Control spread of invasive woody plant species and noxious weeds using accepted methods such as mechanical, chemical and biological control.	X	X	X	X
Strategy 4.2.2 Consistent with the Exotic Species Management Plan prepared for the Refuge, identify and map locations of all existing exotic species infestations.	X	X	X	X
Strategy 4.2.3 Continue to release and monitor leafy spurge beetles at sites infested with leafy spurge.	X	X	X	X
Strategy 4.2.4 Control the spread and distribution of spotted knapweed through the use of biological control methods.	X	X	X	X
Strategy 4.2.5 In cooperation with the U.S. Department of Agriculture and the Minnesota Department of Agriculture, collect leafy spurge beetles that are not needed by the Refuge for release at non-Refuge locations.	X	X	X	X
Goal 5. Land Protection: To enhance the integrity of lands within the authorized boundary of the Refuge and contribute to the protection and restoration of fish and wildlife habitats within the Minnesota River watershed.				
5.1 Objective: By 2017, achieve the appropriate conservation status necessary for permanent protection and management viability of any remaining lands within the original authorized boundary. This will also address existing and future threats to resources within the authorized Refuge boundaries.	X	X	X	X
Strategy 5.1.1 Seek Congressional appropriations and other sources of funds to purchase the Upgrala tract plus any remaining lands within the original authorized Refuge boundary.	X	X	X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 5.1.2 In cooperation with the State of Minnesota, seek to transfer the 54-acre Minnesota Department of Transportation (former Northwest Airlines) tract into the Refuge.	X	X	X	X
Strategy 5.1.3 Consistent with early correspondence between the Regional Director and the Commissioner of Minnesota Department of Natural Resources, explore the possibility of exchanging Service ownership of the Savage Fen with other lands administered by the MnDNR.	X	X	X	X
Strategy 5.1.4 Continue to work cooperatively with cities, counties, developers, and others to address external threats and to avoid future impacts to Refuge flora and fauna due to development of neighboring lands.	X	X	X	X
5.2 Objective: By 2017, and in cooperation with many others, contribute to the restoration of the Minnesota River by acquiring fee or conservation easements on up to 46,000 additional acres of quality fish and wildlife habitat within or adjacent to the Minnesota River Valley beyond the existing Refuge boundary and proceeding upstream to Mankato, Minnesota.			X	X
Strategy 5.2.1 From the amount identified above, use Trust funds to acquire no less than 4,090 acres in order to satisfy airport mitigation settlement requirements.	X	X	X	X
Strategy 5.2.2 Make a concerted effort to leverage all land acquisition funding with those of other programs such as the Wetland Restoration Program, North American Wetlands Conservation Act (NAWCA), Conservation Reserve Enhancement Program, and Reinvest in Minnesota.		X	X	X
Strategy 5.2.3 Work with the City of Bloomington to fully develop City property along the Minnesota River into good quality wildlife habitat.		X	X	X
Strategy 5.2.4 Enhance Refuge GIS capability for assessing impacts of adjacent or upstream land use on Refuge flora and fauna.	X	X	X	X
Strategy 5.2.5 Work with Friends of the Minnesota Valley to increase landowner participation in private land stewardship through the Heritage and Corporate Registry programs.	X	X	X	X
5.3 Objective: By 2017, acquire, restore, and manage an additional 10,000 acres of fee and easement lands within the Wetland Management District.			X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 5.3.1 In cooperation with the MnDNR and private conservation organizations, delineate and submit acquisition proposals for no fewer than 750 acres annually.		X	X	X
Strategy 5.3.2 In cooperation with the Natural Resource Conservation Service, identify quality habitats where Wetland Reserve Program funds can be combined with Duck Stamp funds for the purchase of Waterfowl Production Areas.	X	X	X	X
Strategy 5.3.3 Pursue all available sources of funds for land acquisition and habitat restoration including the Migratory Bird Conservation Fund, North American Wetland Conservation Act grants and private donations. A limited amount of Refuge Mitigation funds could be made available for specific acquisitions.		X	X	X
5.4 Objective: On an annual basis, and in partnership with others, restore 1,000 acres of habitat located on private lands through the Partners for Fish and Wildlife Program.	X	X	X	X
Strategy 5.4.1 Continue to work with other agencies and organizations in the restoration and protection of wildlife habitats. Where possible, continue to broker and assist with programs of others including the Wetland Reserve Program, Conservation Reserve Enhancement Program, Conservation Reserve Program, and the Reinvest in Minnesota Program.	X	X	X	X
Strategy 5.4.2 Continue to closely work with Soil and Water Conservation Districts to assist in restoring and protecting wildlife habitats on private lands.	X	X	X	X
Strategy 5.4.3 Continue to work directly with landowners on habitat restoration projects through the use of the Service's private landowner agreements.	X	X	X	X
Strategy 5.4.4 Seek opportunities to obtain financial assistance and administrative support for field biologists within the Partners program through creative partnerships with conservation organizations and others.	X	X	X	X
5.5 Objective: Protect the cultural, historic, and prehistoric resources of federally-owned lands within the Refuge and District.	X	X	X	X
Strategy 5.5.1 Describe, identify and take into consideration all archeological and cultural values prior to implementing construction or other ground-disturbing projects. Notify the Regional Historic Preservation Officer early in project planning or upon receipt of a request for permitted activities.	X	X	X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 5.5.2 By 2006, develop a step-down plan for surveying lands to identify archeological resources and for developing a preservation program to meet the requirements of Section 14 of the Archaeological Resources Protection Act and Section 110(a)(2) of the National Historic Preservation Act.	X	X	X	X
5.6 Objective: Protect Refuge lands and resources from damaging uses adjacent to Refuge boundaries.	X	X	X	X
Strategy 5.6.1 Continue to monitor amphitheater proposals and actively participate in any public hearings, focus group discussions, and/or provide written comments to appropriate local government agencies. If constructed, retain a working relationship with amphitheater owners and local regulatory agencies to reduce impacts to Refuge users and resources.	X	X	X	X
<p>Goal 6. Public Use: To provide quality wildlife-dependent recreational and environmental education opportunities to a diverse audience. These activities will promote understanding, appreciation and support for Minnesota Valley National Wildlife Refuge and the Wetland Mangement District as well as the entire National Wildlife Refuge System.</p>				
6.1 Objective: Provide no less than 14,000 quality hunting experiences for area residents per year. Seventy-five percent of hunters will report no conflicts with other users, a reasonable harvest opportunity and satisfaction with the overall experience.	X		X	
Strategy 6.1.1 By 2005 and in cooperation with the MnDNR, develop a plan to improve waterfowl hunting on Rice Lake of the Wilkie Unit. The plan will explore alternatives such as hunter education and the use of limited permits to improve the quality of hunting at this location.	X		X	
Strategy 6.1.2 By 2005, through revision of the Refuge Hunting Plan, examine opportunities to expand bow hunting for deer on the Refuge to assist in maintaining deer densities between 15-25 deer per square mile. Coordinate efforts with the MnDNR and cities adjacent to the Minnesota River Valley.	X	X	X	X
Strategy 6.1.3 Maintain disabled hunting opportunities in cooperation with Capable Partners or another suitable organization. Expand disabled hunting opportunities to include turkey and deer in designated areas on the Refuge.	X	X	X	
Strategy 6.1.4 Continue to improve the Refuge's youth waterfowl hunting program. Provide this opportunity to no fewer than 25 young people each year and seek to enroll disabled and disadvantaged youth plus youth of single-parent households located in urban areas.	X	X	X	

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 6.1.5 Enhance public understanding of Refuge hunting opportunities by increasing the quality of maps, signs and wording within brochures and on the Refuge web page.	X	X	X	X
Strategy 6.1.6 Increase the visibility of Refuge law enforcement and hunter adherence to federal and state regulations to ensure quality, ethical hunting.	X	X	X	X
Strategy 6.1.7 At least one parking lot will be developed on each Waterfowl Production Area to allow for hunting, fishing, and other wildlife-dependent activities.	X	X	X	X
Strategy 6.1.8 Where appropriate, a Waterfowl Production Area entrance sign will be erected to recognize contributions from private conservation organizations and agencies.	X	X	X	X
Strategy 6.1.9 Obtain operational funding amounting to approximately \$100,000 a year to employ a full-time law enforcement officer to enhance the Refuge's law enforcement and public use programs.	X		X	
Strategy 6.1.10 Each Waterfowl Production Area will be clearly posted to avoid any potential landowner/visitor conflicts.	X	X	X	X
6.2 Objective: By 2005, provide for 6,000 quality fishing visits per year to the Refuge by Twin Cities residents. Seventy-five percent of anglers will report no conflicts with other users and will recollect awareness that they were fishing on a national wildlife refuge.	X		X	
Strategy 6.2.1 Promote catch and release fishing opportunities on Refuge waters through the development and maintenance of good quality maps, signs, multi-lingual brochures, and the Refuge's web page. Ensure that the fishing public clearly understands the fish consumption advisories for the Lower Minnesota River through signs and brochures.	X		X	
Strategy 6.2.2 In cooperation with the MnDNR and the City of Bloomington, maintain existing boat ramp and parking facilities located at Lyndale Avenue. Likewise, cooperate with the City of Shakopee, the MnDNR, and others to develop an additional boat ramp near State Highway 101.	X	X	X	
Strategy 6.2.3 In cooperation with the MnDNR and Federal fish hatcheries, optimize Refuge fishing opportunities for youth and the disabled by annually stocking, in order of	X	X	X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
priority, Youth Fishing Pond, Cedar Pond, and Hogback Ridge Pond. Maintain the two existing accessible fishing piers at these locations.				
Strategy 6.2.4 In cooperation with other partners, continue to promote fishing opportunities for disadvantaged persons and others through activities such as Youth Fishing Day.	X	X	X	X
6.3 Objective: By 2005, provide for 180,000 wildlife observation visits per year to the Refuge and Waterfowl Production Areas. Ninety percent of all visitors will report a memorable wildlife observation and that it occurred on land managed by the U.S. Fish and Wildlife Service.	X		X	
Strategy 6.3.1 Cooperate in the development of the Audubon-sponsored Minnesota Valley Birding Trail. Identify locations on Refuge units that would serve as wildlife observation stops for this trail.	X	X	X	X
Strategy 6.3.2 With Refuge staff and/or volunteers, conduct no fewer than six birdwatching/wildlife observation programs for the public each year. In addition, conduct no fewer than two birdwatching/wildlife observation tours for disabled visitors per year. A portion of these wildlife observation tours will be conducted from canoes or other suitable water craft.	X	X	X	X
Strategy 6.3.3 Explore the possibility of developing a wildlife observation tour of the Minnesota River Valley using a van or motorized tram.	X		X	
Strategy 6.3.4 Modify the Refuge web site to include current and accurate information about wildlife observations and opportunities available to the public. Link Refuge web site to other important wildlife observation web sites.	X	X	X	
Strategy 6.3.5 Maps and information describing Waterfowl Production Areas and their appropriate uses will be continuously updated on the Refuge's web site.	X	X	X	X
Strategy 6.3.6 Establish state-of-the-art bird feeding stations at existing and future Refuge visitor centers. Manage these stations as dynamic exhibits that promote wildlife observation opportunities to the public.	X	X	X	X
Strategy 6.3.7 Maintain strong partnership with the Minnesota River Valley Audubon Chapter and the Native Plant Society and continue to provide them monthly meeting space. Seek ways to coordinate organized wildlife and plant observation activities with those of the Refuge.	X	X	X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 6.3.8 Enhance wildlife observation opportunities on Refuge wetlands by designing, constructing and installing elevated observation decks at several locations. at a minimum, observation decks will be installed at Fisher lake, Rapids Lake, and Long meadow Lake at locations that would enhance visitor opportunities to view waterfowl and waterbirds.	X		X	
6.4 Objective: On an annual basis, provide for 3,000 quality wildlife photography visits to the Minnesota River Valley and adjacent areas.	X	X	X	X
Strategy 6.4.1 Provide the public with no fewer than two portable photography blinds to be used at specific sites throughout the Refuge. In addition, allow the public to use existing hunting blinds during off-season for additional wildlife photography sites.	X		X	
Strategy 6.4.2 In cooperation with the Minnesota Nature Photography Club and others, enhance and promote the annual Refuge photography contest and display winning photos in Refuge Visitor Center for a 45-day period each year.	X	X	X	X
Strategy 6.4.3 Maintain strong partnership with the Minnesota Nature Photography Club and continue to provide monthly meeting space for this organization.	X	X	X	X
6.5 Objective: By 2004, provide for 30,000 quality wildlife interpretive visits per year to the Refuge and Waterfowl Production Areas. Fifty percent of visitors will independently report that wildlife comes first on System lands and understand the need for seasonal closures on sensitive wildlife habitats.	X	X	X	
Strategy 6.5.1 By 2004, review, revise, and upgrade the Refuge's Interpretive Plan to reflect Refuge contribution to local and national conservation efforts. The plan will identify a Refuge theme that will be promoted in all interpretive products.	X		X	
Strategy 6.5.2 Upgrade and/or replace Refuge Visitor Center exhibits consistent with the Refuge theme. New exhibits need to be dynamic, affordable, and easy to repair and replace if needed.	X		X	

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 6.5.3 Upgrade and replace all interpretive and information panels that exist on Refuge kiosks consistent with the Refuge theme. The panels and kiosks will conform to U.S. Fish & Wildlife Service, Region 3, policy and will be environmentally sensitive in their design and placement.	X	X	X	
Strategy 6.5.4 Develop appropriate signs and materials which interpret the cultural and historic sites located on the Refuge and their relationship with historic wildlife populations. Six kiosks that serve this purpose have been identified in the current Refuge Sign Plan.	X	X	X	X
Strategy 6.5.5 In cooperation with Refuge volunteers and others, conduct no fewer than 125 quality interpretive programs annually. Keep interpretive programming fresh by continually upgrading, improving, and/or replacing individual programs.	X		X	
Strategy 6.5.6 In cooperation with the Friends of the Minnesota Valley, upgrade the interpretive and educational materials offered for sale in the Blufftop Bookshop.	X		X	
Strategy 6.5.7 Upgrade audio visual equipment in the Visitor Center auditorium, update the content of the orientation slide show and offer a variety of wildlife-related videos for the visiting public.	X		X	
Strategy 6.5.8 Write and distribute no fewer than 24 news releases each year that increase the public's understanding and knowledge of the Refuge and its programs.	X		X	
Strategy 6.5.9 In cooperation with many partners, sponsor no fewer than 10 special events annually that engage the public in Refuge activities and increase people's knowledge and understanding of wildlife conservation and associated issues.	X	X	X	
6.6 Objective: By 2004, provide environmental education programming to no less than 12,000 students per year followed by 2 percent annual growth until 2017. Eighty percent of students will report an increased desire to protect fish and wildlife habitats as a result of the programs.	X		X	
Strategy 6.6.1 The Refuge's environmental education curriculum will be thoroughly reviewed by 2003 and every 4 years thereafter with the assistance of local educators. Ensure curriculum is fresh and dynamic and meets the needs of students in preschool on up to high school seniors.	X	X	X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 6.6.2 Effectively promote the environmental program through a number of mediums including an annual syllabus, maintaining current information on the Refuge's web page, and periodic distribution of CDs for use on computers.	X	X	X	X
Strategy 6.6.3 Refine and expand the use of Partnership Agreements with area schools in order to clearly articulate program goals and objectives and to build strong educational partnerships.	X	X	X	X
Strategy 6.6.4 Emphasize the delivery of environmental education services to inner-city schools with both on-site and off-site programming. Secure funding through partnerships for busing for those schools that do not have the ability to assume those costs on their own.	X	X	X	X
Strategy 6.6.5 Develop and strengthen internships/work study opportunities through partnerships with academic institutions. In partnership with local universities, hire interns in the natural resource field using funds provided to the Refuge annually through the Jack Lynch Endowment. Where possible, leverage these funds with those provided by the universities.	X	X	X	X
Strategy 6.6.6 Following completion of a new environmental education facility, expand environmental education programming to suburban and rural schools and incorporate the use of waterfowl production areas in curriculum.	X		X	
Strategy 6.6.7 Administer the Regional Resource Center as an integral component of the Refuge's environmental education program by providing appropriate educational and interpretive materials to area schools.	X	X	X	X
6.7 Objective: By 2003, working with the MnDNR, the City of Bloomington, mountain biking organizations and others, eliminate inappropriate biking on Refuge lands and concentrate this activity on authorized and designated trails only.	X	X	X	X
Strategy 6.7.1 If possible, and in cooperation with the City of Bloomington, eliminate mountain biking on the Bloomington Bluffs between Indian Mounds School and I-35W. In addition, develop and implement a plan to address the environmental degradation that currently exists throughout this area.	X	X	X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 6.7.2 In cooperation with others, monitor and, if needed, strictly enforce appropriate trail usage on Refuge lands.	X	X	X	X
6.8 Objective: By 2003, eliminate horseback riding on all Refuge and District lands and trails except on the State Trail.	X	X	X	X
Strategy 6.8.1 Following appropriate public notice, and the installation of signs, restrict horseback riding to the State Trail within the Louisville Swamp Unit.	X	X	X	X
Strategy 6.8.2 Consistent with the Refuge web site and its brochures, ensure that good quality information about horseback usage on Refuge/State Trail lands is provided to the public.	X	X	X	X
Strategy 6.8.3 In cooperation with the MnDNR and the horseback riding community, monitor and, if needed, strictly enforce appropriate trail usage of the Louisville Swamp Unit.	X	X	X	X
6.9 Objective: Provide a highly visible and dynamic volunteer and intern work force to assist in all aspects of Refuge and District operations including environmental education, habitat improvement and visitor facility maintenance.	X	X	X	X
Strategy 6.9.1 Seek opportunities to increase coordination between Refuge volunteers and Friends of the Minnesota Valley.	X	X	X	X
Strategy 6.9.2 Enhance communication with Refuge volunteers through various forums including periodic newsletters, a volunteer hotline, the Refuge's web site, and recognition picnics, dinners and socials.	X	X	X	X
Strategy 6.9.3 Renew efforts to provide quality training to Refuge volunteers so they are able to effectively and efficiently complete projects and responsibilities.	X	X	X	
Strategy 6.9.4 Expand efforts to provide volunteer opportunities to members of the disabled public.	X	X	X	X
Strategy 6.9.5 Continue to provide Refuge projects for kids at risk through a variety of programs including the Twin Cities Tree Trust, Skills for Tomorrow, and community programs like Sentenced to Serve.	X	X	X	

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 6.9.6 Seek to expand volunteer opportunities for retired citizens and explore the possibility of developing trailer pads and a septic system for seasonal retiree volunteers with recreational vehicles.	X		X	
Strategy 6.9.7 Employ interns as needed through the use of the Jack Lynch Endowment Fund. Leverage the use of these funds by entering into agreements with universities and colleges.	X	X	X	X
6.10 Objective: By 2005, develop new and maintain existing facilities to promote public advocacy and use of the Refuge and Waterfowl Production Areas. Ninety percent of visitors will report satisfaction with the safety, comfort and functionality of these facilities and express a desire for a return visit.	X	X	X	
Strategy 6.10.1 By 2004, submit a major Visitor Center upgrading package that addresses current outstanding maintenance needs and that will serve to keep this facility in excellent condition for the next 10 years.	X	X	X	
Strategy 6.10.2 By 2004, all Refuge facilities will be reviewed to determine what measures need to be taken to make them more accessible to disabled persons. Following this review, an implementation plan will be developed and funding will be sought to upgrade these facilities.	X	X	X	X
Strategy 6.10.3 By 2004, begin the conversion of the historic Rapids Lake home into an environmental education and interpretive site. As part of this effort, design and build trails, interpretive kiosks, and parking lots in support of this project. Upon completion, allow this site to be used by local governments, non-profit organizations and others for meetings and natural resource-related workshops and conferences.	X	X	X	
Strategy 6.10.4 Obtain or construct intern housing on or near the Rapids Lake Unit to meet expanded responsibilities for wildlife interpretation and environmental education as well as to attract candidates of diverse backgrounds, cultures, and experiences.	X	X	X	X
Strategy 6.10.5 Stabilize the historic buildings on the Jabs and Ehmiller farm sites to ensure their longevity and their historic interpretive value.	X	X	X	X
Strategy 6.10.6 Obtain operational funding to employ a maintenance worker (WG- 4749-6/7) to enhance the Refuge s capability to address its maintenance needs.	X	X	X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
Strategy 6.10.7 Establish a hard surfaced trail open to hiking and bicycling between the Refuge Visitor Center and the Bass Ponds.	X		X	
Strategy 6.10.8 In cooperation with the cities of Chaska and Carver, develop a plan for the Chaska Unit and nearby city lands that addresses wildlife interpretive trails, public parking, and related interpretive facilities and programming.	X	X	X	X
Strategy 6.10.9 Seek a sufficient increase in operational funds to maintain, to a high standard, the existing Refuge Visitor Center, parking lots, kiosks, and signing.	X	X	X	X
Strategy 6.10.10 Seek annual funding to enter into contracts for routine mowing, snow plowing, and custodial services for the Refuge's visitor centers, parking lots, and nature trails.	X	X	X	X
Strategy 6.10.11 Using Trust funds, employ a supervisory park ranger (GS-025-11/12) who will initiate early planning for new environmental education center(s) and associated facilities. Following completion of the center, this employee will assume responsibility for operations of these facilities.	X	X	X	X
Strategy 6.10.12 Using Trust funds, employ up to two park rangers (GS-025-5/7/9) and one maintenance worker (WG-4749-6/7/8) to assist in planning and conducting environmental education programming and in the management of new Refuge units.	X	X	X	X
Strategy 6.10.13 Seek construction funding to replace the existing Shakopee shop facility with a combination cold storage/heated staff building. The new building would also contain a small office suitable for two staff. The commercial lot owned by the Service near the Savage Fen would be a likely location for this facility.	X	X	X	X
Strategy 6.10.14 Seek construction funding to replace the existing Rapids Lake maintenance facility. The new facility would contain office space suitable for three Refuge maintenance staff and three District employees.	X	X	X	X
Strategy 6.10.15 Enhance the Refuge's capability to reduce the amount of vandalism and arson that occurs on Refuge facilities. Seek funding for installation and use of remote sensors designed to detect damage to facilities and apprehend those responsible for such activities.	X	X	X	X

Goals, Objectives and Strategies	Alt. A	Alt. B	Alt. C	Alt. D
6.11 Objective: To work in partnership with the MnDNR, cities, and other organizations to finish the Minnesota Valley State Trail and to provide appropriate public access to the trail from Refuge lands.	X	X	X	X
Strategy 6.11.1 In cooperation with the MnDNR, identify the State Trail corridor across the Wilkie Unit, which will connect this part of the Refuge with the City of Shakopee.	X	X	X	X
Strategy 6.11.2 In cooperation with the MnDNR, identify the State Trail corridor across the Long Meadow Lake Unit between Old Cedar Avenue and Lyndale Avenue. Seek sources of funding to construct access across at least two large gullies that occur along this section of the trail.	X	X	X	X
Strategy 6.11.3 Working with partners, seek sources of funding (TEA-21, etc.) for the replacement of the Old Cedar Avenue Bridge with a pedestrian bridge that will connect Old Cedar Avenue with the State Trail.	X	X	X	X
Strategy 6.11.4 Working with partners, acquire in fee or easement remaining lands on the Bloomington Ferry Unit that will allow the completion of the State Trail between I-35W and the Bloomington Ferry Bridge. Work with the City of Bloomington and the MnDNR to specifically identify the corridor on this section of the State Trail.	X	X	X	X
Strategy 6.11.5 In cooperation with the City of Eden Prairie, develop a hiking and bicycling trail on the north side of the Minnesota River connecting River View Road with the Bloomington Ferry Bridge.	X	X	X	X
Strategy 6.11.6 Following Service acquisition of the Upgrala Unit, develop a hiking and bicycling trail connecting River View Road with the City of Shakopee trail facilities located near U.S. Highway 101. This work will be completed in cooperation with the cities of Eden Prairie and Shakopee.	X	X	X	X
Strategy 6.11.7 As soon as practicable and in cooperation with all appropriate parties, develop a brochure that specifically identifies all trails within the Lower Minnesota River Valley and their allowed uses. This information will also be made available on the Refuge's web site.	X	X	X	X

Appendix C: Priority Refuge and District Operational and Maintenance Needs

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The CCP directs an ambitious course for the future management of Minnesota Valley National Wildlife Refuge and Wetland Management District. The following provides a brief description of the second-highest priority Refuge and District projects. The highest priority, or Tier 1, projects are described in Chapter 5 of the plan. Each project description also includes the number of a corresponding strategy; linking it to the Goals/Objectives/Strategies section of Chapter 4.

Most of these projects are listed in the Refuge Operating Needs System (RONS); the Service's national database of unfunded operational activities. The RONS was established in 1990 as a planning, budgeting, and communication tool to enhance identification of funding and staffing needs for the National Wildlife Refuge System. RONS projects describe the need for new or expanded activities in order to implement plans, attain goals, or satisfy legal mandates. Data within RONS are used regularly in budget justifications presented to the Department of the Interior, the Office of Management and Budget, and Congress.

The Maintenance Management System (MMS) is another database used by the Service to document needed equipment and construction projects. The MMS is structured around property items while RONS focuses on management activities. All large-scale (typically over \$500,000) construction projects are housed in MMS.

Replace Shakopee and Rapids Lake Maintenance Facilities. The Refuge will seek funds for upgrading and replacing the existing maintenance facilities at Shakopee and the Rapids Lake Unit. The Shakopee facility will consist of a single building containing a heated bay, cold storage, and a small office. The Rapids Lake maintenance facility will consist of no less than four heated stalls plus a heated carpentry shop. This facility will also be capable of housing all Refuge equipment in cold storage. **Strategies 6.10.14 & 6.10.15.** Estimated cost: \$1,200,000

Continue Partners for Fish and Wildlife Program Activities. The continuance of a progressive and opportunist Partners for Fish and Wildlife Program near the Refuge and throughout the District is of extreme importance. Through this program, the Refuge builds good will throughout the community and contributes to quality habitat restoration activities on private lands. Appropriated habitat restoration funds are frequently matched by contributions from a very supportive private conservation community. **Strategy 5.4.4.** Estimated cost: \$200,000 annually.

Establish Prairie Grass, Forb, and Root Propagation Nurseries. In support of a Regional effort to utilize local eco-type seeds, the Refuge will establish grass, forb, and tree propagation facilities and nurseries. This facility will assist in developing a local seed source for use across the Refuge and throughout the District. Equipment for harvesting and handling locally produced seeds will also be acquired. **Strategy 4.1.5.** Estimated cost: \$400,000.

Review and Revise Refuge's Interpretive Plan. As soon as practicable, the Refuge will seek operation funding to review and review its interpretive plan. The revised plan will form the basis for new environmental education and wildlife interpretive programming.

It will also for the basis for upgrading and replacement of current Visitor Center exhibits and interpretive kiosks. **Strategy 6.5.1.** Estimated cost: \$100,000.

Upgrade and Improve Exhibits in the Visitor Center. Following the review of the Refuge Interpretive Plan, exhibits, displays, audio visual equipment, and productions will be upgraded. As part of this project, information about the Refuge and the Refuge system will be developed and upgraded regularly. Minnesota Valley NWR is an urban refuge located within an hours drive of three million people. **Strategy 6.5.2.** Estimated cost: \$1,000,000.

Seek Funding for Completion of State Trail Across Refuge's Long Meadow Lake Unit. In cooperation with MnDNR and others, the Refuge will seek funding and materials to complete the section of the Minnesota Valley State Trail that lies between Old Cedar and Lyndale Avenues. **Strategy 6.11.2.** Estimated cost: Unknown.

Seek Funding for Replacement of Old Cedar Bridge. In cooperation with the City of Bloomington, Minnesota Department of Transportation, MnDNR, the biking community, and others, the Refuge will seek funding for the replacement of the Old Cedar Avenue Bridge with a new pedestrian/bicycling bridge. **Strategy 6.11.3.** Estimated cost: Unknown.

Prepare Restoration Plan and Seek Funding to Repair and Stabilize Bloomington Bluffs. In cooperation with the City of Bloomington, the Friends of Minnesota Valley, Lower Minnesota River Watershed District, Refuge neighbors, and the biking community, the Refuge will complete a bluff restoration plan that, upon implementation, will repair and stabilize the erosion and gulying that occurs along the Bloomington Bluff. The partners will seek funding for costs associated with this project once the plan is completed. **Strategy 6.7.2.** Estimated cost: Unknown.

Develop Hiking and Biking Trails on Bloomington Ferry and Upgrala Units. In cooperation with the cities of Eden Prairie and Shakopee, Refuge neighbors, and Murphy's Landing, develop a hiking and biking trail that connects River View Road with the City of Shakopee trails near State Highway 101. Also, develop a hiking and biking trail that connects the Upgrala Unit with the Bloomington Ferry Unit. In addition, also cooperate in the development of a river ferry crossing that connects Murphy's Landing with the Upgrala Unit. **Strategies 6.11.5 & 6.11.6.** Estimated cost: Unknown

Restore Floodplain Forest. Restore 150 acres of flood plain forest in the Minnesota River bottoms. This land was previously row cropped and needs to be planted with species native to the river bottoms. The planting will benefit many species of wildlife, especially migrant songbirds that depend on large tracts of contiguous forest. Other species such as migratory waterfowl, especially wood ducks, bald eagles, herons and several species of concern will benefit from the plants. The Refuge will work in partnership with the Minnesota Waterfowl Association as well as several other local conservation groups to secure matching funds. **Strategy 1.1.6.** Estimated cost: Unknown

Provide Bus Transportation Funds For Inner City Schools. This project will provide funds to bus children from inner city schools to the Refuge for environmental education programming. Among other benefits, this project will assist the Refuge and the Service

in reaching out to diverse audiences who may have an interest in natural resource issues. **Strategy 6.6.4.** Estimated cost: \$75,000 annually.

Improve Refuge Access to Persons with Disabilities. By 2003, all Refuge facilities and programs will be reviewed to determine what measures need to be taken to make them more accessible to disabled persons. Following this review, a plan will be developed and funding will be sought to make these improvements to Refuge facilities and programs. **Strategy 6.10.2.** Estimated cost: Unknown.

Upgrade Visitor Center Parking Lots and Install Water Garden: As soon as practical, the Visitor Center parking lots will be upgraded to address some long-term drainage problems that have existed since construction. In addition, the lots will be modified to direct storm waters into the unpaved portions of the area where a water garden will be constructed. This water garden will demonstrate how parking lots can be designed to reduce pollutants entering downstream wetlands, lakes and streams, including Long Meadow Lake. **Strategy 5.1.4** Estimated cost: unknown.

Public Use Facility Upgrade: Identify funding for the upgrade of all Refuge parking lots, kiosks, trails and boardwalks. Within each parking lot, the gates, kiosks, brochure boxes, and post and rail will be repaired, replaced and otherwise upgraded to a high standard. In addition, these facilities will be modified to ensure they are accessible to disabled people. **Strategies 6.10.2 and 6.10.10.** Estimated cost: \$250,000.