Appendix M: Environmental Assessment

Finding of No Significant Impact

Environmental Assessment and Comprehensive Conservation Plan for Fergus Falls Wetland Management District, Minnesota

An Environmental Assessment (EA) has been prepared to identify management strategies to meet the conservation goals of the Fergus Falls Wetland Management District (District). The EA 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 EA presented and evaluated three alternatives for managing wildlife and habitats as well as visitor services on the District over the next 15 years:

Alternative 1 – Maintain Management on Current Acres With No Additional Land Acquisition. Under this alternative we would manage fee title land already in the system and would not increase the holdings to the agreed goal acres for each county within the District. We would restore native grasslands, improve wetlands and evaluate our approach to waterfowl production. We would maintain recruitment rate of waterfowl and we would continue our present monitoring approach. We would avoid any actions that would harm threatened or endangered species. We would maintain public access and continue current staffing levels.

Alternative 2 – Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No action). Under this alternative we would continue acquiring land up to the negotiated goal acres within each county in the District. We would expand the size of Waterfowl Production Areas (WPAs) in areas of prime waterfowl use through easements and working with partners. We would restore native grasslands and restore and improve wetlands. We would maintain recruitment rates of waterfowl and continue monitoring programs. We would avoid actions that would harm threatened or endangered species. We would continue current public access and staffing levels.

Alternative 3 – Increase Land Holdings to Goal Acres and Expand Management for Waterfowl, Other Trust Species and the Public (Preferred). Under this alternative we would acquire land up to the negotiated goal acres for each county within the District. We would expand the size of WPAs in areas of prime waterfowl use and we would focus on prime habitat as identified by monitoring and GIS mapping. We would follow Strategic Growth guidelines for acquisition which will focus on: 1) wetland complexes, surrounding grasslands and natural predator component. 2) unit size, location, and ratio of upland to wetlands, 3) prioritize according to the benefit to waterfowl., but other wildlife benefits will be considered. We would avoid actions that would harm threatened or endangered species. We would expand and improve public access to WPAs. Management of the District will be consistent with other Districts throughout Minnesota, Wisconsin and the Dakotas.

The alternative selected for implementation is Alternative 3. The strategies presented in the Comprehensive Conservation Plan (CCP) were developed as a direct result of the selection of this alternative.

For reasons presented above and based on an evaluation of the information contained in the Environmental Assessment, we have determined that the action of adopting Alternative 3 as the management alternative for the Fergus Falls Wetland Management District CCP is found to have special environmental conditions as described in the attached Environmental Assessment. This Finding of No Significant Impact will not be final nor any actions taken pending a 30-day period for public review.

Additional Reasons:

1. The fire management section within the Environmental Assessment was expanded as a result of comments and will be acted on after a 30-day period of public review.
2. Future management actions will have a neutral or positive impact on the local economy.
3. A cultural resource inventory completed prior to this CCP included recommendations for the protection of cultural, archaeological and historical resources.
4. This action will not have an adverse impact on threatened or endangered species.

Supporting References:

Environmental Assessment
Comprehensive Conservation Plan

4/17/03

Regional Director Date

Contents

1.0 Purpose and Need for Action EA1
1.1 Purpose and Need for Action EA1
1.1.1 Purpose EA1
1.1.2 Need for Action EA3
1.2 Decision Framework EA4
1.3 Background EA5
1.3.1 The United States Fish and Wildlife Service EA5
1.3.2 The National Wildlife Refuge System EA5
1.3.3 Minnesota Wetland Management Districts EA6
1.3.4 Minnesota WMD Vision Statement for Desired Future Condition EA7
1.4 Project Inception EA7
1.5. Scoping and Public Involvement EA8
1.5.1 Issues and Concerns EA9
1.6 Legal, Policy, And Administrative Guidelines EA10
1.6.1 Legal Mandates EA10
1.6.2 Endangered Species Act Section 7 Review EA10

Chapter 2: Description of Alternatives EA11
2.1 Development of Alternatives EA11
2.2 Elements Common To All Alternatives EA12
2.2.1 Fire EA12
2.2.11 Prescribed Fire EA12
2.2.12 Fire Prevention and Detection EA14
2.2.13 Fire Suppression EA15
2.2.2 Cultural Resources EA17
2.2.3 Listed Species EA17
2.3 Alternative 1 – Discontinue Acquiring Additional Land and Maintain Management on Current Land EA17
2.4 Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action Alternative) EA18
2.5 Alternative 3 – Increase Land Holdings to Goal Acres and Expand Management for Waterfowl, Other Trust Species and the Public (Preferred Alternative) EA19

3.0 The Affected Environment EA36
3.1 Detroit Lakes Wetland Management District EA36
3.1.2 Introduction EA36
3.1.2 Climate EA36
3.1.3 Soils EA37
3.1.4 Natural Resources EA37
3.1.4.1 Plants EA37
3.1.4.2 Animals EA38
3.1.5 Cultural Resources EA39
3.1.6 Social and Economic Factors EA40
3.2 Fergus Falls Wetland Management District EA40
3.2.1 Introduction EA40
3.2.2 Climate EA41
3.2.3 Soils EA41
3.2.4 Natural Resources EA41
3.2.4.1 Plants EA41
3.2.4.2 Animals EA42

3.2.5 Cultural Resources EA44
3.2.6 Social and Economic Factors EA44
3.3 Morris Wetland Management District EA45
3.3.1 Introduction EA45
3.3.2 Climate EA45
3.3.3 Soils EA45
3.3.4 Natural Resources EA46
3.3.4.1 Plants EA46
3.3.4.2 Animals EA47
3.3.5 Cultural Resources EA47
3.3.6 Social and Economic Factors EA48
3.4 Litchfield Wetland Management District EA48
3.4.1 Introduction EA48
3.4.2 Climate EA48
3.4.3 Soils EA49
3.4.4 Natural Resources EA49
3.4.4.1 Plants EA49
3.4.4.2 Animals EA50
3.4.5 Cultural Resources EA52
3.4.6 Social and Economic Factors EA52
3.5 Windom Wetland Management District EA52
3.5.1 Introduction EA52
3.5.2 Climate EA53
3.5.3 Soils EA53
3.5.4 Natural Resources EA53
3.5.4.1 Plants EA53
3.5.4.2 Animals EA53
3.5.5 Cultural Resources EA54
3.5.6 Social and Economic Factors EA55
3.6 Big Stone Wetland Management District EA55
3.6.1 Introduction EA55
3.6.2 Climate EA55
3.6.3 Soils EA55
3.6.4 Natural Resources EA55
3.6.4.1 Plants EA55
3.6.4.2 Animals EA56
3.6.5 Cultural Resources EA57
3.6.6 Social and Economic Factors EA57

4.0 Environmental Consequences EA58
4.1 Impacts Associated with Wildlife and Habitat EA58
4.1.1 Waterfowl Productivity EA58
4.1.2 Other Migratory Birds EA59
4.1.3 Threatened and Endangered Species EA59
4.1.4 Native Species EA60
4.1.5 Biological Inventories and Monitoring EA60
4.1.6 Federal Trust Species versus Resident Wildlife EA61
4.1.7 Invasive Species EA62
4.1.8 Habitat Restoration and Management EA62
4.1.9 Contaminants EA63
4.1.10 Partners for Fish and Wildlife Program EA63
4.2 Impacts Associated with People EA64
4.2.1 Wildlife-Dependent Recreation and Education EA64

4.2.1.1 Hunting and Fishing EA64
4.2.1.2 Trails EA64
4.2.1.3 Signing and Interpretation EA65
4.2.1.4 Environmental Education EA65
4.3 Impacts Associated with Operations EA65
4.3.1 Land Acquisition EA65
4.3.2 Staffing EA66
4.3.3 Facilities and Equipment EA66
4.3.4 Management Consistency Among Districts EA66
4.4 Cumulative Impact Analysis EA67
4.4.1 Waterfowl EA67
4.4.2 Migratory Birds EA68
4.4.3 Endangered and Threatened Species EA69
4.4.3.1 Threatened Mammals EA70
4.4.3.2 Endangered / Threatened Birds EA70
4.4.3.3 Endangered Fish EA71
4.4.4 Wetlands and Riparian Habitat EA71
4.4.5 Prairie Restoration EA72
4.5 Prescribed Fire as a Management Tool EA73
4.5.1 Social Implications EA73
4.5.2 Cultural and Archaeological Resources EA74
4.5.3 Flora EA74
4.5.4 Listed Species EA75
4.5.5 Soils EA75
4.5.6 Escaped Fire EA76
4.6 Impacts Common to All Alternatives EA76
4.6.1 Climate Change EA76
4.6.2 Environmental Justice EA77
4.6.3 Unavoidable Adverse Impacts EA77
4.6.4 Short-Term Use Versus Long-Term Productivity EA77
4.6.5 Irreversible and Irretrievable Commitments of Resources EA77
4.6.6 Property Taxes and the Districts Revenue Sharing Act EA78
4.6.7 Relocation Benefits EA78
4.6.8 Landowner Rights Adjacent to Districts Lands EA79
4.6.9 Crop Depredation EA79
4.6.10 Cultural Resources EA79
4.7 Agricultural Production EA79

Chapter 5: List of Preparers EA84

Bibliography EA85

Figures:

Figure 1 Minnesota Mangement Districts Location EA2

Tables:

Table 1: Fee Title Acres Approved, and Goal Acres for
each District as per Land Exchange Board (LEB) EA19
Table 2: Objectives by Management Alternative EA21-32
Table 3: Summary of Management Alternatives EA33-35
Table 4: Major Habitat Types of WPAs, Detroit Lakes WMD EA36
Table 5: Major Habitat Types of WPAs, Fergus Falls WMD EA41
Table 6: Major Habitat Types of WPAs, Morris WMD EA46
Table 7: Major Habitat Types of WPAs, Litchfield WMD EA50
Table 8: Major Habitat Types of WPAs, Windom WMD EA54
Table 9: Major Habitat Types of WPAs, Big Stone WMD EA56
Table 10: Summary of Environmental Impacts EA81-83

1.0 Purpose and Need for Action

1.1 Purpose and Need for Action

1.1.1 Purpose

The U.S. Fish and Wildlife Service (Service) is proposing to prepare and implement a Comprehensive Conservation Plan (CCP) for the Minnesota Wetland Management Districts, which include the Big Stone Wetland Management District, the Detroit Lakes Wetland Management District, the Fergus Falls Wetland Management District, the Litchfield Wetland Management District, the Morris Wetland Management District, and the Windom Wetland Management District.

Photo Copyright by Jan Eldridge

The purpose of the proposed action is to establish the management direction of the Districts for the next 15 years. The action is needed because adequate and cohesive long-term management direction does not exist for the District. Management is now guided by several general policies and short-term plans. Future management direction will be defined in a detailed set of goals, objectives, and strategies described in the CCP.

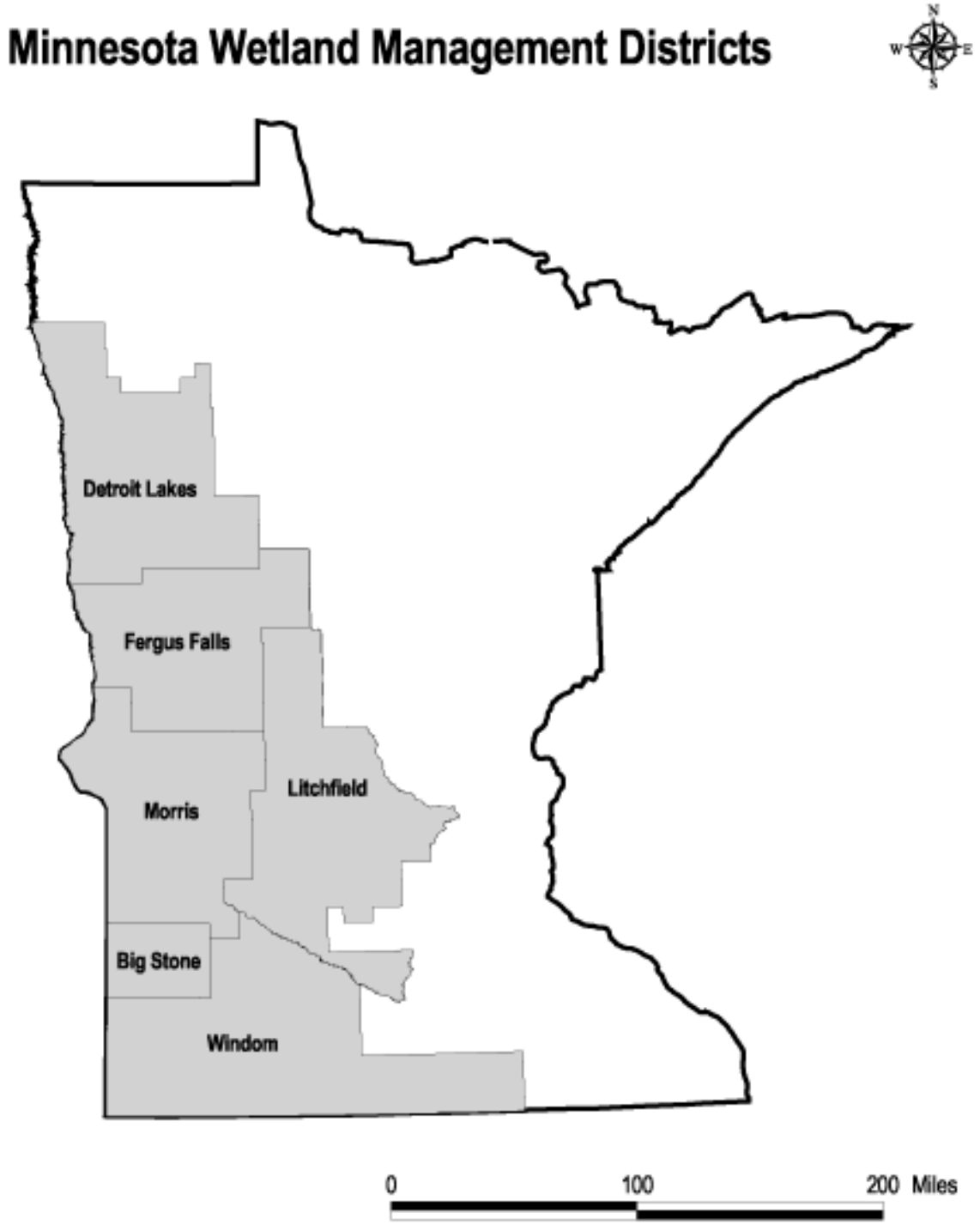
Refuge Purpose Statements are primary to the management of each refuge within the System. The Purpose Statement is derived from the legislative authority used to acquire specific refuge lands and is, along with Refuge System goals, the basis on which primary management activities are determined. Additionally, these statements are the foundation from which "allowed" uses of refuges are determined through a defined "compatibility process." Purpose Statements for the Wetland Management Districts are:

> "...as Waterfowl Production Areas" subject to "all of the provisions of such Act [Migratory Bird Conservation Act]...except the inviolate sanctuary provisions..." 16 U.S. C. 718(d)(c) [Migratory Bird Hunting and Conservation Stamp Act],
>
> "...for any other management purpose, for migratory birds." 16 U.S.C. 715D [Migratory Bird Conservation Act],
>
> "...for conservation purposes..."7 U.S.C. 2002 [Consolidated Farm and Rural Development Act].

The action is also needed to assess existing management issues, opportunities and alternatives, and then determine the best course for managing the natural resources in each District. Further, this action will satisfy the legislative mandate of the National Wildlife Refuge System Improvement Act of 1997 which requires the preparation of a CCP for all National Wildlife Refuges, including Wetland Management Districts. An additional purpose of the Environmental Assessment (EA) is to provide direction and consideration of the Wetland Management Districts' fire management program, which is integral to the CCP.

This EA was prepared using guidelines of the National Environmental Policy Act of 1969. The Act requires us to examine the effects of proposed actions on the natural and human environment. This EA describes three alternatives for future Complex

Figure 1: Minnesota Wetland Management Districts Location



management, the environmental consequences of each alternative, and our preferred management direction. Each alternative has a reasonable mix of fish and wildlife habitat prescriptions and wildlife-dependent recreational opportunities. Selection of the identified preferred alternative was based on its environmental consequences and ability to achieve the Complex's purpose.

1.1.2 Need for Action

The CCP ultimately derived from this EA will set the management direction for the Districts for the next 15 years. This EA will present three management alternatives for the future of the Districts. One of the alternatives will be selected based on its ability to meet identified goals. These goals may also be considered as the primary need for action. They reflect Service trust responsibilities and priorities based upon species needs, environmental conditions and Service policy. Goals for the Districts were developed by the planning team and encompass all aspects of wetland management district management including public use, habitat management and maintenance operations. Each of the three management alternatives described in this EA will be able to at least minimally achieve these goals.

The goals for the Minnesota Wetland Management Districts include:

Wildlife Goal: Strive to preserve and maintain diversity and increase the abundance of waterfowl and other key wildlife species in the Northern Tallgrass Prairie Ecosystem. Seek sustainable solutions to the impact of Canada Geese on adjacent private croplands. Preserve, restore, and enhance resident wildlife populations where compatible with waterfowl and the preservation of other trust species.

Habitat Goal: Restore native prairie plant communities of the Northern Tallgrass Prairie Ecosystem using local ecotypes of seed and maintain the vigor of these stands through natural processes. Restore functioning wetland complexes and maintain the cyclic productivity of wetlands. Continue efforts for long-term solutions to the problem of invasive species with increased emphasis on biological control to minimize damage to aquatic and terrestrial communities. Continue efforts to better define the role of each District in assisting private landowners with wetland, upland and riparian restorations.

Acquisition Goal: Within current acquisition acreage goals, identify the highest priority acres for acquisition taking into account block size and waterfowl productivity data. These priority areas should drive acquisition efforts whenever possible. Service land acquisition should have no negative impact on net revenues to local government. Understand and communicate the economic effects of federal land ownership on local communities.

Monitoring Goal: Collect baseline information on plants, fish and wildlife and monitor critical parameters and trends of key species and/or species groups on and around District units. Promote the use of coordinated, standardized, cost effective, and defensible methods for gathering and analyzing habitat and population data. Management decisions will be based on the resulting data.

Endangered Species / Unique Communities Goal: Preserve enhance, and restore rare native northern tallgrass prairie, flora and fauna that are or may become endangered. Where feasible in both ecological and social/economic terms, reintroduce native species on WPAs in cooperation with the Minnesota DNR.

Public Use / Environmental Education Goal: Provide opportunities for the public to use the WPAs in a way that promotes understanding and appreciation of the Prairie Pothole Region. Promote greater understanding and awareness of the Wetland Management District's programs, goals, and objectives. Advance stewardship and understanding of the Prairie Pothole Region through environmental education, outreach and partnership development.

Development Plan Goal: Preparation of WPA Development Plans: Complete Geographic Information System (GIS) based WPA Development Plans for each unit in each District. Provide Districts with GIS to assist with acquisition, restoration, management and protection of public and private lands.

Staff, Facilities and Equipment Goal: Provide necessary levels of maintenance, technician and administrative support staff to achieve other Wetland Management District goals: Provide all Districts with adequate and safe office, maintenance and equipment storage facilities Acquire adequate equipment and vehicles to achieve other District goals. Maintain District equipment and vehicles at or above Service standards.

Annual Capital Development Funds Goal: Ensure that annual capital development funds are large enough to meet necessary development of new WPA land: Have adequate funds available each year to permit completion of maintenance needs for each Wetland Districts current land base of Waterfowl Production Areas.

Consistency Goal: Develop and apply consistent policies for habitat, public use, and resource protection and ensure frequent coordination among Districts, both in Minnesota and in neighboring states with WPAs (North and South Dakota, Iowa, and Wisconsin).

1.2 Decision Framework

In compliance with the National Environmental Policy Act of 1969, the Regional Director for the Great Lakes-Big Rivers Region of the Service will use this Environmental Assessment to select one of three alternatives (Chapter 2) and determine whether the alternative selected will have a significant impact on the quality of the human environment. Specifically, analysis and findings described in this EA will help

the Regional Director decide whether to adopt the District's management direction pursuant to the goals, objectives, and strategies in the CCP (see CCP).

1.3 Background

1.3.1 The United States Fish and Wildlife Service

The United States Fish and Wildlife Service (Service) is the primary Federal agency responsible for conserving, protecting, and enhancing the Nation's fish and wildlife resources and their habitats for the continuing benefit of the American people. Some responsibilities are shared with Federal, state, tribal, and local entities, but the Service has specific responsibilities for "trust species" - endangered species, migratory birds, interjurisdictional fish, and certain marine mammals - as well as managing and protecting lands and waters administered by the Service.

The Service's mission is "Working with others to conserve, protect, enhance and, where appropriate restore fish, wildlife and plants and their habitats for the continuing benefit of the American people."

Service goals are:

- Sustainability of fish and wildlife populations: Conserve, protect, restore and enhance fish, wildlife and plant populations entrusted to our care.
- Habitat Conservation: A Network of Land and Waters: Cooperating with others, we will conserve an ecologically diverse network of lands and waters – of various ownerships – providing habitats for fish, wildlife and plant resources.
- Public Use and Enjoyment: Provide opportunities to the public to enjoy, understand and participate in use and conservation of fish and wildlife resources.
- Partnerships in Natural Resources: Support and strengthen partnerships with tribal, state and local governments and others in their efforts to conserve and enjoy fish, wildlife, plants and their habitats.

1.3.2 The National Wildlife Refuge System

The National Wildlife Refuge System (System) is an integral component of the Service with the mission of "administering a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."

The Service manages more than 500 national wildlife refuges covering more than 93 million acres that are specifically managed for fish and wildlife and their habitats. The majority of these lands, almost 83 percent of the land in the Refuge System is found in the 16 refuges in Alaska, with the remaining acres spread across the remaining 49 states and several territories. More than 88 per cent of the acreage in the System was withdrawn from the Public Domain. The remainder has been acquired through purchase, from other Federal agencies, as gifts, or through easement/lease agreements.

Goals of the National Wildlife Refuge System are to:

- Fulfill our statutory duty to achieve refuge purposes and further the System mission.
- Conserve, restore where appropriate, and enhance all species of fish, wildlife, and plants that are endangered or threatened with becoming endangered.
- Perpetuate migratory bird, interjurisdictional fish, and marine mammal populations.
- Conserve a diversity of fish, wildlife, and plants.
- Conserve and restore, where appropriate, representative ecosystems of the United States, including ecological processes characteristic of those ecosystems.
- Foster understanding and instill appreciation of fish, wildlife, and plants, and their conservation, by providing the public with safe, high-quality, and compatible wildlife-dependent public use. Such use includes hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

Photo Copyright by Jon Eldridge

1.3.3 Minnesota Wetland Management Districts

Located in western Minnesota, the Wetland Management Districts of Minnesota are set in a landscape that was once a mosaic of prairie and wetlands. From north to south the land varied between woodland, sandy ridges and hills covered by prairie flowers, dotted with small, blue wetlands and oak savannah. The combination of prairie grasslands and small wetlands made it among the most biologically productive landscapes in the world; supporting many people and an abundance of wildlife.

When European settlers arrived on the prairies, they recognized the land's productivity and rapidly turned it to agriculture. In a few decades it ranked among the richest agricultural land in the world. The landscape changed so rapidly, little of the original prairie was saved. Today, only fragments remain in isolated, small blocks. With fragmentation and the loss of large predators, smaller predators such as raccoon, striped skunks and fox increased, much to the detriment of ground-nesting birds and other native grassland species.

Perhaps no other ecosystem on earth as been so dramatically altered, in such a short time, as the tallgrass prairie ecosystem of the Midwest. As the prairie wetlands were being drained at an unprecedented rate, early surveys of the Prairie Pothole Region revealed a strong correlation between prairie wetlands and waterfowl breeding habitat. The Duck Stamp Act was passed in 1934 as an early step in stemming the loss of prairie wetlands. Although the original Act did not allow purchase of small wetlands, it created a way for hunters to actively participate in maintaining waterfowl populations. In 1958 the Act was amended, making it possible for the Service to buy small wetlands and uplands for breeding waterfowl and for hunting. The acquired wetlands became Waterfowl Production Areas, or WPAs, and formed the core of the Wetland Management Districts. Wetland management districts are the federal administrative unit that is responsible for acquiring, overseeing, and managing the Waterfowl Production Areas and easements within a specified group of counties. Most Districts are large and cover several counties.

At the time the Small Wetland Acquisition Program (SWAP) began in 1962, the Service entered into a Procedural Agreement with the State of Minnesota. This document laid out the rules for the purchase of wetlands as required by the Wetland Loan Act of 1961. The agreement was amended in 1976 when the number of counties authorized for acquisition increased from 19 to 28, and the goal acreage was increased. In 1991, the Minnesota Land Exchange Board gave the Service approval to expand its land acquisition program to all 87 counties of the State. The State goal of 231,000 acres in fee title and 365,170 acres in easements, as established in 1976, remains unchanged.

In western Minnesota, as of March 31, 1999, the Service owned 171,863 acres. Of these acres, 56,693 are wetlands. In addition, the Service administers perpetual easement agreements on 266,171 acres, of which 62,098 acres are wetlands. Wetlands that were once drained have been restored; on Waterfowl Production Areas, 4,064 wetland restorations have impounded 15,900 wetland acres.

The Wetland Management Districts combine to form a greater land mass than the largest national wildlife refuge in the lower 48 states. On average, each District has 23,000 to 73,400 breeding ducks each year. Combined, the Districts average 240,600 breeding ducks each year.

1.3.4 Minnesota WMD Vision Statement for Desired Future Condition

The Districts will emphasize waterfowl production and ensure the preservation of habitat for migratory birds, threatened and endangered species, and resident wildlife. The Districts will provide opportunities for the public to hunt, fish, observe and photograph wildlife and increase public understanding and appreciation of the Northern Tallgrass Prairie Ecosystem.

1.4 Project Inception

Several Federal, State, and local resource management plans provide the framework for the Service's proposed action, including the North American Waterfowl Management Plan - U.S. Prairie Pothole Joint Venture and the Minnesota Prairie Pothole Joint Venture Implementation Plan, the National Wetlands Priority Conservation Plan, the Service's Regional Wetlands Concept Plan, the Service's Ecosystem Plan for the Mississippi Headwater/Tallgrass Prairie ecosystem, the Partners in Flight Northern Tallgrass Prairie Bird Conservation Plan and the U.S. Shorebird Conservation Plan and strategic planning efforts of numerous local governments, which identifies preservation and protection of land and water resources as important public needs.

To address the declining status of North American waterfowl populations, the United States and Canada signed the North American Waterfowl Management Plan (NAWMP) in 1986. The purpose of the NAWMP is to restore a continental breeding population of 62 million ducks, including 8.7 million mallards, 6.3 million pintails, and a fall flight of 100 million ducks during years of average environmental conditions. Of late, the NAWMP has added objectives and activities for nongame birds. The NAWMP is designed to reach these objectives through key joint venture areas and state implementation plans within these joint venture areas.

Minnesota is one of five states (Minnesota, South Dakota, North Dakota, Montana, and Iowa) located in the U.S. portion of the Prairie Pothole Joint Venture (PPJV)

Area of the NAWMP. The objective of the PPJV is to produce 6.8 million breeding ducks and a fall flight of 13.6 million birds by the year 2000.

In 1986, the U.S. Congress authorized the Emergency Wetlands Resources Act to protect critical wetlands and promote wetland conservation. One of the requirements of the Act was the preparation of a national plan to identify high priority wetlands for protection. In 1989 the Department of the Interior developed the National Wetlands Priority Conservation Plan, as directed by the Act.

Photo Copyright by Jon Eldridge

In 1990, the Service developed a Regional Wetlands Concept Plan for the Great Lakes-Big Rivers Region (Minnesota, Iowa, Missouri, Illinois, Indiana, Wisconsin, Michigan, and Ohio). The purpose of the plan was to identify wetlands that are valuable for protection in conformance with the Emergency Wetlands Resources Act of 1986.

In 1994, the Service developed an Ecosystem Plan for the Mississippi Headwaters/Tallgrass Prairie ecosystem. The overall goal of that plan is to form creative and productive partnerships to restore some of the natural processes and a measure of the former biological diversity that once characterized this ecosystem.

Henceforth, in 1997 the Service initiated detailed management planning on Minnesota Wetland Management Districts. An interdisciplinary planning team was assembled to reaffirm the purpose and significance of the Districts, determine the scope of the planning effort, and define a protocol for carrying out the project. The protocol has included an information gathering phase, an information analysis phase, an information transfer phase, and a planning and implementation phase (current phase). A geographic information system (GIS) was developed to aid in the analysis and transfer of information.

1.5. Scoping and Public Involvement

Scoping is the process of identifying opportunities and issues related to a proposed action. The planning process for this CCP began October 1, 1997, when a Notice Of Intent to prepare a comprehensive management plan was published in the Federal Register (Vol. 62: 51482).

Initially, members of the planning team identified a list of issues and concerns that were likely to be associated with the management of the refuge. These preliminary issues and concerns were based on the team members' knowledge of the area, contacts with citizens in the community, and ideas already expressed to the refuge staff. Refuge staff and Service planners then began asking refuge neighbors, organizations, local government units, schools and interested citizens to share their thoughts in a series of open house events. Open houses were conducted on the following schedule:

November 17 – Detroit Lakes Wetland Management District, 7 attended
November 18 – Fergus Falls Wetland Management District, 9 attended
November 19 – Morris Wetland Management District, 9 attended
November 20 – Litchfield Wetland Management District, 1 attended
November 25 – Windom Wetland Management District, 15 attended
February 4 – Regional Office, Twin Cities, 62 attended

People were also invited to send in written comments describing their concerns as well as what they like about the refuge. Fifty-one written comments were received.

The range of issues identified by members of the public is as diverse as the individuals voicing them. However, several common themes emerged. Issues fall into broad categories of wildlife, habitat and people. These comments formed the basis of the issues addressed by the CCP. Dealing with these issues is at the core of the development of goals and objectives for the management of the Wetland Management Districts.

1.5.1 Issues and Concerns

The following list of needs were identified through our scoping process and were used to develop criteria for evaluating Alternatives in the Environmental Assessment.

<u>Wildlife & Habitat</u>

Waterfowl Productivity

- How do we increase waterfowl production on District lands?
- How do we ensure the Districts are buying the highest priority land in the most efficient and cost-effective manner?

Other Migratory Birds

- How should we manage wetlands on District lands to optimize migrational, breeding and nesting habitat for migratory birds.
- How do we stem the loss of migratory birds on District lands?

Threatened / Endangered Species

- How should the Districts address listed and rare and declining species?.

Native Species

- How should we improve native prairie restorations on District lands?
- Under what circumstances should the Districts introduce rare native species on District lands?

Biological Inventories/Monitoring

- How do we improve biological inventories and monitoring on District lands?.

Federal Trust vs. Resident Wildlife

- How should the Districts balance the needs of federal trust species with those of resident wildlife?

Invasive Species

- How should the Districts control invasive species on District lands?

Habitat Restoration and Management

- How should the Districts reduce the amount of crop depredation by foraging Canada Geese on private lands adjacent to WPAs?
- What are the long-term goals of the Districts Partners for Wildlife Private Lands Program?

Contaminants

- How can the Districts mitigate negative external influences (e.g., contaminants) on WPAs and reduce its impact on long-term health and productivity of District land?

Partners for Fish & Wildlife Program

- What is the long range goal of the Partners for Fish and Wildlife Program (Private Lands) on Wetland Management Districts?

People

Wildlife-dependent Recreation and Education

- How can the Districts better communicate the benefits of federal land to a community.

- How can the Districts provide adequate facilities and programs for the public to fully enjoy wildlife-dependent recreation in a way that is compatible with the Service and National Wildlife Refuge mission?

Operations

Land Acquisition

- Funding is needed to develop and manage newly acquired WPA land and facilities.

Staffing

- Districts need sufficient staff in critical areas to fully meet resource challenges and opportunities.

Facilities and Equipment

- Districts need office, maintenance and storage facilities to carry out their mission.

- Vehicles and other necessary equipment need to be replaced on a regular basis according to Service standards.

Management Consistency Among Districts

- The Districts need to be consistent in their application of policy and resource protection efforts.

1.6 Legal, Policy, And Administrative Guidelines

1.6.1 Legal Mandates

Service resource management and land acquisition is done in accordance with authority delegated by Congress and interpreted by regulations and guidelines established in accordance with such delegations (Appendix A).

1.6.2 Endangered Species Act Section 7 Review

The proposed action may affect but is not likely to affect any federally listed threatened or endangered species or species proposed for listing. This precludes the need for further action on the project as required under Section 7 of the Endangered Species Act of 1973, as amended.

Chapter 2: Description of Alternatives

2.1 Development of Alternatives

Project Leaders on Wetland Management Districts (WMD) within the major waterfowl breeding habitats of the United States have been charged with the responsibility to identify tracts of land that meet the goals of the Small Wetland Acquisition Program (SWAP) for inclusion in the National Wildlife Refuge System (NWRS). Of all the responsibilities Project Leaders carry, identifying lands to include in the NWRS has the longest lasting implications and is by far the most important. The land, once acquired needs to be managed intensively with a variety of tools available to the managers. The intensity of management is limited by the number of staff available and the scattered distribution of the land holdings across a wide landscape in 28 counties of Western Minnesota. The following Alternatives identify three approaches meeting the goals and responsibilities of land ownership and management.

Photo Copyright by Jan Eldridge

The main goal of the SWAP has been, and still is, to purchase a complex of wetlands and uplands that provide habitat in which waterfowl can successfully reproduce. The basic concept has been to purchase in fee title key brood marshes that include adequate nesting cover on adjacent uplands while protecting under easement surrounding temporary and seasonal wetland basins as breeding pair habitat. Once this is accomplished the land must be managed through seeding with native grasses and forbs, burning, and spraying for exotic and/or invasive vegetation and insects, and dispose abandoned buildings and wells. In addition, the areas must be fenced, signed and made accessible to the public.

The SWAP began in 1958 and accelerated rapidly in the early 1960's with passage of the Wetlands Loan Act. The original 1960's delineations were prepared for each fee title parcel based on their suitability to provide brood rearing habitat for waterfowl. These delineations designated wetlands as priority A, B, and C for fee title purchase. These tracts had few upland acres and only existing wetlands with no drainage facilities were considered for fee or easement purchase. In some locations, these original delineations have been reevaluated and revised. In Minnesota, a 1974 exercise produced maps showing proposed boundaries of each fee title delineation, as well as wetlands within a two-mile radius that were eligible for easement purchase. A 1984 effort produced maps of "significant wetland areas" for fee title purchase. Although dated, these efforts were biologically sound and provide valuable information in deciding which properties to purchase today.

Over the years our understanding of breeding waterfowl biology has increased and the landscape of the Upper Midwest has changed dramatically. The SWAP itself has evolved to include purchase of drained wetlands, increased upland acreage, and grassland easements along with new counties that include lands within intensely agricultural and urbanized landscapes.

Three possible alternatives to acquisition and management were considered as we thought about the future of the programs for the Wetland Management Districts. The

three alternatives were (1) manage what lands we currently own, (2) acquire additional lands and manage them as we currently manage the lands that we own and (3) acquire additional lands and expand management beyond the present level of intensity.

In the following sections we summarize what we would do under each alternative. The alternatives are described in the following paragraphs, but more detail is provided in Table 2 on page 21. The third alternative is our preferred alternative, which is developed in more detail as the Comprehensive Conservation Plan.

2.2 Elements Common To All Alternatives

2.2.1 Fire

2.2.11 Prescribed Fire

Prescribed fire is a habitat management tool that is used on the Districts regularly. District staff annually burn WPAs to enhance habitat for upland game, waterfowl, and other species of interest. The periodic burning of grasslands, and sedge meadows reduces encroaching vegetation such as willow. It also encourages the growth of desirable species such as native prairie grasses and forbes.

All prescribed burns are carried out by highly trained and qualified personnel who perform the operation under very precise plans. The Wetland Management Districts have approved fire management plans that describe in detail how prescribed burning will be conducted on District land. No burning takes place unless it meets the qualifications of the prescription for each unit. A prescription is a set of parameters that define the air temperature, fuel moisture, wind direction and velocity, soil moisture, relative humidity, and several other environmental factors under which a prescribed burn may be ignited. This insures that there is minimal chance the fire will escape the unit boundaries and that the fire will have the desired effect on the plant community.

Prescribed burns will occasionally be conducted within or near development zones, sensitive resources, and boundary area to reduce the risk from wildfire damage. To the greatest extent possible, hazard reduction prescribed fires will only be used when they compliment resource management objectives.

Combustion of fuels during prescribed fire operations may temporarily impact air quality, but the impacts are mitigated by small burn unit size, the direction of winds the burns are conducted with, and the distance from population centers. All efforts will be taken to assure that smoke does not impact smoke sensitive areas such as roads and local residences.

Burn frequency will vary on established grassland, savanna, and wet meadow units dependent on management objectives, historic fire frequency, and funding. As part of the prescribed fire program, a literature search will be conducted to determine the effects of fire on various plant and animal species, and a monitoring program will be instituted to verify that objectives are being achieved. Collectively, the Wetland Management Districts conduct an average of 121 prescribed fires covering approximately 16,113 acres each year (5-year average, 1998-2002). The District's goal will be to burn every 4 to 7 years. Under the preferred alternative, the collective goal of the Districts is to burn 30,000 to 32,000 acres per year. This frequency replicates the wildfire frequency that historically occurred and is needed to maintain the grassland

biome. Approximately 95 percent of burning occurs in the spring from April through May. The balance of burning occurs in the fall, generally in late September through mid-October.

Prescribed fires cannot and will not be ignited when the area is at an extreme fire danger level and/or the National Preparedness level is V, without the approval of the Regional Fire Management Coordinator. In addition, the Districts will not ignite prescribed fires when adjacent counties or the State in which the burn unit is located have instituted burning bans without the applicable State DNR concurrence. Drought can have an effect on fire severity and control. One or more drought indicators (PDI - KBI) will be used to determine the degree of drought. These indicators can be accessed on the web at *http://www.boi.noaa.gov/fwxweb/ fwoutlook.htm*

Spot fires, slop-overs, and escapes can be an expected occurrence on any prescribed fire. They can be caused by any of a number of factors that can not always be accounted for in the planning process. A few minor occurrences of these events on a prescribed burn can usually be controlled by holding forces of the burn crew. If so, they do not constitute a wildfire. The burn boss is responsible for evaluating the frequency and severity of these events and taking mitigating measures such as slowing down or stopping the burn operation, ordering additional holding forces from within District staff, or taking measures to extinguish the prescribed burn. Should an escape event exceed the ability of existing holding forces to control, and additional assistance become necessary in the form of DNR involvement, the event will be classified a wildfire and controlled accordingly. Once controlled by these forces the prescribed burning operation will be stopped for the burning period. A fire number will be obtained to implement wildfire funding to cover the cost of control, a wildfire report will be generated and a Wildland Fire Situation Analysis will be prepared.

Prescribed burns can be conducted at any time of year depending on resource objectives and prescription. However, the normal prescribed fire season begins approximately April 1, and ends by May 31, due to early bird nesting. Fall burning may begin again August 15, and end October 31.

Precautions will be taken to protect threatened and endangered species during prescribed burning. Nesting trees for Bald Eagles will be protected and burning will not be conducted at a time or in a way to negatively impact any nesting eagles. If any of the known disjunct populations of listed plant species are in or near a burn unit, precautions will be taken to avoid the plants.

Existing firebreaks will be used. They may undergo minor improvements such as graveling or rotovation (vegetation disruption). General policy dictates that any new firebreaks or below surface improvements to existing firebreaks will be approved by the Regional Historic Preservation Officer.

The District Managers will be responsible for supervising the development of resource management objectives for individual units. The District staff will provide assistance in the selection of the appropriate management tool needed to meet objectives. Prescribed fire is just one of a combination of tools available. If needed, the Zone Fire Management Officer (Zone FMO) will be consulted for assistance in developing a prescription that will achieve the desired results.

Burn plans (The Fire Management Plan) are written that document the treatment objectives, the prescription, and the plan of action for carrying out the burn. Burn plans are written by or under the guidance of a qualified burn boss. The burn plan

Table 1: Fee Title Acres Approved, and Goal Acres for each District as per Land Exchange Board (LEB)

Wetland Management Districts	Fee Title Acres Approved for Purchase by LEB	Goal Acres	Remainder
Detroit Lakes	41,615	89,280	47,665
Fergus Falls	43,417	74,675	31,258
Litchfield	33,213	76,220	46,007
Big Stone	2,343	0	0
Morris	51,208	74,830	23,622
Windom	12,669	24,476	11,807

follows the format in the Service's Fire Management Handbook or a format approved by the Regional Fire Management Coordinator and addresses all aspects as specified in the Service's Fire Management Handbook. Details regarding fire resources and procedures may be found in the individual fire plans for each District. All burn plans are reviewed by the Refuge Supervisor, Zone FMO, and approved by the individual Refuge Managers prior to implementation.

2.2.12 Fire Prevention and Detection

Although fire may have historically played a role in the development of habitats on the Districts, human ignited fires and natural ignitions burning without a prescription are likely to result in unwanted damage to cultural and/or natural resources. In order to prevent wildfire, an educational program will be utilized to reduce the threat of human caused fires. Ongoing monitoring will be conducted by staff, visitors, and cooperators to detect fire ignitions. Actions taken to implement this include:

- Fire prevention will be discussed at safety meetings, prior to the fire season, and during periods of high fire danger. Periodic training of staff in regards to fire prevention will be conducted.
- During periods of extreme fire danger, warnings will be posted at visitor information stations.
- Public contacts will be made via press releases and verbal contacts during periods of extreme fire danger.
- A thorough investigation will be conducted of all fires suspected to have been illegally set. Upon completion of the investigation, appropriate action will be taken.
- The Districts rely on neighbors, visitors, cooperators, and staff to detect and report fires. In addition, the step-up plan provides for increased patrols by District personnel during periods of very high and extreme fire danger.
- All fires occurring within or adjacent to (within two miles) the individual WPAs will be reported to the respective District headquarters. The person receiving the report will be responsible for implementing the Fire Dispatch Plan.
- Requests for assistance by cooperators on fires not threatening an individual WPA must be made to the District Manager or designee. Only qualified and properly equipped resources meeting NWCG standards will be dispatched off of the District.

- Firefighter and public safety always take precedence over property and resource protection during any fire management activity. Under moderate to severe fire danger index ratings, flaming fronts are capable of moving at fast speeds in all fuel models. In order to eliminate safety hazards to the public, all public access into the burn units will be closed the day of the burn. Fire crews will be briefed that should an individual who is not a member of the fire crew be observed in the prescribed burn unit, they will be immediately escorted out of the area. The fire crew will keep the fire scene clear of people except for Service firefighters and cooperating fire crews.

2.2.13 Fire Suppression

Service policy requires the District to utilize the Incident Command System (ICS) and firefighters meeting NWCG qualifications for fires occurring on District property. All suppression efforts will be directed towards safeguarding life while protecting the District=s resources and property from harm. Mutual aid resources responding from Cooperating Agencies will not be required to meet NWCG standards, but must meet the standards of their Agency. Mutual aid resources will report to the Incident Commander (IC) in person or by radio and receive their duty assignment. Mutual aid forces will be first priority for release from the fire. If additional firefighters are needed, appropriate procedures will be used to acquire them.

All fires occurring on the District and staffed with Service employees will be supervised by a qualified IC. The IC will be responsible for all management aspects of the fire. If a qualified IC is not available, one will be ordered through the appropriate area office dispatch center. All resources will report to the IC (either in person or by radio) prior to deploying to the fire and upon arrival to the fire. The IC will be responsible for: (1) providing a size-up of the fire to dispatch as soon as possible; (2) determine the resources needed for the fire; and (3) advising dispatch of resource needs on the fire. The IC will receive general suppression strategy from the Fire Management Plan, but appropriate tactics used to suppress the fire will be up to the IC to implement. Minimum impact suppression tactics (MIST) will be used whenever possible.

Severity funding may be essential to provide adequate fire protection for the District during periods of drought, as defined by the Palmer Drought Index or other appropriate drought indicators. Severity funds may be used to hire additional firefighters, extend firefighter seasons, or to provide additional resources. The Service Fire Management Handbook provides guidelines for use of severity funding.

The incident commander (IC) on a wildland fire or the prescribed fire burn boss on a prescribed burn will be responsible for the completion of a DI-1202 Fire Report as well as Crew Time Reports for all personnel assigned to an incident and return these reports to the Assistant Manager. The IC or burn boss should include a list of all expenses and/or items lost on the fire and a list of personnel assignments on the DI-1202. The Zone FMO will enter all data into the FMIS computer database within 10 days after the fire is declared out. The Zone FMO will also inform the timekeeper of all time and premium pay to be charged to the fire and ensure expended supplies are replaced. In addition, the following provisions will apply:

- Utilize existing roads and trails, bodies of water, areas of sparse or non-continuous fuels as primary control lines, anchor points, escape routes, and safety zones.

- When appropriate, conduct backfiring operations from existing roads and natural barriers to halt the spread of fire.
- Use burnouts to stabilize and strengthen the primary control lines.
- Depending upon the situation, either direct or indirect attack methods may be employed. The use of backfire in combination with allowing the wildfire to burn to a road or natural firebreak would be least damaging to the environment. However direct attack by constructing control lines as close to the fire as possible may be the preferred method to establish quicker control.
- Retardants may be used on upland areas.
- Constructed fire line will be rehabilitated prior to departure from the fire or scheduled for rehabilitation by other non-fire personnel.
- The Incident Commander will choose the appropriate suppression strategy and technique. As a guide: On low intensity fires (generally flame lengths less than 4 feet) the primary suppression strategy will be direct attack with hand crews and engines. If conditions occur that sustain higher intensity fires (those with flame lengths greater than 4 feet) then indirect strategies which utilize back fires or burning out from natural and human-made fire barriers may be utilized. Those barriers should be selected to safely suppress the fire, minimize resource degradation and damage and be cost effective.
- The use of earth moving equipment for suppression activities (dozers, graders, plows) on the District land will not be permitted without the approval of the individual District Manager or his/her designated representative in the event of their absence.
- All areas in which wildfires occur on the District or District administered lands will be evaluated prior to the aerial or ground application of foams and/or retardants. Only approved chemical foams and retardants will be used (or not used) in sensitive areas such as those with riparian vegetation.
- Hazard reduction prescribed fires may be used in fire adapted communities that have not had significant fire for more than twice the normal fire frequency for that community type.
- Utilization of heavy equipment during high intensity fires will be allowed only with the approval of the individual managers of the Districts.
- Wild fire use for resource benefit will not be utilized.
- Engines will remain on roads and trails to the fullest extent possible.
- Whenever it appears a fire will escape initial attack efforts, leave Service lands, or when fire complexity exceeds the capabilities of command or operations, the IC will take appropriate, proactive actions to ensure additional resources are ordered. The IC, through dispatch or other means, will notify the Complex FMO of the situation. With Zone FMO assistance the Refuge Manager at each Complex Refuge will complete a Wildland Fire Situation Analysis (WFSA) and Delegation of Authority.
- The IC will be responsible for mop-up and rehabilitation actions and standards on District fires. District fires will be monitored until declared out.

- Rehabilitation of suppression actions will take place prior to firefighters being released from the fire. Action to be taken include: 1) All trash will be removed; 2) Fire lines will be refilled and water bars added if needed; 3) Hazardous trees and snags cut and all stumps cut flush; and 4) Damage to improvements caused by suppression efforts will be repaired, and a rehabilitation plan completed if necessary. Service policy states that only damage to improvements caused by suppression efforts can be repaired with fire funds. Service funds cannot be used to repair damage caused by the fire itself (i.e. burnt fence lines). If re-seeding is necessary, it will be accomplished according to Service policy and regulations

2.2.2 Cultural Resources

The District Manager will, during early planning, provide the Regional Historic Preservation Officer a description and location of all projects, activities, routine maintenance and operations that affect ground and structures, requests for permitted uses, and alternatives being considered. The RHPO will analyze these undertakings for potential to affect historic properties and enter into consultation with the public and local government officials to identify concerns about impacts by the undertaking. This notification will be at least equal to, preferably with, public notification accomplished for NEPA and compatibility.

2.2.3 Listed Species

Prior to the burning season, Ecological Services will review each District's Fire Management Plan to ensure that prescribed burning will not negatively impact listed species.

2.3 Alternative 1 – Discontinue Acquiring Additional Land and Maintain Management on Current Land

Under this alternative we would manage fee title land already in the system and would not increase the holdings to the agreed goal acres for each county within the District. We would restore native grasslands using local ecotypes of mixed native grasses and forbs and improve wetlands by increasing water control and improving watersheds. We would regularly evaluate our approach to waterfowl production. We would maintain the recruitment rate of waterfowl and the current level of inspection of our lands and easements. We would continue to conduct the 4-square-mile monitoring program and the monitoring of nesting structures under this alternative. We would continue routine surveys such as the scent post survey and bird counts and non-routine surveys when requested, such as the deformed frog survey. We would continue to avoid any actions that would harm endangered or threatened species, and we would note the presence of any species that is federally listed as endangered or threatened.

We would maintain the public access to WPA's that currently exists. We would complete and document development plans for every WPA on the District as time and staffing permit. The development plans would be recorded in a geographic information system and document ownership boundaries, habitat, facilities and history of management.

Each District would continue with the current level of staffing. We would identify and replace facilities and equipment that do not meet Service standards. We would expect that the maintenance backlog would be reduced, but not eliminated, over the life of the CCP.

Management would continue to be inconsistent among Districts. There would be limited coordination with the Districts in Iowa, Wisconsin, and the Dakotas.

Currently, the Districts manage the following lands:

Big Stone WMD	**Acres**
Native Prairie (virgin)	25
Other Grasslands/Farmland	1,445
Forested/Brushland	34
Wetland/Riverine	839
Total	*2,343*

Detroit Lakes WMD	**Acres**
Native Prairie (virgin)	4,051
Other Grasslands/Farmland	15,262
Forested/Brushland	4,178
Wetland/Riverine	18,124
Total	*41,615*

Fergus Falls WMD	**Acres**
Native Prairie (virgin)	2,294
Other Grasslands/Farmland	20,881
Forested/Brushland	3,828
Wetlands and Rivers	16,309
Total	*43417*

Litchfield WMD	**Acres**
Native prairie (virgin)	2,653
Other grasslands/farmland	14,310
Forested/brushland	2,969
Wetland/riverine	13,281
Total	*33,213*

Morris WMD	**Acres**
Native Prairie (virgin)	7,035
Other Grasslands/Farmland	23,969
Forested/Brushland	2,268
Wetland/Riverine	17,936
Total	*51,208*

Windom WMD	**Acres**
Native prairie	422
Other grasslands/farmland	7,564
Forested/brushland	543
Wetland/riverine	4,140
Total	*12,669*

2.4 Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action Alternative)

Under this alternative we would continue acquiring land up to the goal acres agreed to by each county within the District (See Table 1). We would expand the size of Waterfowl Production Areas in areas of prime waterfowl use through easements and working with partners.

We would restore native grasslands using local ecotypes of mixed native grasses and forbs and improve wetlands by increasing water control and improving watersheds. We would regularly evaluate our approach to waterfowl production. We would maintain the recruitment rate of waterfowl and the current level of inspection of our lands and easements. We would continue to conduct the 4-square-mile monitoring program and the monitoring of nesting structures under this alternative. We would continue routine surveys such as the scent post survey and bird counts and non-routine surveys when requested, such as the deformed frog survey. We would continue to avoid any actions that would harm endangered or threatened species. We would note the presence of any species that is federally listed as endangered or threatened.

We would continue current public access on existing areas and add access to new acquisitions slowly over several years. We would complete and document development plans for every WPA on the District as time and staffing permit. The development plans would be recorded in a geographic information system and document ownership boundaries, habitat, facilities and history of management.

Each District would continue with the current level of staffing. We would identify and replace facilities and equipment that do not meet Service standards. We would expect that the maintenance backlog would be reduced, but not eliminated, over the life of the CCP.

Management would continue to be inconsistent among Districts. There would be limited coordination with the Districts in Iowa, Wisconsin, and the Dakotas.

2.5 Alternative 3 – Increase Land Holdings to Goal Acres and Expand Management for Waterfowl, Other Trust Species and the Public (Preferred Alternative)

Under this alternative we would continue acquiring land up to the goal acres agreed to by each county within the District (See Table 1). We would expand the size of Waterfowl Production Areas in areas of prime waterfowl use through easements and working with partners. We would focus whenever possible on prime habitat as outlined in the Habitat and Population Evaluation Team (HAPET) "thunderstorm" maps. These maps reveal high density waterfowl populations and, because the results are color coded, look somewhat like weather maps.

We would follow the Strategic Growth of the Small Wetland Acquisition Program (SWAP) Guidelines for Fee and Easement Purchase (Appendix K). These Guidelines specify that:

1) The program will focus on providing the mission components for the WMD landscape: wetland complexes, surrounding grasslands and a predator component that approaches a naturally occurring complement (i.e., coyotes vs. red fox).

2) The program will focus on established delineation criteria (size, location, ratio of upland to wetlands, soil composition, etc.) for all fee title, habitat and wetland easements (Appendix K).

3) The program will prioritize acquisition based on "thunderstorm maps," land cover (grassland acres), landscape characteristics and data on predator

populations. Prioritization will be given to tracts that benefit waterfowl, but other wildlife benefits will be considered in the priorities such as native prairie, endangered or threatened species, colonial nesting birds and expanding and protecting large tracts of grassland as Grassland Bird Core Conservation Areas as proposed by Fitzgerald et al. (1998).

We would restore native grasslands using local ecotypes of mixed native grasses and forbs and improve wetlands by increasing water control and improving watersheds. We would, where possible, follow HAPET recommendations for nesting platforms and predator management (electric fencing, predator control, islands, etc). Cooperating landowners within the District's watershed would be offered incentives and/or compensated through cost-sharing agreements for applying conservation and environmental farming practices on their lands and for creating, maintaining, or enhancing habitat for wildlife.

We would regularly evaluate our approach to waterfowl production and improve waterfowl monitoring. We would increase the recruitment rate of waterfowl and increase inspection of our lands and easements. We would work to prohibit the introduction of wildlife species that are not native to the Northern Tallgrass Prairie Ecosystem.

We would employ a scientifically defensible means to monitor and evaluate habitats and populations under this alternative. We would increasingly use geographic information systems in our monitoring. We would inventory the hydrological systems within the Districts, invertebrate communities, and monitor contaminant levels in water flowing into District wetlands. We would increase our surveys and monitoring of threatened and endangered species, invertebrates, and unique communities under this alternative. We would seek opportunities to enhance and reintroduce native species in the districts.

Under this alternative we would expand and improve opportunities for public use through construction of additional parking lots and interpretive kiosks on existing and acquired lands.

We would complete and document development plans for every WPA on the District within three years under this alternative. The development plans would be recorded in a geographic information system and document ownership boundaries, habitat, facilities and history of management.

Staff would be added to the Districts under this alternative. Implementation of the CCP would rely on partnerships formed with landowners in the watershed, volunteers and interested citizens, farm and conservation organizations, and with appropriate government agencies. We would identify and replace facilities and equipment that do not meet Service standards. Our goal would be to meet the standards by 2010.

Management of the Districts would be more consistent among the Minnesota Districts and with the Districts in Iowa, Wisconsin and the Dakotas.

Table 2: CCP Objectives Compared by Management Action

Alternative 1: Maintain Management on Current Acres with no additional land acquisition	Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action)	Alternative 3: Improve Wetland Management Districts for Waterfowl and Other Trust Species (Preferred Alternative)
Goal 1: Wildlife *Strive to preserve and maintain diversity and increase the abundance of waterfowl and other key wildlife species in the Northern Tallgrass Prairie Ecosystem. Seek sustainable solutions to the impact of Canada Geese on adjacent private croplands. Preserve, restore, and enhance resident wildlife populations where compatible with waterfowl and the preservation of other trust species.*		
Continue to use the MAAPE process to increase waterfowl production on the Districts. If updates are made in the process, it will likely be on an intermittent basis.	Same as Alternative 1.	Update MAAPE Process. The District will request the Fergus Falls Habitat and Population Evaluation Team (HAPET) to review the "Multi-Agency Approach to Planning and Evaluation" (MAAPE) process every 5 years to incorporate monitoring results and reevaluate strategies for increasing waterfowl production within the Districts.
Current waterfowl monitoring techniques using the four-square-mile monitoring program will continue to be the primary monitoring mechanism to determine waterfowl abundance and productivity estimates.	Same as Alternative 1.	Alternative Waterfowl Monitoring. The District will develop alternative monitoring techniques by the year 2007 for waterfowl abundance and productivity estimates in areas of Districts that are not well-covered by the four-square-mile monitoring program.
Recruitment Rate. Districts will strive to maintain the 2001 recruitment rate of mallards (approximately 0.52) or increase it slightly as additional operations funding is focused on current lands under Service control.	Recruitment Rate. Districts will strive to maintain the 2001 recruitment rate of mallards (approximately 0.52).	Recruitment Rate. The Districts will strive to increase potential recruitment rate of mallards in an average year from the current level of 0.52 to 0.60 by 2015.
Violations. Each year, the Districts will inspect all WPA, FmHA Conservation Easement and Habitat Easement for compliance to insure protection of migratory waterfowl and other habitats. Any illegal activity will be responded to immediately and restored as soon as possible.	Same as Alternative 1.	Same as Alternative 1.
Working With Partners. Increased effort over current levels due to reduction of land acquisition program on the Districts	Working With Partners. The District will cooperate with all USDA, Minnesota DNR and any other local agency programs as well as participate as a partner with local conservation groups which would increase waterfowl habitat and production.	Same as Alternative 2.

Table 2: CCP Objectives Compared by Management Action

Alternative 1: Maintain Management on Current Acres with no additional land acquisition	Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action)	Alternative 3: Improve Wetland Management Districts for Waterfowl and Other Trust Species (Preferred Alternative)
Goal 1: Wildlife continued		
Native species reintroductions will consist of native plant materials used to restore cropland to native grassland. No restoration of vertebrates or invertebrates will occur.	Same as Alternative 1.	Identify, evaluate, and prioritize opportunities to reintroduce native species documenting the needs in a plan by 2007.
Increase efforts to reintroduce native species. Small increases would be possible as operations and maintenance funding gradually increases without a corresponding increase in new lands to manage.	No reintroduction of new species will occur. The reintroduction of the current compliment of native plant materials will continue as part of the ongoing cropland restorations.	By 2010 begin a reintroduction program to reintroduce one species per year until all goal species identified under Objective 1.6 are reintroduced.
No memorandum of Understanding would be developed with the Minnesota DNR.	Same as Alternative 1.	Develop a Memorandum of Understanding with the Minnesota DNR which clearly articulates the responsibilities of Wetland Districts for the handling of landowner complaints originating from geese on WPA wetlands.
Same as Alternative 3 but only as funds and resources are available basis	Same as Alternative 1.	Cooperation. The Districts will cooperate with state wildlife offices and local organizations to provide winter food sources on documented wintering areas to benefit resident species of wildlife.

Table 2: CCP Objectives Compared by Management Action

Alternative 1: Maintain Management on Current Acres with no additional land acquisition	Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action)	Alternative 3: Improve Wetland Management Districts for Waterfowl and Other Trust Species (Preferred Alternative)
Goal 2: Habitat *Restore native prairie plant communities of the Northern Tallgrass Prairie Ecosystem using local ecotypes of seed and maintain the vigor of these stands through natural processes. Restore functioning wetland complexes and maintain the cyclic productivity of wetlands. Continue efforts for long-term solutions to the problem of invasive species with increased emphasis on biological control to minimize damage to aquatic and terrestrial communities. Continue efforts to better define the role of each District in assisting private landowners with wetland, upland and riparian restorations.*		
Same as Alternative 2. Restoration of native grasslands would diminish since few if any new lands would be added to the Districts over time.	An average of 250 acres in fee title per District will be restored to native grassland species each year. Other aspects of this objective will be similar to Alternative 3.	Prairie Restoration. Restore an average of 500 acres in fee title per District to native seeded grassland species each year. Begin the process on all new acquisitions within 5 years of purchase. Seed a diverse mix of predominantly native grasses and forbes using the ecotype recommendations of the Mississippi Headwater Tallgrass Prairie Ecosystem Team. Replicate, to the extent possible, the structure, species composition, and processes of native ecological communities in the Tallgrass Prairie to improve migratory bird habitat and improve existing soil and water quality within respective watersheds. Judiciously use non-native plantings when desirable to meet waterfowl and migratory bird population objectives.
Grassland Management. Renovate and seed or interseed 1000 acres of existing grasslands per District to improve diversity and vigor. Diminishing land acquisition will allow for a gradual increase in existing seeded acreage.	Grassland Management. Renovate and seed or interseed 250 acres of existing grasslands per District to improve diversity and vigor.	Grassland Management. Renovate and seed or interseed 500 acres of existing grasslands per District to improve diversity and vigor.
Prescribed Burn. Plan and conduct prescribed burns on over 5,000 acres annually per District to maintain and restore native prairie plant species. Diminishing land acquisition will allow for a gradual increase in burned acreage on existing lands.	Prescribed Burn. Plan and conduct prescribed burns on 2,000-4,000 acres annually to maintain and restore native prairie plant species to improve waterfowl and wildlife use, and to prepare selected sites for native seed harvest.	Prescribed Burn. Plan and conduct prescribed burns on 3,000-5,000 acres annually to maintain and restore native prairie plant species to improve waterfowl and wildlife use, and to prepare selected sites for native seed harvest.
Manage existing WPA and easement grasslands so that each acre is treated at least once every 6 years by burning, mowing, haying, grazing, or other management.	Manage existing WPA and easement grasslands so that each acre is treated at least once every 7 years by burning, mowing, haying, grazing, or other management.	Same as Alternative 2.

Table 2: CCP Objectives Compared by Management Action

Alternative 1: Maintain Management on Current Acres with no additional land acquisition	Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action)	Alternative 3: Improve Wetland Management Districts for Waterfowl and Other Trust Species (Preferred Alternataive)
Goal 2: Habitat, continued		
Restoration. Restore an average of 120 wetlands per year off refuge system land to serve migratory birds as migration, breeding and nesting habitat.	Restoration. Restore an average of 80 wetlands per year both on and off refuge system land to serve migratory birds as migration, breeding and nesting habitat.	Restoration. Restore an average of 100 wetlands per year both on and off refuge system land to serve migratory birds as migration, breeding and nesting habitat.
Management. Manage water levels on 100 percent of the wetlands that have built-in water control structures to increase vegetation and nutrient recycling for the benefit of waterfowl. Consider increasing the number of wetlands with control structures.	Management. Manage water levels on 100 percent of the wetlands that have built-in water control structures to increase vegetation and nutrient recycling for the benefit of waterfowl.	Same as Alternative 2.
Monitoring. Inventory hydrological systems in the Districts as identified in the monitoring plan, including chemical water analysis, water level, water flow and the interaction of Federal lands and private lands within the watershed.	Same as Alternative 1.	Same as Alternative 1.
Cooperation. Attend and participate in watershed district meetings.	Same as Alternative 1.	Same as Alternative 1.
Research. Encourage and cooperate in research on hydrological systems within the District.	Same as Alternative 1.	Same as Alternative 1.
Management. Increase use of hydrological data gathering in the overall management of the Districts following the guidance developed in the Monitoring Plan.	Same as Alternative 1.	Same as Alternative 1.
Hydrologist. Hire a hydrologist to conduct hydrological monitoring program, analyze the data and present the information to management in a useable form.	Same as Alternative 1.	Same as Alternative 1.

Table 2: CCP Objectives Compared by Management Action

Alternative 1: Maintain Management on Current Acres with no additional land acquisition	Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action)	Alternative 3: Improve Wetland Management Districts for Waterfowl and Other Trust Species (Preferred Alternative)
Goal 2: Habitat, continued		
Plant Control. Reduce exotic plants including noxious weeds on state and county lists through an aggressive program including burning, mowing, chemical treatment, hand cropping, and interseeding. Primary targets include purple loosestrife, Canada thistle, and leafy spurge.	Same as Alternative 1.	Same as Alternative 1.
Minnow and Carp Control. Working with partners, by 2008 carp and undesirable minnow populations will be controlled on 90 percent of infested WPA wetlands through water level control, reduced minnow stocking, barriers, and chemical control.	Same as Alternative 1, except that completion date would be 2010 and control will be on 70 percent of infested WPA wetlands.	Same as Alternative 1, except that completion date would be 2010 and control will be on 90 percent of infested WPA wetlands.
Grasshopper Control: We will work with Minnesota Department of Agriculture to devise an appropriate emergency grasshopper control plan by 2008 so that future infestations are handled effectively and in a way that minimizes or eliminates insecticide use on WPAs for grasshopper control.	Same as Alternative 1.	Same as Alternative 1.
Biological Control: Increase emphasis on biological control whenever feasible. The District will continue to release beetles for control of spurge and loosestrife as appropriate.	Same as Alternative 1.	Same as Alternative 1.
Goal 3: Acquisition *Within current acquisition acreage goals, identify the highest priority acres for acquisition taking into account block size and waterfowl productivity data. These priority areas should drive acquisition efforts whenever possible. Service land acquisition should have no negative impact on net revenues to local government. Understand and communicate the economic effects of federal land ownership on local communities.*		
Evaluating Acquisition Priority. No additional land would be acquired beyond 2003 target levels.	Evaluating Acquisition Priority. Review and update the current acquisition guidelines by the year 2003. Acquisition strategies for future acquisitions within the Districts will be based on site potential. Consideration should be given to size, quality, key species affected, habitat fragmentation, landscape scale complexes, potential productivity of restored wetlands, etc.	Same as Alternative 2.

Table 2: CCP Objectives Compared by Management Action

Alternative 1: Maintain Management on Current Acres with no additional land acquisition	Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action)	Alternative 3: Improve Wetland Management Districts for Waterfowl and Other Trust Species (Preferred Alternative)
Goal 3: Acquisition, continued		
Goal Acres. No or few new lands will be acquired beyond 2003. Habitat management efforts will be intensified to reach waterfowl recruitment objectives for the District.	Goal Acres. By 2005, conduct a biological assessment to determine if current goal acres will be sufficient to reach waterfowl recruitment objectives for the District.	Same as Alternative 2.
Coordination. The Districts will continue to insure a response to willing seller offers in high priority areas only.	Coordination. The Districts will coordinate with their District Acquisition Offices to insure rapid response to willing seller offers that meet the acquisition priorities. An offer will be made to the seller within 5 months of the decision to acquire the tract.	Same as Alternative 2.
Acquisition. Each District will meet 2003 Distric goal acres and will hold steady, or only minimally increase land holdings, over the next 15 years.	Acquisition. Each District will meet current District goal acres within 15 years by acquiring an average of 1,630 acres in fee title, 3,335 acres of wetland easements and 1,660 acres of upland easements per year, for waterfowl breeding and use. This objective will be modified as appropriate if the goal acres are modified.	Same as Alternative 2.
Advocate 100 percent of revenue sharing and a lump sum payment for past underpayment through a trust fund to the counties.	Same as Alternative 1.	Same as Alternative 1.
Continue to provide information to local governments and the public on the revenue sharing program for existing lands.	Conduct a study that would provide the following information to managers so that they can better communicate the issue to the public: 1)A graph of revenue sharing for the last 20 years, 2)A detailed explanation of the impact of federal ownership on school taxes, 3)A detailed study of the trust fund payments to the state in relation to the revenue sharing shortfall and 4)How much money do we really need to make up the trust fund from 1993 and prior.	Same as Alternative 2.
Determine local economic value of Federal land ownership.	Same as Alternative 1.	Same as Alternative 1.

Table 2: CCP Objectives Compared by Management Action

Alternative 1: Maintain Management on Current Acres with no additional land acquisition	Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action)	Alternative 3: Improve Wetland Management Districts for Waterfowl and Other Trust Species (Preferred Alternative)
Goal 3: Acquisition, continued		
Demonstrate the hydrologic benefits of restored wetlands; determine cash value of wetland values.	Same as Alternative 1.	Same as Alternative 1.
Determine social value of natural habitat in the landscape. Determine importance of wildlife to people in a community.	Same as Alternative 1.	Same as Alternative 1.
Goal 4: Monitoring *Collect baseline information on plants, fish and wildlife and monitor critical parameters and trends of key species and/or species groups on and around District units. Promote the use of coordinated, standardized, cost effective, and defensible methods for gathering and analyzing habitat and population data. Management decisions will be based on the*		
Inventory and Monitoring Plan. Develop an Inventory and Monitoring Plan by 2003 that will identify census needs and appropriate techniques as part of a coordinated monitoring program that will be used to evaluate species richness within the Districts by developing species data and accounts on selected sites.	Same as Alternative 1.	Same as Alternative 1.
Geographic Information System. Increase use of GIS technology in monitoring habitat and wildlife.	Same as Alternative 1.	Same as Alternative 1.
Maintain the current use of biological data in the overall management of the Districts.	Increase the use of biological data in the overall management of the Districts by fulfilling the actions identified in the Inventory and Monitoring Plan.	Same as Alternative 2.
Biological Inventory. As part of the Inventory and Monitoring Plan, inventory the biological resources on the Districts by the year 2010.	Same as Alternative 1.	Same as Alternative 1.
Breeding Birds. Conduct regular surveys of breeding grassland and wetland migratory birds.	Same as Alternative 1.	Same as Alternative 1.
Monitoring. Monitor the levels of external threats to the Waterfowl Production Units such as soil erosion, incoming water quality, pesticide use, and contaminants as identified in the Inventory and Monitoring Plan.	Same as Alternative 1.	Same as Alternative 1.

Table 2: CCP Objectives Compared by Management Action

Alternative 1: Maintain Management on Current Acres with no additional land acquisition	Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action)	Alternative 3: Improve Wetland Management Districts for Waterfowl and Other Trust Species (Preferred Alternative)
Goal 5: Endangered Species / Unique Communities *Preserve enhance, and restore rare native northern tallgrass prairie, flora and fauna that are or may become endangered. Where feasible in both ecological and social/economic terms, reintroduce native species on WPAs in cooperation with the Minnesota DNR.*		
Threatened and Endangered Species. Continue to avoid actions that would harm threatened and endangered species within the District.	Same as Alternative 1.	Threatened and Endangered Species. Identify and survey threatened and endangered species within the District looking specifically for species of special interest as listed in Appendix I.
Invertebrates. Maintain existing surveys of invertebrate communities in grassland and wetland communities.	Same as Alternative 1.	Invertebrates. Conduct regular surveys of invertebrate communities in grassland and wetland communities following the approaches identified in the Inventory and Monitoring Plan.
Research. Encourage and cooperate in research that will further our understanding about management and habitat manipulations on the District.	Same as Alternative 1.	Same as Alternative 1.
Partners for Fish and Wildlife. With the Partners for Fish and Wildlife staff in the Regional Office, develop clear guidance for upland and riparian restoration work so each District is managing the program consistently.	Same as Alternative 1.	Same as Alternative 1.
Management. The Districts will protect and enhance populations of endangered, threatened, and special emphasis species (Appendix E) indigenous on District lands. Management applications applied to these areas will be tailored to meet species management needs.	Same as Alternative 1.	Same as Alternative 1.
Cooperation. The Districts will work with partners and other agencies to develop specific plans for target species occurring within the Districts.	Same as Alternative 1.	Same as Alternative 1.
Enforcement. The Districts will enforce all Endangered Species Act and Migratory Bird Treaty Act regulations within their District through increased contacts with hunters, neighbors and visitors.	Same as Alternative 1.	Same as Alternative 1.

Table 2: CCP Objectives Compared by Management Action

Alternative 1: Maintain Management on Current Acres with no additional land acquisition	Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action)	Alternative 3: Improve Wetland Management Districts for Waterfowl and Other Trust Species (Preferred Alternative)
Goal 5: Endangered Species / Unique Communities, continued		
Monitoring. The Districts will obtain baseline data including maps of all federally endangered and threatened species as well as all native prairie tracts, calcareous fens and oak savanna by 2005.	Same as Alternative 1.	Same as Alternative 1.
Cooperation: The Districts will continue to support the efforts of the Northern Tallgrass Prairie NWR and project partners to protect native prairie remnants in the Wetland Districts.	Cooperation. The Districts will identify threatened Northern Tallgrass Prairie unique communities and work through the Northern Tallgrass Prairie NWR project partners or other agencies and partners to acquire in fee title or protect through easement where the Small Wetlands Acquisition Program is not appropriate. All remaining native prairie remnants larger than 5 acres will by identified by 2005 and strategies for their protection will be developed by the year 2005.	Same as Alternative 2.
Enforcement. The Districts will continue to prohibit the introduction of wildlife species that are not native to the Northern Tallgrass Prairie Ecosystem.	Enforcement. The Districts will prohibit the introduction of wildlife species that are not native to the Northern Tallgrass Prairie Ecosystem.	Same as Alternative 2.
Develop priority actions to be implemented by the Partners for Fish and Wildlife Program with the strategies to be developed in a joint effort by all districts by 2004 with the Morris Wetland Management District taking the lead and responsible for the documentation.	Same as Alternative 1.	Same as Alternative 1.
Goal 6: Public Use/ Environmental Education *Provide opportunities for the public to use the WPAs in a way that promotes understanding and appreciation of the Prairie Pothole Region. Promote greater understanding and awareness of the Wetland Management District's programs, goals, and objectives. Advance stewardship and understanding of the Prairie Pothole Region through environmental education, outreach and partnership development.*		
Each Wetland Management District will strive to meet the National Visitor Service Standards for the Refuge System by the year 2005:	Same as Alternative 1.	Same as Alternative 1.

Table 2: CCP Objectives Compared by Management Action

Alternative 1: Maintain Management on Current Acres with no additional land acquisition	Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action)	Alternative 3: Improve Wetland Management Districts for Waterfowl and Other Trust Species (Preferred Alternative)
Goal 6: Public Use/ Environmental Education, continued		
Develop an outreach plan for each District, following the Public Use Plan developed by Fergus Falls Wetland Management District. Address internal (within the Service) and external audiences by 2003.	Same as Alternative 1.	Same as Alternative 1.
Each Wetland Management District should have a full-time public use specialist by 2004.	Same as Alternative 1.	Same as Alternative 1.
Each Wetland Management District should designate a Waterfowl Production Area in each county that will be handicapped accessible.	Same as Alternative 1.	Same as Alternative 1.
Develop maps for each Wetland Management District that can be easily provided upon request by the public by 2003.	Same as Alternative 1.	Same as Alternative 1.
Promote greater understanding of the WMD program; implement the Public Use Plan for each District by 2006.	Same as Alternative 1.	Same as Alternative 1.
Significantly increase visits for environmental education and interpretation to all District headquarters by 2006.	Same as Alternative 1	Slightly increase environmental visits to wetland management district headquarters by 2006. Land acquisition and restoration workloads will place limitations on the rate of increase.
Goal 7: Development Plan *Preparation of WPA Development Plans: Complete Geographic Information System (GIS) based WPA Development Plans for each unit in each District. Provide Districts with GIS to assist with acquisition, restoration, management and protection of public and private lands.*		
The WMD will have computer support staff by 2005.	Same as Alternative 1.	Same as Alternative 1.

Table 2: CCP Objectives Compared by Management Action

Alternative 1: Maintain Management on Current Acres with no additional land acquisition	Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action)	Alternative 3: Improve Wetland Management Districts for Waterfowl and Other Trust Species (Preferred Alternative)
Goal 8: Staff, Facilities and Equipment *Provide necessary levels of maintenance, technician and administrative support staff to achieve other Wetland Management District goals: Provide all Districts with adequate and safe office, maintenance and equipment storage facilities Acquire adequate equipment and vehicles to achieve other District goals. Maintain District equipment and vehicles at or above Service standards.*		
The staffing needs identified in this CCP are added as identified elsewhere in the plan.	Same as Alternative 1.	Same as Alternative 1.
Identify all buildings that do not meet service standards or needs by 2005.	Same as Alternative 1.	Same as Alternative 1.
Construct, replace or modify buildings so that all buildings meet service standards and needs by 2010.	Same as Alternative 1.	Same as Alternative 1.
Ensure that all Wetland District vehicles are replaced when their mileage reaches normal industry replacement standards (6 years or 60,000).	Same as Alternative 1.	Same as Alternative 1.
Ensure that Wetland Management District office and field tools and equipments are adequate to fulfill this plan.	Same as Alternative 1.	Same as Alternative 1.
Goal 9: Annual Capital Development Funds *Ensure that annual capital development funds are large enough to meet necessary development of new WPA land: Have adequate funds available each year to permit completion of maintenance needs for each Wetland Districts current land base of Waterfowl Production Areas.*		
Educate and provide adequate information to Regional, Washington, Departmental and Congressional staffs of need for capital improvement funding of an ongoing acquisition program.	Same as Alternative 1.	Same as Alternative 1.
Maintain a current inventory of all maintenance needs, updating it annually.	Same as Alternative 1.	Same as Alternative 1.
The Refuge Supervisor will summarize accomplishments combining all districts to demonstrate the work done through previous funding.	Same as Alternative 1.	Same as Alternative 1.

Table 2: CCP Objectives Compared by Management Action

Alternative 1: Maintain Management on Current Acres with no additional land acquisition	Alternative 2: Increase Land Holdings to Goal Acres and Maintain Current Management Practices (No Action)	Alternative 3: Improve Wetland Management Districts for Waterfowl and Other Trust Species (Preferred Alternative)
Goal 10: Consistency Goal *Develop and apply consistent policies for habitat, public use, and resource protection and ensure frequent coordination among Districts, both in Minnesota and in neighboring states with WPAs (North and South Dakota, Iowa, and Wisconsin).*		
All existing WPAs will have Development Plans completed by 2005.	All existing WPAs will have Development Plans completed by 2008.	Same as Alternative 2
Not Applicable. Acquisition of new lands would be limited to land exchanges.	Ensure that newly acquired land receives timely, effective unit planning to meet trust responsibilities within 2 years of taking possession of area.	Same as Alternative 2.
Quarterly coordination meetings for the WMDs will be held to discuss common issues and practices. The meetings will include all District managers and District supervisors.	Same as Alternative 1.	Same as Alternative 1.
Once a year a regional meeting will be held to compare notes with managers in Region 6 and other Wetland Management Districts in Region 3 that are not included in this Comprehensive Conservation Plan.	Same as Alternative 1	Same as Alternative 1

Table 3: Summary of Management Alternatives

Goals	Alternatives		
	Alternative 1 *Acquire no additional land and maintain management on current land*	**Alternative 2** *Increase land holdings to goal acres and maintain current management practices (No Action)*	**Alternative 3** *Increase land holdings to goal acres and expand management for waterfowl, other trust species and the public* *(Preferred Alternative)*
Wildlife Goal	■ Maintain recruitment rate of waterfowl ■ Regularly evaluate approach to waterfowl production.	Same as Alternative 1.	■ Increase recruitment rate of waterfowl. ■ Regularly evaluate approach to waterfowl production. ■ Where possible, follow HAPET recommendations for nesting platforms and predator management. ■ Seek opportunities to enhance and reintroduce native species within the Districts. ■ Work to prohibit introduction of non-native species.
Habitat Goal	■ Restore native grasslands using local grasses and forbs ■ Improve wetlands by increasing water control and improving watersheds.	Same as Alternative 1.	■ Restore native grasslands using local grasses and forbs; improve wetlands by increasing water control and improving watersheds. ■ Offer incentives to landowners for applying conservation and environmental farming practices on their land and for creating, maintaining or enhancing habitat on their land. ■ Work to prohibit introduction of non-native species.
Acquisition Goal	■ Manage existing fee title land and not increase holdings to the agreed goal acres for each county within the Districts.	■ Continue acquiring land up to goal acres. Expand the size of WPAs in areas of prime waterfowl use through easements and working with partners.	■ Continue acquiring land up to the goal acres. ■ Expand the size of WPAs in areas of prime waterfowl use through easements and working with partners. ■ Whenever possible, focus on prime habitat outlined by the Habitat and Population Evaluation Team maps. ■ Follow the Strategic Growth of the Small Wetland Acquisition Program Guidelines for fee and easement purchase.

Table 3: Summary of Management Alternatives

Goals	Alternatives **Alternative 1** *Acquire no additional land and maintain management on current land*	**Alternative 2** *Increase land holdings to goal acres and maintain current management practices (No Action)*	**Alternative 3** *Increase land holdings to goal acres and expand management for waterfowl, other trust species and the public (Preferred Alternative)*
Monitoring Goal	■ Continue 4-square-mile monitoring program and monitoring nesting structures. ■ Routine surveys and non-routine surveys would be conducted when requested.	Same as Alternative 1.	■ Employ scientifically-defensible means to monitor and evaluate habitats and populations. ■ Increase use of GIS in monitoring. ■ Inventory hydrological systems with the Districts, inventory invertebrate communities, and monitor contaminant levels in water flowing into the Districts. ■ Increase surveys and monitoring of threatened and endangered species.
Endangered/Threatened Species Goal	■ Presence of federally listed threatened/ endangered species would be noted. ■ Continue to avoid actions that would harm these species.	Same as Alternative 1.	■ Increase surveys and monitoring of threatened and endangered species, invertebrates, and unique communities. ■ Seek opportunities to enhance and reintroduce native species in the Districts.
Public Use / Environmental Education Goal	■ Existing public access to WPAs maintained.	■ Continue current public access on existing areas and add access to new acquisitions over several years.	■ Expand and improve public use opportunities through construction of parking lots and interpretive kiosks on existing and newly acquired lands.
Development Plan Goal	■ Development Plans completed for every WPA on each District as time and staffing permit. ■ Development Plans would be recorded in GIS.	Same as Alternative 1.	■ Complete and document development plans for every WPA within the District within 3 years. ■ Development plans would be recorded in GIS.

Table 3: Summary of Management Alternatives

Goals	Alternatives		
	Alternative 1 *Acquire no additional land and maintain management on current land*	**Alternative 2** *Increase land holdings to goal acres and maintain current management practices (No Action)*	**Alternative 3** *Increase land holdings to goal acres and expand management for waterfowl, other trust species and the public (Preferred Alternative)*
Staff, Facilities and Equipment Goal	■ Current level of staffing would continue on each District. ■ Facilities and equipment not meeting Service standards would be replaced. ■ Maintenance backlog would be reduced.	Same as Alternative 1.	■ Staff would be added to the Districts. ■ Implementation of the CCP would rely on partnerships formed with landowners in the watershed, volunteers and interested citizens, farm and conservation organizations, and appropriate government agencies. ■ Facilities and equipment not meeting Service standards would be replaced by 2010.
Annual Capital Development Funds Goal	■ No additional lands would be purchased, which would reduce maintenance needs.	■ Maintenance costs would increase with additional lands, however this would be balanced by WPA expansions accomplished through easements and work with partners.	Same as Alternative 2.
Consistency Goal	■ Existing inconsistencies in management of Districts would continue. ■ Coordination with Districts in surrounding states would be limited.	Same as Alternative 1.	■ Management would be more consistent among Minnesota Districts as well as Districts in Iowa, Wisconsin, North Dakota and South Dakota.

3.0 The Affected Environment

3.1 Detroit Lakes Wetland Management District

3.1.2 Introduction

Detroit Lakes WMD is the northernmost district in northwestern Minnesota and includes the counties of Becker, Clay, Mahomen, Norman and Polk. The headquarters is near Detroit Lakes, which is located in the southern portion of the District. The District is bordered on the west by the flat Red River flood plain and by the rolling hardwood forest-lake region on the east. The primary economic base of the area is agriculture, with a strong tourism industry centered on area lakes.

Photo Copyright by Jon Eldridge

The rolling prairie zone and associated wetlands of this District, located between glacial Lake Agassiz's beach ridge and the hardwood forest, have not been spared from agricultural development. The tallgrass prairie, most of the wetlands, and much of the timberland have been converted to crop production.

The District currently manages 40,492 fee acres on 162 WPAs. In addition, 323 wetland easements totaling 12,715 wetland acres, three grassland easements totaling 156 acres and 18 FmHA conservation easements totaling 1,637 acres are administered by the WMD. These lands are scattered across five counties of northwest Minnesota.

3.1.2 Climate

District climate falls in the temperate zone with severely cold winters and warm summers. Temperatures can range from as low as -45 degrees Fahrenheit in January and February to the upper 90s (degrees Fahrenheit) during June through August. The warmest months are July and August with the average temperature near 70 degrees Fahrenheit.

Table 4: Major Habitat Types of Waterfowl Production Areas in the Detroit Lakes Wetland Management District

Habitat Types	Acres
Native prairie (virgin)	4,051
Other grasslands/farmland	15,262
Forested/brushland	4,178
Wetland/riverine	18,124
Total	**41,615**

Normal annual precipitation is nearly 25 inches, most of which falls between April and September. The heaviest rainfall occurs in June, July and August when as much as 8 inches can fall in one month. Winter precipitation from snowfall is generally light (under 4 inches of measured precipitation).

3.1.3 Soils

District soils range from heavy silty clay in the flat Red River Valley to sand on the beach line of historic glacial Lake Agassiz to deep loam in the rolling grasslands of the prairie pothole area to shallow loam in the forested lakes region.

3.1.4 Natural Resources

The District is located in the transition area between the tallgrass prairie and big woods biomes. Habitat varies from virgin tallgrass prairie to cropland to forest, with thousands of wetlands and lakes scattered throughout. The result is an area that is rich in floral and faunal diversity. The only portion of the District that lacks diversity is the Red River Valley flood plain; however, there are remnant riverine habitats in the floodplain that are an oasis for wildlife, particularly migrating passerine birds.

3.1.4.1 Plants

Endangered/Threatened

A goblin fern population (Federal candidate species proposed for listing) has recently been located on the Hagen WPA in Polk County. Several Clay County WPAs are suspected of having the western prairie fringed orchid, which is Federally listed as endangered. In addition, Conservation Easement 10-C in Clay County protects a unique land feature on the glacial Lake Agassiz beachline that supports "short-grass" prairie species, and a portion of the only Minnesota breeding site for the chestnut-collared longspur.

Grassland

The native grasslands in the District have all of the species components of the tallgrass prairie, as many as 250 species of grasses, forbs and other prairie plants. The seeded native grasslands on District WPAs are dominated by four species of warm-season native grasses, big and little bluestem, switchgrass, and Indian grass. Non-native grasslands are a mixture of introduced cool-season grasses (primarily smooth brome, Kentucky bluegrass, and quackgrass) and native and introduced forbs.

Wetland

The District has wetland types I through VIII (Stewart and Kantrud 1971) and numerous lakes and rivers. About 60 percent of the original wetland habitat in the District has been lost through drainage or filling. The present wetland base could be classified as good to excellent. Through the Service's wetland restoration program, this wetland base is increasing and being enhanced annually. Wetland vegetation varies based on water conditions ranging from ephemeral to permanent open water wetlands and includes reed canary grass, cattail, bulrush, phragmites, burreed, coontail, bladderwort, waterlily, arrowhead, manna grass, duckweed, sedge, smart-weed, cord grass, and willow.

Forested

Forested areas occur primarily in the eastern half of the District. Composition is mixed hardwoods with species such as aspen, oak, basswood, ash, maple, etc. A few areas are dominated by white, red and jack pine. Fewer yet are composed of balsam

and white spruce stands. In the western half of the District, timbered areas are mainly farmstead and riparian habitats, dominated by boxelder, oak, cottonwood and ash. Some of the western most remaining tamarack stands in Minnesota occur on waterfowl production areas in Clay County. Nearly all American and red (rock) elms in the District have died from Dutch Elm Disease.

Noxious Weeds
All of the listed noxious weed species of Minnesota can be found in the District. The species most troublesome to District operations include plumeless thistle, leafy spurge, purple loosestrife, and Canada thistle and musk thistle.

3.1.4.2 Animals
Endangered/Threatened
Bald Eagles (threatened) commonly use WPAs during migration periods and throughout the summer. To date, no eagles are known to nest on WPAs; however, the number of area nests is increasing with some quite near WPAs.

The District is in the peripheral range of the gray wolf (threatened). Gray wolves are reproducing in eastern Becker County, including a denning sight located on Tamarac National Wildlife Refuge. Public reports of gray wolf sightings in the District are increasing annually.

The candidate species Dakota skipper also occurs on the District.

Birds
The District has a great diversity of bird species that are common to the grasslands, wetlands, and forests of Minnesota. Nesting waterfowl include Canvasback, Redhead, Blue-winged Teal, Mallard, Pintail, Wood Duck, Ring-necked Duck, and Ruddy Duck. Other noteworthy species include the Greater Prairie Chicken.

Trumpeter Swans have been reintroduced in the District. Nesting success has been steadily improving and some District WPAs are receiving increasing use.

Loons and Double-crested Cormorants frequent the deeper marshes of District WPAs; cormorants are steadily increasing. Abundant Sora and Common Snipe populations use WPA wetland habitat throughout the District.

Greater Sandhill Cranes, Great Egrets, Western, Pied-billed and Red-necked Grebes, Horned and Eared grebes, American and Least Bitterns, Great Blue Herons, Black-crowned Night Herons and White Pelicans are commonly observed during the migration and breeding seasons. Populations of Great Egrets and White Pelicans appear to be increasing in the District. Breeding pairs of Greater Sandhill Cranes also appear to be increasing dramatically. Cranes have been observed throughout the summer on Helliksen Prairie WPA in Becker County, Downing and Nelson Prairie WPAs in Mahnomen County, and on WPAs and private land throughout the eastern half of Polk County. There are also reports of crane production in southeastern Becker County in the Toad River Watershed.

Shorebirds common to the area include Killdeer, Marbled Godwit, Upland Plover (sandpiper), Spotted and Pectoral Sandpiper, Wilson's Phalarope, Greater and Lesser Yellowlegs, American Woodcock, and Common Snipe. These species and others are observed during migration and breeding seasons.

Herring, Ring-billed, Franklin and Bonepart's Gulls, Forester's and Common Terns are frequently observed during migration. Black Terns are summer residents of many WPAs.

At least 20 species of raptors utilize WPAs in this area. Marsh Hawks (Northern Harrier), Cooper's and Sharp-shinned Hawks, Red-tailed and rough-legged Hawks, American Kestrels, Broad-winged Hawks, Goshawks, Osprey and Great Horned Owls are among the most common. Peregrine Falcons use several WPAs during migration periods.

Mammals
All mammals endemic to Minnesota grasslands, transition zones, and forested areas are common in the District. The moose population is increasing throughout the District with an estimated 50 to 100 moose inhabiting District WPAs. The white-tailed deer population in this region of Minnesota is high. Other mammals commonly using WPA habitat include beaver, mink, muskrat, fox, coyote, skunks, raccoon, rabbits, otter, fisher and many rodent species.

Fish
While there is limited fish habitat on District WPAs, several of them are used by fish as spawning sites. Only one WPA has a resident fish population. Elsewhere in the District, there are numerous rivers and lakes with healthy fish populations.

Reptiles and Amphibians
Three snake species (garter, red-bellied, and smooth green), two salamanders (tiger and blue-spotted), four frog species (leopard, wood, tree, and spring peeper), two turtle species (snapper and painted), two toad species (Canadian and American) and the 13-lined skink are found in the District.

Other Wildlife
The Poweshiek Skipper, a State Special Concern Species butterfly, can be found on Flickertail Prairie WPA. This dry prairie site on the sandy beach-line of glacial Lake Agassiz may also hold a small population of the state-listed threatened Dakota Skipper butterfly.

3.1.5 Cultural Resources

The area encompassed by Detroit Lakes WMD exhibits evidence of human use and occupation for the past 6,000 years, possibly for the past 9,000 years. At least 700 prehistoric and historic period archeological sites and certain other cultural resources have been recorded; of which 100 sites are on District waterfowl production areas. With less than two per cent of the land having been surveyed for cultural resources, good potential exists for many unrecorded sites from the earliest Paleo Indian, Archaic, Woodland, Indian, and Euro-American cultures such as camps, villages, bison-kills, traditional cultural and sacred sites, subsistence procurement activities, trading posts, pioneer and other farmsteads, road and trails, and landscapes.

Cultural resources are important parts of the Nation's heritage: "those parts of the physical environment – natural and built – that have cultural value to some kind of sociocultural group ... [and] those non-material human social institutions...."King, p.9. The Service is committed to protecting valuable records of human interactions with each other and the landscape. Protection is accomplished in conjunction with the Service's mandate to protect fish, wildlife, and plant resources. (See the CCP for a complete review of cultural resource issues.)

3.1.6 Social and Economic Factors

The five counties of the District are intensely agricultural. Scattered farmsteads on large farms of predominantly small grain production with much smaller acreage devoted to hayland and pasture cover the area. Land use trends have been toward clean farming methods with fall tillage. In recent years, some conservation tillage has been occurring. Wetland drainage has been extensive with only the most permanent wetlands or those under perpetual easement protection remaining.

The agricultural community has suffered economically in recent years due to the general agricultural depression of the 1980s and dry growing seasons in 1988 and 1989. Some improvement in the farming economy has occurred in the 1990s as crop prices, yields, and land values have increased; however, the unusually wet summers of 1992, 1993 and 1999 caused it to slump again.

Recreation also provides important economic input into the District. Many of the recreational activities are centered around the many lakes and wetlands of the area with waterfowl hunting, fishing, and boating the main activities. Deer and upland bird hunting are other major recreational activities that provide important economic benefits.

3.2 Fergus Falls Wetland Management District

3.2.1 Introduction

The Fergus Falls Wetland Management District consists of Otter Tail, Grant, Douglas, Wilkin, and Wadena counties. These counties are in the Prairie Pothole Region generally on or west of the prairie-forest transition. This area was locked in glacial ice until about 12,000 years ago. By 8,000 years ago glacial Lake Agassiz was gone, leaving a basin that was flat with little topographic relief except for ancient beach ridges in an area of the Red River Valley we now know as Wilkin County. Douglas, Grant, and Otter Tail counties extend into the western prairie rolling topography known as glacial morain with numerous lakes. Wadena County is part of the Mississippi headwaters district, an area of geological complexity.

The woodlands to the east gradually begin as oak savannah phasing into oak-ash communities on the higher sites with willow-tamarack shrub swamps on the lower sites. Major rivers within the District include the Red River of the north; Otter Tail, Pelican, Mustinka and Rabbit, which flow west of the continental divide into the Hudson Bay drainage; and the Chippewa, Pomme de Terre, Long Prairie, Wing and Redeye Rivers, which flow east into the Mississippi drainage.

This region historically was covered by bluestem tallgrass prairie on the west phasing into oak savanna to the east. The coming of settlement in the late 1800s brought suppression of wildfires. Woodlands have moved west, taking over many areas that were once prairie or savanna.

The District currently manages 222 Waterfowl Production Areas (WPAs) totaling 42,671 acres. These WPAs are managed for optimum waterfowl production using techniques such as upland cover, water, and seasonal predator management. In addition, 916 wetland easements totaling 22,717 wetland acres, 4 grassland easements totaling 428 acres and 29 FmHA conservation easements totaling 2,967 acres are administered by the District.

3.2.2 Climate

Annual precipitation is about 22 inches per year. Temperatures range in extremes from as low as -40 degrees to highs of 90 degrees Fahrenheit or more. Winters are long and cold, with temperatures remaining below freezing for months at a time.

3.2.3 Soils

The soils in the eastern portion of the District are mainly formed in calcareous loamy glacial till, in outwash sediments, or in glacial drift overlying outwash. To the west, in the Red River Valley, the soils were formed in sandy to clayey lacustrine sediments or lacustrine modified glacial till overlying glacial till.

3.2.4 Natural Resources

Most of the District's remnant native prairie parcels are too small and have too many invasive trees and shrubs to support true indigenous populations of prairie species. These conditions do promote a wide variety of species with the added woody cover; however, the management philosophy is that maintaining biodiversity by protecting historical ecosystems (large treeless blocks of native prairie) is more important than maximizing local species diversity. In other words, harboring a smaller variety of indigenous prairie species is more important than having a higher diversity of species (some non-native) on unmanaged fragmented grassland that is being invaded by trees and brush.

3.2.4.1 Plants

Endangered/Threatened

The Western prairie fringed orchid is a federally threatened species. It is found in sedge meadows, especially in groundwater seeps at the base of ancient beach ridges, and has been documented in Douglas County. The federally listed threatened prairie bush clover may occur in the District; it is found in dry, gravelly hill prairies, often in association with big bluestem and Indian grass.

Grassland

Grassland areas consist mainly of former farm fields that have been seeded for nesting cover. Restoring these areas to their historic prairie appearance is difficult, if not impossible, because over 250 species of plants make up the native prairie plant community. Four to five species of warm season native grasses, often mixed with

Table 5: Major Habitat Types of Waterfowl Production Areas in the Fergus Falls Wetland Management District

Habitat Type	Acres
Native prairie (virgin)	2,294
Other grasslands/farmland	20,373
Forested/brushland	3,433
Wetland/riverine	16,571
Roads, buildings, misc.	105
Total	**42,671**

native forbs, are seeded on suitable upland sites. These warm season grasses include big bluestem, little bluestem, switchgrass, and Indian grass. The District has restored over 20,000 acres of grasslands on Service lands. Many upland acres remain in brome, quack or other cool season grasses which eventually will be converted to native warm season grasses.

The District currently owns 2,294 acres of unbroken native prairie and an additional 20,371 acres of other grassland on WPAs.

Wetland
Wetland vegetation varies based on water conditions ranging from ephemeral to permanent open water wetlands and includes reed canary grass, cattail, bulrush, phragmites, burreed, coontail, bladderwort, waterlily, arrowhead, manna grass, duckweed, sedge, smartweed, cord grass, and willow. There are currently 16,571 acres of wetlands on WPAs in the District, including riverine systems.

Forested
Because the primary objective of the District is the production of grassland nesting waterfowl species, few forested upland areas are purchased as WPA's. Where trees and brush do exist, as in the case of retired pasturelands, the dominant species include a mixture of burr oak, green ash, basswood, and ironwood with lesser amounts of white birch, aspen, maple, and American elm. Boxelder dominates most abandoned farmsteads. This species and green ash readily invade adjacent grasslands when control is not exercised. In general, most woodlands and brushlands are of irregular shape and size and occur more frequently in the eastern side of the District, which is the original prairie/hardwood transition zone. The Service currently owns 3,433 acres of forested and brushland habitat on WPAs in the District.

Noxious Weeds
Approximately 20 species have been declared noxious weeds in the District, but the main problem weeds on Service lands are plumeless thistle, Canada thistle, and leafy spurge. Smaller areas of wild millet, poison ivy, and marijuana have also been a problem. Methods of control used include ground spraying, mowing, and aerial spraying. Some experiments with biological control of leafy spurge have shown it to be a promising alternative.

3.2.4.2 Animals

Endangered and/or Threatened Species
For three straight years, there has been an active bald eagle nest on a WPA in the District. Thirty-five other known active eagle nests are present on private land. It is obvious that the bald eagle is expanding its range southward in the state, as witnessed by these recent nesting records. There are even more reports from the public of nesting eagles in the secluded lake and river country of eastern Otter Tail County, but these word-of-month reports have not been verified by Service personnel.

The Federally listed threatened piping plover (Great Plains population) is occasionally seen during the spring and fall. Reported sightings of gray wolves, both confirmed and unconfirmed, have been on the increase in recent years. With a near saturation population level of wolves in the northern timbered sections of the state, younger wolves are being forced into new areas. In 1992, Federal trappers removed a family of wolves that was killing cattle on a farm in eastern Otter Tail County. Wolves are no longer the rare sight that they were 5 years ago.

Birds
The District bird list contains 267 regularly occurring species, plus an additional list of nine accidental species.

Numerous species of waterfowl are common and 16 species nest in the District; the most common of these are the mallard, blue-winged teal, gadwall, and northern shoveler. Waterfowl production data for 1987-1990 indicates 0.13 pair per acre, leading to production of 0.11 ducks per acre.

Giant Canada geese continue to thrive and expand throughout most of the District. Captive flocks were started in Fergus Falls, Alexandria and Ashby and have readily expanded their breeding range. There is so much overlap in the breeding ranges of the various "flocks" that all the available habitat is now occupied by a homogenous mix from all three original flocks.

Marsh and water birds common to this District include the great blue heron, black tern, green-backed heron, great egret, coot, pied-billed grebe, sora and Virginia rail, black-crowned night heron, common snipe, American bittern and double-crested cormorant. Pelican Island, which is a 15-acre island located in Pelican Lake near Ashby, Minnesota, serves as a rookery for hundreds of herons, egrets and cormorants. The island is owned by the Nature Conservancy. Other smaller colonies of about 50 nests or less consisting mainly of great blue herons and great egrets are located in other parts of Otter Tail and Douglas counties. A large cormorant colony is located on three islands in Lye Lake in Otter Tail County; in 1994, it contained more than 2,000 breeding pairs.

Waterfowl Production Areas receive considerable use by shorebirds, especially during migration. Approximately 17 species of shorebirds are common or abundant during the spring migration. During the summer months, the most common are the killdeer, greater yellowlegs, and Wilson's snipe.

The red-tailed hawk, American kestrel, northern harrier, and great horned owl lead the list of the 16 common raptors in the District. The annual fall migration of hawks through the area normally runs from mid-September through the first week in October. At these times, as many as 50 hawks (mostly broadwings and/or red-tails) can be seen at one time. The peregrine falcon, which migrates through the District, has made a great recovery in recent years.

A survey of songbirds has been conducted on grasslands in WPAs in the District in 1993, and 51 species have been recorded. The most commonly observed birds, listed in descending order, were the red-winged blackbird, clay-colored sparrow, common yellowthroat, yellow-headed blackbird, and song sparrow. Grasshopper sparrows were found mainly on well-drained ground that lacked invasive shrubs. Due to the predominance of woody cover on many of the prairie parcels sampled, clay-colored sparrows and yellow warblers were two of the most frequently encountered species.

Mammals
White-tailed deer are the most abundant game animal in the District. Moose are becoming more common in Wilkin and East Otter Tail counties. Other common mammals include the fox, raccoon, snowshoe hare, cottontail and jackrabbit, mink, beaver, muskrat, weasel, and skunk. Periodically, a black bear, bobcat, or lynx is reported.

A small mammal diversity and abundance study was done in 1983 on warm season

grass fields on two WPAs in Otter Tail County. The most common small mammals found were shrews and mice in the genera Sorex, Blarina, and Peromyscus.
Fish

Because most wetlands on Service lands are shallow, the fishery resource is minimal. Bullheads, minnows, and northern pike are present on several WPAs. Many of the WPAs located along the Otter Tail and Pelican Rivers and those bordering meandered lakes provide an access for boat launching and some opportunity for bank fishing. High numbers of fathead minnows have become a problem in some wetlands in the District, leading to poor water quality and reduced invertebrate populations.

Photo Copyright by Jon Eldridge

Reptiles and Amphibians
Numerous species of reptiles and amphibians are found in the District. One formal auditory frog and toad study is in progress in Grant County; preliminary results show the most common species to be the wood frog, chorus frog, and Canadian toad, with spring peepers and the American toad being less common. Leopard frogs are very common in other parts of the District, though they were not heard in this study. Little information is available on the salamanders, snakes, turtles, and skink that are found in the District.

3.2.5 Cultural Resources

The area encompassed by Fergus Falls WMD exhibits evidence of human use and occupation for the past 6,000 years, possibly for the past 9,000 years. At least 900 prehistoric and historic period archeological sites and certain other cultural resources have been recorded; of which 130 sites are on District waterfowl production areas. With less than 2 percent of the land having been surveyed for cultural resources, good potential exists for many unrecorded sites from the earliest Paleo Indian, Archaic, Woodland, Indian, and Euro-American cultures such as camps, villages, bison-kills, traditional cultural and sacred sites, subsistence procurement activities, trading posts, pioneer and other farmsteads, road and trails, and landscapes.

Cultural resources are important parts of the Nation's heritage: "those parts of the physical environment — natural and built — that have cultural value to some kind of sociocultural group ... [and] those non-material human social institutions...."King, p.9. The Service is committed to protecting valuable records of human interactions with each other and the landscape. Protection is accomplished in conjunction with the Service's mandate to protect fish, wildlife, and plant resources." (See the CCP for a complete review of cultural resource issues.)

3.2.6 Social and Economic Factors

The Northern Pacific and Great Northern Railroads arrived in 1871 and 1879, respectively. They provided vital links with grain markets in Minneapolis, St. Paul, and Duluth and helped farmers move from making a subsistence living to making a profit on their crops.

The five counties in the District are intensely agricultural. Scattered farmsteads of predominantly grain production with much smaller acreage devoted to hayland and pasture cover the area. Land use trends have been toward clean farming methods and intensive tillage, generally fall cultivated, although some conservation tillage (leaving crop residue) occurs. Drainage has been extensive, with less than half of the

pre-settlement wetlands remaining. Wetland drainage is the preferred solution by farmers to cropland flooding, and grass cover is minimized by farmers because they believe it harbors weeds. Some wetlands on WPAs are the result of subirrigation and receive runoff from adjacent farmland.

Hunting, trapping, wildlife observation, photography, and cross-country skiing are among the public use activities permitted on WPAs. Public use is low, except during the opening weekends of the waterfowl hunting season.

The current economy of the area is heavily dependent upon agriculture, although tourism, light manufacturing, and recreation play an increasingly important role.

3.3 Morris Wetland Management District

3.3.1 Introduction

The Morris Wetland Management District (District), originally established in 1964 as the Benson Wetland Management District, now includes 246 Waterfowl Production Areas (WPAs) totaling 50,000 acres in fee title ownership. In addition, the District manages 591 wetland easements totaling 72,523 wetland acres, nine grassland easements totaling 605 acres and 21 Farmers Home Administration (FmHA) conservation easements totaling 1,224 acres. The fee and easement areas are scattered throughout Big Stone, Lac qui Parle, Pope, Stevens, Swift, Traverse, and Yellow Medicine counties.

The topography of west central Minnesota is extremely diversified, ranging from the granite outcrops of the Minnesota River bottoms to the rolling hills of Pope County. The flat agricultural land of the Red River Valley of the north blends into the transition zone between the tall grass prairie and the eastern deciduous forest. Soils of the region are generally productive, which contributed to the historically high concentrations of breeding waterfowl. With the advent of modern agriculture, over 60 percent of the original wetlands were drained and nearly 100 percent of the native grasslands were converted to cropland.

3.3.2 Climate

The continental climate of the District is characterized by cold, dry winters and warm, moist summers. The average annual rainfall is approximately 21-24 inches. More than 75 percent of the annual precipitation falls during the growing season, from April through September. Much of the rain during the growing season comes in thunderstorms, some of which are accompanied by hail and damaging winds. Records show that the average windspeed is nearly 12 miles per hour. The prevailing direction of the wind is from the northwest in winter and the south in summer. The average temperature is 42 degrees F. The coldest temperatures vary from -25 degrees to -35 degrees F. and summertime highs reach up to 100 degrees F. or more.

3.3.3 Soils

The soils within the seven counties of the district have been completely inventoried and detailed soil mapping is available. The geological classifications within the district range from lake (Glacial Lake Agassiz) deposits in the north, outwash deposits that occur primarily along river systems of the District, to glacial till deposits that cover

most of the land in the District. The material classifications in these three geological classes are clay and silt in the lake deposits, sand and gravel in the outwash areas and mixed sand, silt, clay, gravel, and boulders in the glacial till. The glacial till areas consist of ground moraines and end or stagnation moraines. Ground moraines form flat to undulating land surfaces and the end or stagnation moraines form pitted to hilly land surfaces.

3.3.4 Natural Resources

Photo Copyright by Jon Eldridge

3.3.4.1 Plants

Endangered/Threatened

The western prairie fringed orchid is a threatened species which may occur within the District.

Grassland

Grasslands comprise 31,665 acres of the District. This category includes 8,465 acres of reseeded native grasses and 7,012 acres of unbroken native prairie. The balance of the existing grassland contains various cover types including brome, quack and alfalfa.

Wetland

Wetlands make up 16,820 acres of the District. Most of the wetlands can be classified as Type I-V basins (Circular 39). Cattail, bulrush, phragmites, arrowhead, and smartweed are typical emergents found in the District. Duckweed, bladderwort and coontail are free-floating plants that occur frequently in wetland basins. Submergent plants such as pondweed and water milfoil also occur in District wetlands.

Forested

Morris lies within what was once the tall grass prairie. Less than 4 percent of the fee acreage is covered by timber. Of the 1,515 acres of timber and brush, the majority consists of old farm groves and shelterbelts.

Noxious Weeds

There are many noxious weeds that exist within the District; the primary ones are Canada thistle and leafy spurge. Purple loosestrife, trees invading the native prairie, and wild marijuana are also problems.

Table 6: Major Habitat Types of Waterfowl Production Areas in the Morris Wetland Management District

Habitat Type	Acres
Native prairie (virgin)	7,035
Other grasslands/farmlands	23,969
Forested/brushland	2,268
Wetland/riverine	17,936
Total	**51,208**

3.3.4.2 Animals

Endangered/Threatened

The piping plover (federally threatened Great Plains population) and the bald eagle (federally threatened) both occur in the District.

No endangered mammals are known to occur on WPAs within the District, though a report of a gray wolf, a threatened species, has been recorded. The candidate species Dakota skipper is known to occur on the District land.

Birds

Waterfowl Production Areas in the District contain a complex of habitat types that help support over 260 species of birds, 135 of which nest within the District. The non-game bird point count included 41 native prairie and 14 seeded native sites on five WPAs. A total of 76 species were found. Twenty-eight of these were neotropical migrants. No new species were found this year in this 6-year study. Bird numbers continue to be down from previous years. There were three bald eagle nesting attempts in the District. Wilson's phalarope, Minnesota lists as "threatened," and "species of concern", marbled godwit have been sited on WPA's in the District.

Waterfowl species that commonly breed in the area include blue-winged teal, mallard, pintail, wood duck, redhead, canvasback, and Canada goose. Canada geese continue to increase as breeders and snow geese as migrants. High priority waterfowl species are northern pintail (nester and migrant), American black duck (migrant), mallard (nester and migrant) and lesser scaup (migrant).

Mammals

The District contains a complex of habitat types that help support 55 species of mammals. Field observations indicate that mammal species are abundant on WPAs and range from the pygmy shrew to the white-tailed deer. Occasional moose wander through the District. The District Scent Post Surveys revealed and abundance of red fox, raccoon, and skunks, all predate grassland bird nests extensively.

Fish

There are 18 species of fish that are documented in wetlands on WPAs within the District. There are low numbers of game fish and high numbers of minnows and rough fish. Due to the shallow nature of the wetlands there is a high probability of winterkill.

Reptiles and Amphibians

There is very limited documentation of reptiles and amphibians that occur on WPAs within the District. No surveys have been conducted to determine species occurrence. Several species of turtles, snakes, salamanders, and frogs have been observed.

3.3.5 Cultural Resources

The area encompassed by Morris WMD exhibits evidence of human use and occupation for the past 6,000 years, possibly for the past 9,000 years. At least 750 prehistoric and historic period archeological sites and certain other cultural resources have been recorded; of which 100 sites are on District waterfowl production areas. With less than two per cent of the land having been surveyed for cultural resources, good potential exists for many unrecorded sites from the earliest Paleo Indian, Archaic, Woodland, Indian, and Euro-American cultures such as camps, villages, bison-kills, traditional cultural and sacred sites, subsistence procurement activities, trading posts, pioneer and other farmsteads, road and trails, and landscapes.

Cultural resources are important parts of the Nation's heritage: "those parts of the physical environment – natural and built – that have cultural value to some kind of sociocultural group ... [and] those non-material human social institutions...." King, p.9. The Service is committed to protecting valuable records of human interactions with each other and the landscape. Protection is accomplished in conjunction with the Service's mandate to protect fish, wildlife, and plant resources. (See the CCP for a complete review of cultural resource issues.)

3.3.6 Social and Economic Factors

The majority of neighbors accept the fact that the Federal government owns land for waterfowl production, and most have a general appreciation for the value of wildlife. However, these neighbors expect the land to be managed for wildlife and not ignored. Their opinions of wildlife agencies, environmental groups, and wildlife in general is greatly influenced by the way these lands are managed. If a WPA is ignored, allowing the habitat condition to decrease in quality and noxious weeds to increase in abundance, opinions quickly become negative. However, if the land is managed for the best interest of wildlife and habitat conditions are maintained, these opinions become positive for wildlife benefits both on and off Service-managed lands.

A variety of wildlife-oriented recreation activities are available to the public. Some of these include hiking, bird watching, photography, snowshoeing, mushroom hunting, cross-country skiing, hunting, and trapping in accordance with State regulations. The WPAs are open year round for these activities. Travel on WPAs is limited to foot or horseback only and overnight camping and fires are prohibited.

Local communities benefit from the money spent by people using WPAs for recreational activities. The largest beneficial impact comes from hunters because hunting is the most frequent recreational use.

3.4 Litchfield Wetland Management District

3.4.1 Introduction

The Litchfield Wetland Management District (WMD) was established in 1978 to manage tracts purchased under the Small Wetlands Acquisition Program. The District manages 146 Waterfowl Production Areas (WPAs) covering 32,528 acres of fee title lands. In addition, 415 wetland easements totaling 34,970 wetland acres, four grassland easements totaling 202 acres and 35 Farmers Home Association (FmHa) conservation easements totaling 2,458 acres are administered by the District. These tracts are scattered throughout the 10 central counties of Minnesota.

District lands include portions of the Northern Mixed Forest, Eastern Hardwood Forest, Oak Savanna, and Tallgrass Prairie Biomes. Soils, precipitation, climate, water quality, and land use vary greatly but essentially all areas have been greatly altered and degraded by development.

3.4.2 Climate

The District is located in central Minnesota. The area has a typical continental climate with wide temperature extremes from summer to winter. The moderating effect of the oceans on temperature is virtually non-existent here. Annually, temperature extremes can differ by 140 degrees or more.

Mean annual precipitation varies west to east across the District from 24 inches in the west to 29 inches in the east. The number of days that the ground is covered with 6 inches of snow averages 40 in the southwest to 70 in the northeast. Twelve inches of snow-cover averages 15 to 30 days southwest to northeast, respectively. The last frost occurs in early to mid-May and the first frost falls during the last week in September during a normal year.

3.4.3 Soils

The Litchfield Wetland Management District is broken into a series of geographic regions that were all formed from glacial activity reaching back 40-plus thousand years. Four major glacial periods resulted in a lot of earth moved by ice and water and the large-scale mixing of soils. As the glaciers melted, silts and clays were deposited in some areas and runoff deposited sands and gravels in other areas.

USFWS Photo

After the last glacier (more than 9,000 years ago) a combination of environmental factors (wind, water, topography, fire, plants, animals) determined the types of topsoil which developed over the glacial formations. These factors have provided the District with an amazing variety of soil types; everything from peat bogs to sand dunes and from rock outcrops to deep soil prairies are found. Soil pH factors range from strongly acid (pH = 4.5+) to strongly alkaline (pH = 9.0). Over 100 soils series are named within the District.

3.4.4 Natural Resources

3.4.4.1 Plants

Plant diversity in the District is very good. It is located in the transition zone between the three major continental biomes; the eastern hardwood forests, the northern coniferous forest, and the tallgrass prairie. The glacial topography of rolling hills and wetland valleys further divides the landscape into a mosaic of woodland savanna and prairie that represents nearly all gradations between wet and dry and between acid and alkaline.

The 10-county District contains 33 plant communities. A plant inventory conducted during the 1980s revealed approximately 350 plant species on WPAs. With new WPAs acquired in the eastern portion of the District, this number should increase substantially. About 1,150 species of vascular plants occur in the District.

Endangered/Threatened

The western prairie fringed orchid is a federally threatened species that may occur in the District. It is found in sedge meadows, especially in groundwater seeps at the base of ancient beach ridges. The prairie bush clover may occur in the District; it is found in dry, gravelly hill prairies, often in association with big bluestem and Indian grass.

Grassland

The District was predominantly native grassland prior to settlement. The lack of fire has allowed succession to occur and much unbroken native grassland is now brush or woodland. The Service has planted permanent grassland onto all of its acquired cropland. Of the 32,528 acres in the Litchfield District, approximately 2,320 acres is unbroken native prairie and 15,670 acres have been seeded to native and introduced

Table 7: Major Habitat Types of Waterfowl Production Areas in the Litchfield Wetland Management District

Habitat Type	Acres
Native Prairie (virgin)	2,653
Other grasslands/farmland	14,310
Forested/brushland	2,969
Wetland/riverine	13,281
Total	**33,213**

grasses of various combinations of species. Wherever noxious weeds and chemical use are not a problem, natural selection and the use of native prairie harvested seed have placed many forb species into the seeded grasslands.

Wetland

Wetlands have always been a major focus in the District. Approximately 12,520 acres of wetlands occur on District WPAs. Over 3,000 acres of those are restored wetlands. Total wetland plant diversity in the District is high. Nearly all wetland types are represented from wet meadows to lakes and from hardwood swamps and tamarack bogs to calcareous fens. Not much species inventory has occurred in most wetland community types.

Forested

The District does not normally purchase forestland. Often small oak groves and/or wooded building sites are included in the prairie/cropland wetland complexes acquired. Generally woodlots are not encouraged as they often cause management problems such as tree invasion onto grasslands, prescribed fire planning problems, and the presence of avian and mammalian predator habitat. Some of the state endangered oak savanna habitat will be grazed or burned to manage this plant community.

Noxious Weeds

All of the noxious weed species listed by the State of Minnesota are found on Districts' WPAs. Control of these species is necessary to maintain good relationships with neighbors and local government units. District staff use an aggressive, integrated program of prescribed burning, interseeding, cooperative farming, and mechanical, chemical, and biological control methods in an attempt to minimize weed complaints and impacts to non-target species.

3.4.4.2 Animals

Endangered/Threatened

Piping plover (threatened Great Plains population) occur in the District. The endangered winged mapleleaf mussel may also occur in the District. Bald eagles (threatened) commonly use WPAs during migration periods and throughout the summer. To date, no eagles are known to nest on WPAs.

The District is in the peripheral range of the Eastern cougar (endangered) and the gray wolf (threatened).

Birds

About 290 species of birds are known to pass through the District during migration; 177 species are known to nest within the District.

The most frequently found nesting waterfowl in the District include mallards, blue-winged teal, and wood ducks. Other species observed during the 4-square mile counts include shoveler, green-winged teal, redhead, ruddy duck, ring-necked duck, canvas-back, scaup, pintail, gadwall, widgeon, goldeneye, bufflehead, and common, hooded and red-breasted mergansers. Canada geese nest in the District and are common to the point of being a nuisance to farmers. Trumpeter swan, previously considered to be extirpated from the District, has been listed as threatened on the State's list of "special concern" species. A reintroduction program for the species is ongoing between the Service, the Minnesota DNR, Hennepin County Parks, and the Trumpeter Swan Society. Free-flying individuals continue to successfully nest on Pelican Lake WPA in Wright County.

Great blue herons, black-crowned night herons, great egrets, green-backed herons, white pelicans, American coots, double-crested cormorants, western and pied-billed grebes, and common loons were sighted during the 4-square mile counts this spring. Other water birds included the red-necked grebe, Virginia rail, and sora rail. Some State species of special concern use the District habitats including yellow and king rails, common moorhen, and American white pelican. The State-listed threatened, horned grebe also uses the District during migration.

Black terns, piping plover, common tern, Forester's terns, Franklin gulls, lesser yellowlegs, common snipe, upland sandpipers, and killdeer occur on District lands. Marbled godwits and Wilson's phalarope also use the District habitats.

Great-horned owls, red-tailed hawks, and American kestrels are common residents. Northern harriers, and Cooper's, broad-winged, and red-shouldered hawks, and short-eared, barred, long-eared, screech, and saw-whet owls are less common residents. Occasional sightings of turkey vultures, osprey, goshawks, and sharp-shinned, rough-legged, Swainson's and ferruginous hawks are reported. Rarely, golden eagles, peregrine, prairie falcons and snowy owls may be sighted. Bald eagle nesting is increasing in the District.

Mammals

Of the more than 80 species of mammals in Minnesota, 60 occur within the District. The following occur only rarely within the District: moose, mule deer, mountain lion, timber wolf, spotted skunk, river otter, black bear, prairie vole, porcupine, snowshoe hare, eastern pipistrel, and woodland jumping mouse.

Fish

There are 145 native and 14 non-native species of fishes in Minnesota waters; of these, 93 are found in the lakes, streams, and marshes of the District. Although fish are not a focus of habitat management, the District's wetland habitat is extremely important in the life cycle of many fish species.

Reptiles and Amphibians

Eight species of turtles, two species of lizards, and 12 species of snakes make their homes in the Litchfield District. In addition, 14 species of salamanders, toads, and frogs are also found within the District.

Other Animals

Untold numbers of lesser animals occur within the District. Unfortunately, science has merely scratched the surface concerning the distribution and life history of most of these very important creatures in the food web. Considering that more than 30 distinct plant communities exist within the District, diversity of these lesser creatures is high and probably numbers in the thousands if not the tens of thousands of species.

3.4.5 Cultural Resources

The area encompassed by Litchfield WMD exhibits evidence of human use and occupation for the past 6,000 years, possibly for the past 9,000 years. At least 1,100 prehistoric and historic period archeological sites and certain other cultural resources have been recorded; of which 100 sites are on District waterfowl production areas. With less than two per cent of the land having been surveyed for cultural resources, good potential exists for many unrecorded sites from the earliest Paleo Indian, Archaic, Woodland, Indian, and Euro-American cultures such as camps, villages, bison-kills, traditional cultural and sacred sites, subsistence procurement activities, trading posts, pioneer and other farmsteads, road and trails, and landscapes.

Cultural resources are important parts of the Nation's heritage: "those parts of the physical environment — natural and built — that have cultural value to some kind of sociocultural group ... [and] those non-material human social institutions...."King, p.9. The Service is committed to protecting valuable records of human interactions with each other and the landscape. Protection is accomplished in conjunction with the Service's mandate to protect fish, wildlife, and plant resources. (See the CCP for a complete review of cultural resource issues.)

3.4.6 Social and Economic Factors

Farming and associated agri-business is the most important economic activity and the largest land use in the District. The type of farming varies greatly from south to north; cash cropping dominates the more fertile prairie soils in the south and west, while dairy and beef operations and more diversified cropping dominate the north and east. A steadily increasing number of farmers derive less than half of their income from farming, especially near the larger cities in the District. Many farms near the metropolitan areas have been divided into lots and converted to residential housing for people working in the city. Also, most of the children of existing farmers are deciding to work city jobs instead of working the family farm.

Many existing farms are being sold to neighboring farmers; thus, the average farm size is increasing. Many cattle owners have moved to a feedlot operations and have plowed up or idled their pasture land. As the landowners are deriving less income from the land itself, more and more parcels are being put into conservation programs and set aside for wildlife. This change in land values has opened up nearly endless possibilities for the private lands/wetland restoration program and the fee and easement acquisition programs.

3.5 Windom Wetland Management District

3.5.1 Introduction

The Windom Wetland Managment District was established in 1990 and includes 54 Waterfowl Production Areas (WPAs) covering 10,923 acres of fee title lands. In addition, 34 wetland easements totaling 2,200 wetland acres, six grassland easements totaling 316 acres and eight Farmers Home Association (FmHA) conservation easements totaling 290 acres are managed by the District.

All WPAs and easements are located in Cottonwood, Faribault, Freeborn, Jackson, Nobles, and Watonwan counties. The District includes 12 southwestern Minnesota counties.

3.5.2 Climate

The District is located in Southwestern Minnesota. The area has a typical continental climate with wide temperature extremes from summer to winter. The moderating effect of the oceans on temperature is virtually non-existent here. Annually, temperature extremes can differ by 130 degrees or more.

Annual precipitation averages about 27 inches per year. In normal years, the last frost occurs in early to mid-May and the first frost falls during the last week in September.

3.5.3 Soils

The soils in the District were mainly formed in calcareous loamy glacial till, or in sandy to clayey lacustrine sediments. In the southwestern corner of the District, the soils were mostly formed in loess overlying glacial till and in outwash sediments .

3.5.4 Natural Resources

Intensive row crop agriculture dominates land use in the District. The topography is nearly level to gently sloping. The Missouri Coteau, which is located in South Dakota, extends into southwestern Minnesota.

3.5.4.1 Plants

Endangered/Threatened
The western prairie fringed orchid is a federally threatened species that may occur in the District. It is found in sedge meadows, especially in groundwater seeps at the base of ancient beach ridges. The federally threatened prairie bush clover may occur in the District; it is found in dry, gravelly hill prairies, often in association with big bluestem and Indian grass.

Grassland
Northern tallgrass prairie was the original pre-settlement vegetation type. Less than 1 percent of the native pre-settlement vegetation remains.

Wetland
Over 90 percnet of the wetlands in Southwest Minnesota have been drained. Undrained Type I and II wetlands are extremely rare.

Forested
Larger blocks (80-plus acres) of forest are very rare. Trees are primarily associated with riparian corridors, shelter belts and wind breaks.

Noxious Weeds
Canada thistle is the primary problem, followed by musk thistle. Noxious weed control is a political necessity in southwestern Minnesota.

3.5.4.2 Animals

Endangered/Threatened
The Topeka shiner (*Notropis topeka*) were once common to small to mid-sized prairie streams in the central United States. Now listed as endangered, These fish inhabit streams that usually run continually and that have good water quality and cool to moderate temperatures. The occurrence of the species at known collection sites has decreased by approximately 70 percent, mostly in the past 40 to 50 years. The fish has

Table 8: Major Habitat Types of Waterfowl Production Areas in the Windom Wetland Management District

Habitat Type	Acres
Native prairie (virgin)	422
Other grasslands/farmland	7,564
Forested/brushland	543
Wetland/riverine	4,140
Total	12,669

been negatively affected by habitat destruction, sedimentation, and changes in water quality. Topeka shiners now exist primarily in small, isolated populations in Iowa, Minnesota and portions of South Dakota.

The threatened Bald Eagle and candidate species Dakota skipper also occur on the District.

Birds
Waterfowl Production Areas within the District contain a complex of habitat types that help support over 200 species of birds, many of which nest within the District. Waterfowl species that commonly breed in the area include blue-winged teal, mallard, pintail, wood duck, and Canada goose.

Mammals
The District contains a complex of habitat types that help support approximately 50 species of mammals. Field observations indicate that mammal species are abundant on WPAs and range from the pygmy shrew to the white-tailed deer. Occasional moose wander through the District.

Fish
There are approximately 15 species of fish that are documented in wetlands on WPAs within the District. There are low numbers of game fish and high numbers of minnows and rough fish. Due to the shallow nature of the wetlands there is a high probability of winterkill.

Reptiles and Amphibians
There is very limited documentation of reptiles and amphibians that occur on WPAs within the District. A recent survey identified seven species of reptiles and amphibians, although this list is not considered exhaustive.

3.5.5 Cultural Resources

The area encompassed by Windom WMD exhibits evidence of human use and occupation for the past 6,000 years, possibly for the past 9,000 years. At least 1000 prehistoric and historic period archeological sites and certain other cultural resources have been recorded; of which 50 sites are on District waterfowl production areas. With less than two per cent of the land having been surveyed for cultural resources, good potential exists for many unrecorded sites from the earliest Paleo Indian, Archaic, Woodland, Indian, and Euro-American cultures such as camps, villages, bison-kills, traditional cultural and sacred sites, subsistence procurement activities, trading posts, pioneer and other farmsteads, road and trails, and landscapes.

Photo Copyright by Jan Eldridge

Cultural resources are important parts of the Nation's heritage: "those parts of the physical environment – natural and built – that have cultural value to some kind of sociocultural group ... [and] those non-material human social institutions...."King, p.9. The Service is committed to protecting valuable records of human interactions with each other and the landscape. Protection is accomplished in conjunction with the Service's mandate to protect fish, wildlife, and plant resources." (See the CCP for a complete review of cultural resource issues.)

3.5.6 Social and Economic Factors

Recreational use of District WPAs is primarily hunting. Pheasant hunting is most popular, followed by waterfowl and deer. The economy is primarily dependent on agriculture and is currently depressed due to the extreme weather conditions of the last 5 years.

3.6 Big Stone Wetland Management District

3.6.1 Introduction

The Big Stone WMD was established in 1996 to acquire and manage lands under the Small Wetlands Acquisition Program within Lincoln and Lyon counties. It currently includes 11 WPAs covering 2,344 acres of fee title lands, eight habitat and/or wetland easements covering 989 acres, and three FmHA Conservation Easements covering 160 acres for a grand total of 3,493 acres of habitat.

3.6.2 Climate

The District is located in southwestern Minnesota. The area has a typical continental climate with wide temperature extremes from summer to winter. The moderating effect of the oceans on temperature is virtually non-existent here. Annually, temperature extremes can differ by 130 degrees or more.

Annual precipitation averages about 27 inches per year. In normal years, the last frost occurs in early to mid-May and the first frost falls during the last week in September.

3.6.3 Soils

The soils in the District were mainly formed in calcareous loamy glacial till, or in sandy to clayey lacustrine sediments. In the southwestern corner of the District, the soils were mostly formed in loess overlying glacial till and in outwash sediments .

3.6.4 Natural Resources

Intensive row crop agriculture dominates land use in the District. The topography is nearly level to gently sloping. The Missouri Coteau, which is located in South Dakota, extends into southwestern Minnesota.

3.6.4.1 Plants

Endangered/Threatened

The western prairie fringed orchid is a federally threatened species that may occur in the District. It is found in sedge meadows, especially in groundwater seeps at the

Table 9: Major Habitat Types of Waterfowl Production Areas in the Big Stone Wetland Management District

Habitat Type	Acres
Native prairie (virgin)	25 acres
Other grasslands/farmlands	1,445
Forested/brushland	34
Wetland/riverine	839
Total	**2,343**

base of ancient beach ridges. The federally threatened prairie bush clover may occur in the District; it is found in dry, gravelly hill prairies, often in association with big bluestem and Indian grass.

Grassland
Northern tallgrass prairie was the original pre-settlement vegetation type. Less than 1 percent of the native pre-settlement vegetation remains.

Wetland
Over 90 percent of the wetlands in southwest Minnesota have been drained. Undrained Type I and II wetlands are extremely rare.

Forested
Larger blocks (80-plus acres) of forest are very rare. Trees are primarily associated with riparian corridors, shelter belts and wind breaks.

Noxious Weeds
Canada thistle is the primary problem, followed by musk thistle. Noxious weed control is a political necessity in southwestern Minnesota.

3.6.4.2 Animals

Endangered/Threatened
The federally listed endangered Topeka shiner, federally listed threatened Bald Eagle and candidate species Dakota skipper are known to occur or may occur on land controlled by the District.

Birds
Waterfowl Production Areas within the District contain a complex of habitat types that help support more than 200 species of birds, many of which nest within the District.

Waterfowl species that commonly breed in the area include blue-winged teal, mallard, pintail, wood duck, and Canada goose.

Mammals
The District contains a complex of habitat types that help support approximately 50 species of mammals. Field observations indicate that mammal species are abundant on WPAs and range from the pygmy shrew to the white-tailed deer. Occasional moose wander through the District.

Fish
Approximately 15 species of fish are documented in wetlands on WPAs within the District. There are low numbers of game fish and high numbers of minnows and

rough fish. Due to the shallow nature of the wetlands there is a high probability of winterkill.

Reptiles and Amphibians
There is very limited documentation of reptiles and amphibians that occur on WPAs within the District. A recent survey identified seven species of reptiles and amphibians, although this list is not considered exhaustive.

3.6.5 Cultural Resources

The area encompassed by Big Stone WMD exhibits evidence of human use and occupation for the past 6,000 years, possibly for the past 9,000 years. At least 211 prehistoric and historic period archeological sites and certain other cultural resources have been recorded; of which 8 sites are on District waterfowl production areas. With less than two per cent of the land having been surveyed for cultural resources, good potential exists for many unrecorded sites from the earliest Paleo Indian, Archaic, Woodland, Indian, and Euro-American cultures such as camps, villages, bison-kills, traditional cultural and sacred sites, subsistence procurement activities, trading posts, pioneer and other farmsteads, road and trails, and landscapes.

Cultural resources are important parts of the Nation's heritage: "those parts of the physical environment – natural and built – that have cultural value to some kind of sociocultural group ... [and] those non-material human social institutions...."King, p.9. The Service is committed to protecting valuable records of human interactions with each other and the landscape. Protection is accomplished in conjunction with the Service's mandate to protect fish, wildlife, and plant resources. (See the CCP for a complete review of cultural resource issues.)

3.6.6 Social and Economic Factors

Recreational use of District WPAs is primarily hunting. Pheasant hunting is most popular, followed by waterfowl and deer. The economy is primarily dependent on agriculture and is currently depressed due to the extreme weather conditions of the last 5 years.

4.0 Environmental Consequences

This chapter evaluates three alternatives on the basis of environmental consequences or impacts to the environment. Alternative 1 would maintain management on current land, but no additional land would be acquired. Under Alternative 2 (No Action), land holdings would be increased to goal acres and current management practices would be maintained. Alternative 3 (Preferred Alternative) would increase land holdings to goal acres and expand management for waterfowl, other trust species and the public. Alternative represents implementation of the CCP and is the Service's preferred alternative.

Photo Copyright by Jan Eldridge

4.1 Impacts Associated with Wildlife and Habitat

4.1.1 Waterfowl Productivity

Under Alternative 1, waterfowl production would likely remain the same initially. As the maintenance backlog was reduced, more funding would be available for restoration of grasslands and wetland and watershed improvements, which could gradually increase waterfowl production.

Alternative 2 (No Action) would result in a decrease of waterfowl production and use on Service lands. Acquisition of essential upland and wetland habitats would be unfocused and would be based only on availability and opportunity, resulting in more isolated, smaller parcels of land. Management activities would be spread over a broad area making it less effective in creating habitat attractive to waterfowl. Waterfowl would continue a slow decline except in years of abundant water.

Waterfowl production would be enhanced under Alternative 3 (Preferred Alternative) because both habitat quantity and habitat quality would be improved. Waterfowl Production Areas would be expanded in areas of prime waterfowl use. Nesting success would improve in response to Districts following, where possible, HAPET recommendations for nesting platforms and predator management. In South Dakota, agricultural fields converted to permanent cover had lower nest destruction rates due to predation 10 years after initial conversion (Duebbert and Lokemoen 1976). Similar predictions have been made in other areas of the Prairie Pothole Region (Klett et al. 1988). Additional resting and feeding habitats would also disperse staging birds over a larger area and decrease the chance of catastrophic accident or disease. Additional habitat would also help ensure that migrating ducks arrive on their northern breeding grounds in better reproductive condition (Krapu 1992).

Additional waterfowl production would also be achieved through the implementation of an intensive program to increase nest success. Nest cylinders for mallards should produce 0.3 fledglings per wetland acre (Prairie Pothole Joint Venture Plan (PPJVP), 1989). Additional predator management, particularly for fox, would also enhance waterfowl production on the Districts. An electric fence study on a 359 acres of

uplands associated with large wetlands in western Minnesota produced nest successes of 75 percent compared to 5 to 1.5 percent without a predator barrier. Other techniques such as constructing islands to reduce avian predation on nesting birds, and simply removing tall trees and shrubs used as perches by avian predators have been shown to be effective.

4.1.2 Other Migratory Birds

Impacts to other migratory birds would be negligible under Alternative 1. While no new grasslands would be acquired, current management would continue on existing District land. Our knowledge of WPA use by non-waterfowl migratory birds would be limited because bird counts would be done only on request.

Alternative 2 (No Action) would act to solidify conditions that have contributed to continued long-term declines for many grassland-dependent bird species that utilize the Districts. This would occur because management would be unfocused and opportunistic. The resulting land acquisition would be scattered and require more time and effort to manage.

Alternative 3 (Preferred Alternative) would benefit grassland-dependent bird species by providing additional nesting, resting, and feeding habitats. Several species whose population status is of special management concern could benefit directly. These include the American bittern, upland sandpiper, least bittern, black tern, northern harrier, dickcissel, short-eared owl, greater prairie chicken, sedge wren, loggerhead shrike, grasshopper sparrow, savannah sparrow, Henslow's sparrow, field sparrow, bobolink, and western meadowlark.

Re-establishment of wetlands, wet prairies, sedge meadows, and associated grasslands would create habitats essential for many nesting and migrating songbirds. Large wetlands, particularly wetland complexes with interspersed grassy uplands, are vital to the survival of many of these species in western Minnesota. Wet prairies and sedge meadows are particularly important as they thaw earlier in the spring and provide an important early source of insects and other invertebrates for grassland birds. These areas also tend to stay moist longer into the summer, thus prolonging insect and invertebrate availability.

4.1.3 Threatened and Endangered Species

Under Alternative 1, populations of endangered and threatened species would experience no impact or would benefit slightly. While we would continue to avoid actions that harm endangered or threatened species, under this alternative the Districts would not acquire additional habitat, nor would we improve monitoring and enhance protection. Exclusive management focus on existing land could result in habitat improvements that would benefit populations of threatened and endangered species.

Alternative 2 (No Action) would have a negative impact on threatened and endangered species that utilize the District's lands, as critical habitats would degrade at an accelerated rate due to the dilution of management activities.

Alternative 3 (Preferred Alternative) may benefit threatened and endangered species by restoring and preserving additional wetland and upland habitats and by substantially increasing monitoring and research on Districts aimed at certain species.

4.1.4 Native Species

Biodiversity of wildlife and plants generally depends on the size of habitat blocks available and their relation to each other. While we would restore native grasslands using local ecotypes of mixed native grasses and forbs, the small block size and scattered nature of existing WPAs would limit our ability to enhance native grasslands. Use of the WPAs by native wildlife species would be limited by the carrying capacity of the existing WPAs.

Since Alternatives 2 and 3 emphasize habitat preservation, restoration, and enhancement, the greatest increases in resident wildlife other than waterbirds would be noted in those species dependent on wetlands and associated grasslands, namely muskrat, raccoon, mink, weasel, reptiles, amphibians and, to some extent, white-tailed deer. In addition, as water quality improves, important fish populations would be expected to increase in proportion to the amount of quality habitat made available.

Alternative 2 (No Action) involves areas scattered over a large area and would contribute some to safeguarding or promoting biodiversity. Alternative 3 (Preferred Alternative) involves the largest amount of new habitat of the greatest-sized blocks, thus would likely lead to increased biodiversity of the area. Both Alternative 2 and Alternative 3 would enhance and protect biodiversity due to the net increase in and protection of diverse habitats. These would include seasonal wetlands, wet meadows, native prairies, and riparian associations, all of which have experienced serious declines in the area since settlement. Once restored, these areas could create a number of interconnected habitat niches for indigenous wildlife that currently do not exist on the District, thus increasing the overall diversity District land and the surrounding area. Alternative 3 would do the most for enhancing native species and biological diversity as land acquisition, restoration, and preservation would be targeted in areas that will create additional habitat and improve existing managed areas.

4.1.5 Biological Inventories and Monitoring

Under Alternative 1, there would be no change in either the volume of data collected or the kind of data collected on District lands. The Districts would continue to conduct the 4-square-mile monitoring program and the monitoring of nesting structures. Routine surveys such as the scent post survey and bird counts would continue and some non-routine surveys, such as deformed frog surveys, would be conducted when requested. Our knowledge of District lands and wildlife would increase only slowly.

Impacts to biological inventories and monitoring under Alternative 2 (No Action) would be the same as Alternative 1.

Under Alternative 3 (Preferred Alternative), our knowledge of the Districts' habitat and wildlife populations would improve greatly and management would be more firmly rooted in sound science. We would employ a scientifically defensible means to monitor and evaluate habitats and populations under this alternative. Geographic Information Systems (GIS) use would increase under this alternative, and we would inventory the hydrological systems within the Districts, invertebrate communities, and monitor contaminant levels in water flowing into District wetlands. Surveys and monitoring of threatened and endangered species, invertebrates and unique communities would increase.

4.1.6 Federal Trust Species versus Resident Wildlife

Under Alternative 1, federal trust species such as migratory birds would not gain habitat. Current management -- restoring native grasslands and improving wetlands via water control -- would benefit migratory bird species currently using WPAs. Resident wildlife would not experience immediate impacts under Alternative 1, however there is potential for these species to be negatively impacted by predation or disease if the Service does not achieve goal acre acquisition.

Alternative 2 (No Action) would have both potentially positive and potentially negative impacts for resident and trust species. Habitat quantity would be enhanced by acquiring the full goal acres agreed to by counties, however that gain would be countered by the Districts' management practices not expanding with acreage. Essentially, there would be more land but less management of that land, which could result in less than desirable habitat for some species.

Alternative 2 would potentially have some positive impact on resident wildlife that utilize the Districts due to the reduced level of habitat disturbance or management and invasion of woody plants and exotic species. Deer and pheasant, for example, may respond to increased brush and tree cover.

Alternative 2 would lead to results that are similar to Alternative 1 with a continued decline in overall species richness and abundance.

Alternative 3 (Preferred Alternative) would improve existing management practices in a variety of ways to benefit waterfowl and other trust wildlife species. Habitat would be increased through acquiring the agreed-upon goal acres, and management practices would be expanded with that increase in acres. Under this alternative, the Districts would follow the SWAP guidelines, which focus on providing the mission components for the Wetland Management District landscape. Land owned by the Service in fee-title would be complemented by greater conservation involvement of local landowners and partners, resulting in better wildlife habitat outside of the Districts' borders.

Alternative 3 (Preferred Alternative) would benefit some resident wildlife. Since this alternative emphasizes habitat preservation, restoration, and enhancement, the greatest increase in resident wildlife would be noted in those species dependent on wetlands and associated grasslands, namely greater prairie chickens, sharp-tailed grouse, ring-necked pheasant, muskrat, white-tailed deer, weasel, river otter, coyote, amphibians and reptiles. Other furbearers such as red fox, skunk, raccoon, and mink would benefit outside areas where predators are actively controlled.

Alternative 3 (Preferred Alternative) would preserve biological diversity by restoring and preserving diverse habitats, including seasonal wetlands, wet meadows, native prairies, and riparian associations, all of which have experienced serious declines since settlement. Once restored, these areas could create a number of interconnected habitat niches for indigenous and migrant wildlife that currently do not exist on the Districts, thus increasing the overall biological diversity of the Districts and the State. There is reason to believe, however, that over a long period of time, species loss will occur due to the isolated nature and small size of the habitat units and their exposure to predation and edge effects (Soule and Terborgh, 1999).

4.1.7 Invasive Species

Under all of the Alternatives, invasive species would be controlled on District lands through aggressive efforts with partners. This would include using a variety of means to control both native and non-native fauna and flora.

Under Alternative 1, Districts would continue to control invasive species through aggressive efforts with partners. Efforts include burning, chemical application and biological control.

Under Alternative 2 (No Action), Districts would continue to combat invasive species, however the increase in land with no increase in staffing would probably result in less successful control of invasive species.

Under Alternative 3 (Preferred Alternative), the Districts would continue to employ burning, chemical application and biological control. The amount of land on which invasive species control would be needed would increase under this alternative, however staffing levels would also increase.

4.1.8 Habitat Restoration and Management

Virtually all fee title acquisitions of lands for Waterfowl Production Areas involve uplands and wetlands that need to be restored to benefit waterfowl and other wildlife. Generally, these lands are in cropland when purchased and the wetlands have been drained or otherwise negatively altered. Restoration of uplands involves continued cropping for one or more years to prepare the soil for the planting of grasses and forbs. Restoration of wetlands generally involves the plugging of surface drainage ditches and/or the breaking of drainage tile lines to restore the natural water regime in the basin. Some restorations involve the installation of water control structures to provide managers with water management capability to keep wetland vegetation optimal and to provide for the seasonal water level needs of waterfowl, shorebirds, and other wetland-dependent wildlife. These restoration efforts involve short-term disturbances to wildlife, temporary soil erosion while uplands are in crops, and perhaps minor, short-term degradation of water quality. However, once restoration is complete, there is a marked increase in water quality, soil protection, and wildlife protection which lasts indefinitely.

Once restored, management practices are periodically used to keep uplands and wetlands in optimum conditions for wildlife. These practices include noxious weed control by mowing, spot herbicide application, and release of plant-specific insect pests; interseeding of native forbs; periodic haying; mowing of invading tree and shrubs; timber removal to restore native prairie; and prescribed fire. All of these tools of habitat management are used periodically depending on habitat conditions on a given WPA. There are generally short-term disturbances to wildlife and seasonal loss of habitat which may displace some wildlife. However, long-term benefits of healthy habitat include more diverse and abundant wildlife populations. Of all management practices, prescribed fire is the most carefully used due to inherent dangers of fire to both Service personnel and property beyond the WPA.

Under Alternative 1, no additional habitat would be managed as no additional land acquisition would occur under this alternative. Upland management would focus on restoring and managing native grasslands using local ecotypes of mixed native grasses and forbs. This would include converting non-native grasslands to native

grasslands. There would be some increases in available upland habitat through the Service's existing Private Lands program, the State of Minnesota's Private Lands program, and various USDA programs. Existing wetlands would be enhanced by increasing water control and improving watersheds. There would be some increases in available wetland habitat through the Service's Partners for Wildlife Private Lands program, the State of Minnesota's Private Lands program, and various USDA programs.

Alternative 2 (No Action) and Alternative 3 (Preferred Alternative) have the potential to increase both the amount and quality of habitat available, although each in varying degrees. Alternative 2 would continue with the status quo of purchasing land over large geographic areas. This would result in an overall reduction of management intensity as each District approaches goal acres in fee and easement acquisition. Management would continue but the time frame would be extended. There would be increased habitat for nesting waterfowl. Alternative 3 (Preferred Alternative) would focus land acquisition over smaller areas and thereby target habitat restorations where they can contribute the most to providing high quality habitats for wildlife.

4.1.9 Contaminants

Under Alternative 1, water quality within District wetlands would remain about the same, or could possibly improve as technology, techniques, and programs evolve to address current issues associated with runoff. Sediment loads would remain fairly high as long as unprotected banks and valley slopes continue to erode and export sediment to waterways feed District wetlands. USDA soil conservation requirements currently minimize soil erosion on neighboring farms with highly erodible soil, but sediment and farm chemicals continue to enter waterways that feed District wetlands. No coordinated effort, other than the current USDA programs, are anticipated with this alternative.

Alternative 2 (No Action) and Alternative 3 (Preferred Alternative) would reduce sedimentation and improve water quality within District wetlands through an intensified and coordinated effort. Highly erodible lands would be converted to permanent cover, stream banks and waterways would be stabilized through vegetative plantings or natural development, and filter wetlands/sediment retention basins would be constructed to cleanse tile waters entering District wetlands. Re-establishment of tree canopies over certain stream edges would stabilize stream banks, reduce summer water temperatures for aquatic organisms, and provide a micro environment required by many fish and wildlife species. Alternative 3 would have the greatest effect in this regard as land acquisition, restoration, and preservation would be targeted to high priority areas.

Alternative 3 has the best potential for reducing contaminants entering wetlands on the District because it would provide benefits extending beyond District borders. Cooperating landowners within the Districts' watershed would be offered incentives and/or would be compensated through cost-sharing agreements for applying conservation and environmental farming practices on their lands.

4.1.10 Partners for Fish and Wildlife Program

Alternative 1 would increase reliance on the Partners for Fish and Wildlife Program to achieve conservation objectives because of the lack of land acquisition.

Under Alternative 2 (No Action), the Partners for Fish and Wildlife Program would remain the same in terms of size and scope.

In Alternative 3 (Preferred Alternative), the Partners for Fish and Wildlife Program would remain the same in size but would be focused within high priority areas within the Districts.

U.S. Fish & Wildlife Service Photo

4.2 Impacts Associated with People

4.2.1 Wildlife-Dependent Recreation and Education

4.2.1.1 Hunting and Fishing

In the short-term, Alternative 1 would have no impact on hunting. The Districts would continue to maintain the recruitment rate of waterfowl, and habitat for white-tailed deer would be managed as it is currently managed. Access for hunting would be unchanged. In the long-term, the lack of focus on predator management and the small size and edge nature of WPAs could result in predation contributing to less quality hunting. There would be little to no expansion of new hunting areas available.

Under Alternative 2 (No Action), hunting might be expected to improve as the Districts expand the size of WPAs in areas of prime waterfowl use. While there would be more land, access to new WPAs would occur slowly over several years.

Alternative 3 (Preferred Alternative) provides for acquiring land up to the agreed-upon goal acres with a focus on expanding the size of WPAs in areas of prime waterfowl use. The focus on predator management (electric fencing, predator control, islands, etc.) could potentially improve the quality of waterfowl hunting on the Districts. Construction of additional parking areas would improve access for hunters as well as other visitors.

Alternative 3 (Preferred Alternative) would expand and improve public hunting opportunities on the Districts beyond Alternative 1 and Alternative 2 (No Action). The Service is required to allow public hunting on District lands within current state seasons and guidelines as long as it is compatible with the Districts's objectives.

Opportunities for fishing would be unchanged under Alternative 1. Wetlands would be restored via water control and improving watersheds, thus improving conditions for fish. Public access would be available to the extent that it is available today.

Increased land holdings and improved wetlands would result in better opportunities for fishing under Alternative 2 (No Action). Access to new WPAs would occur slowly over several years.

Alternative 3 (Preferred Alternative) would slightly increase fishing opportunities on the Districts due to better access, as well as facility safety and maintenance.

4.2.1.2 Trails

Under Alternative 1, maintenance of and access to existing trails would be unchanged to somewhat improved. Without new land to manage and as the maintenance backlog was reduced, more operating and maintenance funding would be available to enhance existing trails.

Maintenance of existing trails would be somewhat diminished under Alternative 2 (No Action) because staff would have more land to manage with the same human resources. Access to and trails on newly acquired land would occur slowly and depend on the availability of staff and funding.

Alternative 3 (Preferred Alternative) would create opportunities to expand and improve District trails. Additional parking areas would improve access to WPAs.

4.2.1.3 Signing and Interpretation

Signing and interpretation at WPAs throughout the Districts would be unchanged under Alternative 1. No new facilities would be added, but signing would be maintained on existing areas.

Photo Copyright by Jan Eldridge

Land holdings would be expanded under Alternative 2 (No Action), however access to newly acquired areas would be gradual. Staffing would not increase under this alternative, so development of signs and interpretive sites would occur depending on staff availability and funding.

Opportunities for public use would be improved under Alternative 3 (Preferred Alternative) through the construction of additional parking areas and interpretive kiosks on existing and newly acquired lands. New signing would be required for any new tracts. Interpretive signing would be developed for any new trails or public observation areas constructed on newly acquired tracts.

4.2.1.4 Environmental Education

In the short-term, environmental education programming would continue as it currently exists under Alternative 1. No new lands would be acquired, so programming would focus on existing lands and habitats. In the long-term, more funding might be available as the maintenance backlog was reduced and more funding became available for environmental education programming.

Under Alternative 2 (No Action), funding and staff availability for environmental education would gradually decrease as operating and maintenance funding was spread over more land. Programming would focus on existing land because access to newly acquired land would be provided sporadically as staff and funding became available.

Alternative 3 (Preferred Alternative) would result in expanded environmental educational use of existing and new areas. Restoration of pothole type wetlands and native grasslands in the watershed would allow students to view and study the predominant habitat that early Minnesota settlers found in the area.

4.3 Impacts Associated with Operations

4.3.1 Land Acquisition

Alternative 1 would result in no additional land acquisition within the Districts. District staff would manage fee title land already in the system and would not increase the District holdings.

Under Alternatives 2 and 3, land acquisition by the Service could involve up to 164,068 acres over the next 15 years (based on a future funding). These acquisitions could involve wetland, grassland or flowage easements and fee-title purchases or a combination of all methods, depending on the site and circumstances. Lands to be acquired would be delineated according to criteria designed to benefit breeding waterfowl. All lands acquired by the Service would be administered and managed by one of the six Wetland Management Districts as part of the National Wildlife Refuge System. Tracts in which less than fee-title agreements are negotiated would remain in private ownership. All restoration and preservation would be carried out on a tract-by-tract basis as participants and fiscal resources become available over a 15-year time period. All acquisition would be on a willing-seller basis. Funding for land acquisition would be from the Migratory Bird Conservation Fund using proceeds from the sale of Federal duck stamps, based on the authority of the Migratory Bird Conservation Act - Small Wetlands Acquisition Program.

4.3.2 Staffing

Under Alternative 1, there would be no change in staffing levels or the amount of land managed by District staff. Current management practices would continue in all respects (habitat restoration, inventorying and monitoring, public use), and thus no impacts to staff are likely.

Alternative 2 (No Action) proposes acquisition of the agreed-upon goal acres for the six Districts but no change in the current level of staffing.

Alternative 3 (Preferred Alternative) would expand staffing levels along with acquiring the agreed-upon goal acres for each District.

4.3.3 Facilities and Equipment

Under Alternative 1, facilities and equipment funding would remain the same. However, the spending power would increase over time as no additional lands would be added to the Districts in the future. This assumes a continuation of historic funding levels. Under Alternative 2 (No Action) and Alternative 3 (Preferred Alternative), facilities and equipment funding would remain relatively the same. However, under Alternative 3, management efficiencies would be attained as larger blocks of habitat would reduce the per acre cost of management.

4.3.4 Management Consistency Among Districts

Efforts to achieve consistency would be minimal under Alternative 1 and Alternative 2 (No Action). Work on individual development plans for WPAs would occur as time and staffing permit. The plans would be recorded in GIS and would document ownership boundaries, habitat, facilities and history of management. Limited coordination would occur among the Minnesota Wetland Management Districts and Districts in Iowa, Wisconsin, North Dakota and South Dakota.

Management consistency would increase greatly under Alternative 3 (Preferred Alternative). Development plans for every WPA would be completed within 3 years under this alternative. The plans would be recorded in GIS and would document

ownership boundaries, habitat, facilities and history of management. There would be a concerted effort to make management consistent within the Minnesota Wetland Management Districts as well as Districts in Iowa, Wisconsin and the Dakotas.

4.4 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 non-federal) 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 three alternatives are discussed in terms of waterfowl, migratory birds, listed species, wetland and riparian habitat, and prairie restoration.

4.4.1 Waterfowl

The prairie pothole region has historically been recognized as the most important waterfowl production area in North America. Surveys have shown that although this area represents only 10 percent of the breeding habitat, it averages 50 to 75 percent of the duck recruitment each year in North America. Chapter 3 of the CCP documents several factors in waterfowl production:

- The prairie pothole region has been recognized as the most important waterfowl production area in north America.
- Waterfowl depend on wetlands during the breeding season for food and shelter.
- Massive conversion of wetlands and prairie to agricultural fields has dramatically altered the landscape, the hydrology, and the region's carrying capacity for waterfowl.
- Research has shown that ducks nesting in large blocks of grassland habitat (1,000 to 10,000 acres) reproduce more successfully than ducks nesting in smaller blocks (200 to 500 acres).
- The average block size for WPAs in Minnesota is only 210 acres.
- Although the more common species of ducks and geese in Minnesota have increased in population over the last decade, many are still below the goals of the North American Plan.

All three alternatives will focus on waterfowl. Alternative 3 will have the largest positive cumulative benefit to waterfowl by increasing habitat available for waterfowl nesting as well as intensifying management of that habitat. The cumulative effect of no acquisition under Alternative 1 is a reduced recruitment rate to the continental waerfowl population due to higher predation rates on existing small block sizes.

Under alternatives 1 and 2, management would continue to improve waterfowl habitat and productivity would likely be lower than under Alternative 3. Ultimately, alternatives 1 and 2 would contribute less to increasing duck populations than Alter-

native 3. Many species are experiencing population declines, and existing recruitment rates have not achieved the goal of reversing population trends. Recruitment on many WPAs is less than losses to predation due at least in part to small habitat block size.

Public ownership is an essential tool in protecting these habitats. In Minnesota, only 150,000 acres of native prairie remain out of an original 18 million. Between 1780 and 1980, approximately 78.7 percent of wetlands within the prairie pothole and parkland transition areas were lost, and we continue to lose an estimated 2.4 percent of remaining wetlands every year. Combined with the effects of the Minnesota Department of Natural Resources activities and action by non-governmental conservation organizations, the Service can make a difference in habitat quality and waterfowl numbers within the region. In the short-term, during an era of budget cuts for state agencies like the Department of Natural Resources, the Service may play a particularly important role in conserving waterfowl habitat.

Alternative 3 also proposes more aggressive efforts to reduce predation on waterfowl nests, which would contribute to increased production. A major factor depressing duck numbers is low nest success due to nest destruction by predators on small units of habitat. Predators are quick to find these remnant areas and concentrate their hunting activities on the vulnerable ground nests of waterfowl. In some habitats, predators such as red fox, raccoon, mink, and skunk are able to take virtually every duck nest and many of the attendant hens.

Management decisions on the Minnesota Wetlands Management Districts have the potential to make a difference in the quality of habitat that is available; WPAs administered by the Districts encompass more than three-quarters of all Service land in the prairie pothole region of Minnesota.

4.4.2 Migratory Birds

Minnesota Wetland Management Districts contain habitat important to bird species other than waterfowl, including songbirds, marsh and wading birds, shorebirds, raptors, and upland game birds. Some of the factors relevant to migratory bird habitat are offered in the following list; Chapter 3 of the CCP offers greater detail.

- Approximately 243 species of birds regularly use the Districts at some time during the year, with 152 nesting species.
- In the Districts, 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.
- Some of the species of concern found in the Districts are area-sensitive, which means they require large, contiguous blocks of habitat to reproduce successfully.

Each alternative would have a different effect on migratory birds. The cumulative benefit of Alternative 3 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 Greater Prairie Chicken, Northern Harrier, Upland Sandpiper, Henslow's Sparrow and Savannah Sparrow, would not be met in WPAs that average 210 acres in size. Population declines would likely continue. Habitat may improve as staff are able to concentrate on projects on existing lands rather than restoration of new lands, but the small block size would limit the WPAs' usefulness to migratory birds. If other conservation organizations were to follow the same course, negative impacts to migratory birds would be exasperated.

Increasing land holdings but maintaining current management as described in Alternative 2 (No Action) would have a neutral to slight benefit for migratory birds. The amount of habitat would increase as the Districts bought lands to the goal acres agreed to by each county within the District, but staffing levels would remain unchanged and restoration projects would be completed according to time demands. If other conservaton 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 adjoing WMD lands, this alternative provides even greater benefits because it would provide some buffer.

Under Alternative 3, the combination of acquiring land up to the goal acres agreed to by each county within the Districts and expanding management would contribute to improved breeding and nesting success. Focused predator management would also contribute to 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. Wetland Management Districts' land acquisition and restoration efforts could be enhanced on parcels with proximity to six national wildlife refuges in central and western Minnesota. Considering the total acreage of the Wetland Management Districts in western Minnesota (257,542 acres with both fee title and easements), management activities laid out under this alternative would greatly influence habitat available to migratory birds.

4.4.3 Endangered and Threatened Species

This section describes animals that are Federally listed under the Endangered Species Act of 1973, as amended, and are listed as either endangered or threatened.

The proposed action may affect, but is not likely to adversely affect, any federally listed or proposed threatened or endangered species. This precludes the need for further action on this project as required under Section 7 of the Endangered Species Act of 1973, as amended.

Under all three alternatives, endangered and threatened species would be protected and actions that might harm them would be avoided. The primary difference among the alternatives is the land acquisition and expanded management provided in Alter-

native 3, which would benefit all of the listed species found on the Districts. Habitat loss is a factor in the population declines that led to these species being listed, thus the alternative that supports expanding the habitat available to them can be expected to provide the greatest benefit.

Under Alternative 1, listed species would likely experience long-term decline because habitat does not meet the needs of the species that require larger block sizes. Lack of sufficient habitat would be compounded if the Department of Natural Resources and non-government conservation organizations also stopped acquiring land.

Alternative 2 would be somewhat beneficial to listed species because over time it would provide more habitat. The quality of this habitat would not be tremendously high because management (and staffing levels) would not change, but in the long-term land would be preserved for future restoration. This alternative would have greater benefits if the State and non-governmental organizations acquired land adjoining or near existing WPAs.

Alternative 3 provides for both more habitat being conserved and expanded management for restoring land, which would have the greatest benefit for threatened and endangered species. In the case of listed species, Service efforts are particularly vital, with or without the efforts of other conservation agencies and organizations. As the primary federal agency charged with protecting threatened and endangered species, the Service has a unique responsibility to these species. If the State and non-government conservation organizations also acquire and restore habitat, benefits to listed species would be even greater.

4.4.3.1 Threatened Mammals

Gray wolf, *Canis lupus*: Experts estimate approximately 2,000 gray wolves presently occur in Minnesota. Wolf numbers and range appear to be increasing in Minnesota. Wolves are no longer exclusive residents of Minnesota's forested wilderness areas, and adult wolves from Minnesota have dispersed through central and western Minnesota to North and South Dakota. The Service recognizes the improving range and security of the species and has reclassified the wolf as threatened.

4.4.3.2 Endangered / Threatened Birds

Bald Eagle, *Haliaeetus leucocephalus*: Bald Eagles have increased in abundance and distribution across the United States, including Minnesota. In the 1990s nesting territories increased in Minnesota every year from 437 in 1990, to 618 in 1995. Increasing numbers of migrating and wintering eagles also occur across Minnesota where they find sheltered night roosts and feed on waterfowl, smaller wild mammals, and fish in open water areas. Bald Eagles became endangered because of habitat loss, but especially because of DDT use following World War II. They have since been reclassifed as threatened. Today, the DDT threat is largely gone. Now the challenge is to prevent contamination and loss of sites that eagles depend on for nesting, feeding, migration, and wintering.

Piping Plover, *Charadius melodus*: Piping Plovers are tenuously present in Minnesota; the Great Plains population is listed as threatened. They nest in Lake of the Woods, east of the Districts. Piping Plovers nest in coastal areas, but they are also prairie birds, nesting across the Great Plains of the United States and Canada, but in perilously low numbers. The loss of prairie wetland areas contributes to their decline. Like many shorebirds, Piping Plovers feed on immature and adult insects and other

invertebrates at the water's edge. They winter primarily along beaches, sandflats, and algal flats on the Gulf of Mexico.

Least Tern (eastern population), *Sterna antillarum*: The federally listed endangered Least Tern nests along large rivers of the Colorado, Red, Mississippi, and Missouri River systems. This species is a potential nester in the Missouri River area. It nests on sand and gravel bars and protected beach areas of large rivers and winters in coastal Central and South America. The species is endangered because human disturbance and alteration of river systems has rendered much of its nesting habitat unusable. Pesticides may reduce food available to the tern by reducing the numbers of small fish in their feeding areas.

4.4.3.3 Endangered Fish

Topeka shiner (*Notropis topeka*) This species was once common to small to mid-sized prairie streams in the central United States. Now listed as endangered, these fish inhabit streams that usually run continually and that have good water quality and cool to moderate temperatures. The occurrence of the species at known collection sites has decreased by approximately 70 percent, mostly in the past 40 to 50 years. The fish has been negatively affected by habitat destruction, sedimentation, and changes in water quality. Topeka shiners now exist primarily in small, isolated populations in Iowa, Minnesota and portions of South Dakota.

4.4.4 Wetlands and Riparian Habitat

All alternatives will focus on wetland and riparian habitat, but the positive cumulative impact of Alternative 3 will be the greatest because of the focused wetland management, acquisition and outreach to wetland throughout the Districts.

- The prairie pothole region once included about 20 million acres of these 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.
- More than 78 percent of the remaining wetland basins are smaller than 1 acre in size.
- Nearly two out of three of the remaining wetlands in Minnesota are privately owned; consequently, they are vulnerable to continued drainage, development, and pollution.
- Saving single, isolated wetlands is much less valuable than saving several wetlands in a wetland complex.
- Freshwater wetlands like those in the prairie pothole region are among the most productive in the world.
- Wetland restoration and management are high priorities in the Districts.

Under Alternative 1, wetlands and riparian habitat would not gain increased benefit and may actually degrade as land use impacts water quality around the WMDs.

Conservation efforts by the Minnesota Department of Natural Resources and non-government conservation organizations could mitigate this impact if they acquired land adjoining the WPAs and restored wetlands. Restoration efforts on wetlands and streams adjoining the Districts' WPAs could improve water quality and wetland functions. If other agencies did not set aside additional land, the negative impact of the Service not acquiring land to the agreed upon goal acres for each county would be greater.

Alternative 2 would benefit wetlands and riparian areas somewhat on individual WPAs as land is acquired over time. Although restoration would 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 its land acquisition and expanded management components, Alternative 3 would provide the most benefits to wetland and riparian habitat. Land would be acquired to the goal acres agreed upon by each county within the Districts, and management would be expanded to allow more timely restoration of these lands. 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.

4.4.5 Prairie Restoration

All alternatives would increase the amount of prairie but the positive cumulative impacts of Alternative 3 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 landscapes once covered the entire western edge of Minnesota; now, less than 1 percent of the original prairie is 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.
- Prescribed fire remains a critical tool for maintaining the diversity and vigor of existing and restored prairie plants. Prescribed burns can only be done during a small window of time in the spring, so the number of acres that can be burned each spring is limited. As a result, most WPAs can not be burned on a rotation frequent enough to suppress invading shrubs and trees. Some of the Districts use haying and grazing as additional means of maintaining grassland integrity.
- The Districts also manage grasslands through the selective application of herbicides during restoration.

Over time, Alternative 1 would benefit prairie habitat within the Districts as lands were restored. Without additional lands being acquired, staff would be able to concentrate restoration efforts and invasive species erradication on existing lands. Prairie habitat would not be expanded under Alternative 1. If the Minnesota Department of Natural Resources, national wildlife refuges and conservation organizations discontinued acquiring and restoring prairie habitat, there would be a negative impact to the species that require prairie, which is already one of the most altered landscape in the nation.

Under Alternative 2, benefits to prairie habitat and wildlife-species that depend on prairie would be greater because land would be acquired over time and restoration would occur according to staff and funding availability. Management would not be expanded under this alternative, but land would at least be set aside for future restoration. Prairie restoration on WPAs would complement prairie restoration on national wildlife refuges in western Minnesota. Benefits would be greater if the State and non-government conservation organizations continue to acquire land for prairie restoration, particularly if that land adjoins or is proximate to WPA lands.

Benefits to prairie habitat would be greatest under Alternative 3 because it allows for both acquisition of land to the goal acres agreed upon by each county in the District and for expanded management. Prairie would be restored at a faster pace than under Alternative 2. Block sizes would be greater, allowing for greater diversity of plant species. Benefits would be greater if the Minnesota Department of Natural Resources and non-government organizations continued prairie restoration efforts. Work on prairie habitats on national wildlife refuges in the area of the Wetland Management Districts would complement the benefits of prairie restoration on WPAs.

4.5 Prescribed Fire as a Management Tool

4.5.1 Social Implications

Prescribed burns will have an effect on the local public. Concern by the public is expressed every time a fire is set. A prescribed burn will effect and benefit the local community in many ways. These benefits must be explained to the public at every opportunity. The Districts' Fire Management Plans (FMP) provides additional detail beyond what is captured in this section and will be adopted through this EA.

A prescribed burn on a District will be a direct benefit to the public in creating recreational opportunities through increased wildlife populations for hunting and observation. If a wildfire is started on or near District land, the areas that were previously prescribed burned and the firebreaks intended for prescribed burning will be of extreme benefit in controlling the fire.

The aspect of the fire that will solicit the most public concern will be the smoke. Smoke from a District fire could impair visibility on roads and become a hazard. Actions to manage smoke include: use of road guards and pilot car, signing, altering ignition techniques and sequence, halting ignition, suppressing the fire, and use of local law enforcement as traffic control. Burning will be done only on days that the smoke will not be blown across the community or when the wind is sufficient as not to cause heavy concentrations.

If the State of Minnesota institutes smoke management regulations, the FMP will be amended to ensure consistency with those regulations. Combustion of fuels during prescribed fire operations may temporarily impact air quality, but the impacts are mitigated by small burn unit size, the direction of winds the burns are conducted with, and the distance from population centers. All efforts will be taken to assure that smoke does not impact smoke sensitive areas such as roads and local residences. In the event of wind direction changes, mitigative measures will be taken to assure the public safety and comfort. District staff will work with neighboring agencies and in consultation with State air quality personnel to address smoke issues that require additional mitigation.

The fire prescription portion of the Annual Prescribed Fire Plan for each WPA proposed to be burned during the burning season will have specific mitigative measures to deal with unexpected smoke management problems. This will included identified problems that unforecasted wind changes may cause and measures to be employed to protect the public.

The emotional impact of a prescribed fire on the local residents must also be considered. A great deal of public concern may arise with any kind of smoke from the District. This concern can be relieved only by a concerted effort by District personnel to carefully inform the local citizens about the prescribed burning program. Emphasis will be placed on the benefits to wildlife as well as the safety precautions in effect. Formal interpretive programs both on and off the District, explaining the prescribed burning program, will be encouraged.

4.5.2 Cultural and Archaeological Resources

There may be archaeological sites within prescribed burn units. When these units are burned, it is doubtful that the fire will have any adverse impact on the sites. The fire will be only a temporary disturbance to the vegetation in the area and in no way destroy or reduce the archaeologic value. All artifacts are buried well beneath the surface. No above ground evidence exists. No known sites will be impacted by prescribed burning operations.

4.5.3 Flora

The prescribed burning program will have a visible impact on vegetation and the land. Immediately after a fire much of the land will be blackened. There will be no grasses or ground forbs remaining and most of the higher brush such as oak sprouts and willow will be bare of leaves. Trees will be scorched up to 20 feet above the ground. This will be particularly noticeable on the light colored bark of aspen and birch. There may be large areas up to one acre in size interspersed throughout the burn that are untouched by the fire. This may be a result of wet ground conditions or a break in fuel continuity.

Within three days after the burn the grasses and forbs will begin to grow. The enriched soil will promote rapid growth such that after two or three weeks the ground will be completely covered. The willow and oak will, in many cases, re-sprout. The bases of the trees as well as the burned slash and stumps will be partially or completely covered by the new growth. Some of the less fire resistant trees will show signs of wilting and may succumb within a month or two. Generally speaking, after one seasons regrowth, any sign of the prescribed burn will be difficult to detect without close examination. After two or three years it will be virtually impossible to detect the presence of the fire.

Other more long lived signs of the burn will remain for an indefinite period of time. The firebreaks will not be allowed to grow over as their benefit could be realized in a wildfire situation as well as in future prescribed burns. Vehicle tracks through the burn are visible on the freshly burned ash and may be longer lived if the vehicle became stuck or created tire grooves in the ground. Travel across the burn area will be kept to a minimum. Vehicle travel is necessary in some instances, such as lighting the fire lines or quickly getting water to an escape break-over point. A fire plow will be used only in the event that a break-over does occur and cannot be controlled by any other method. The deep trench of the plow would leave a very long lived scar. This trench could be repaired by filling, which would eliminate it from view after five to ten years.

4.5.4 Listed Species

The potential impacts of fire on listed species is likely to be neutral to positive if there is any impact. Efforts will be made to protect any plants listed as threatened or endangered from damage by prescribed fire.

4.5.5 Soils

The disturbances to the soil by fire are similar to those caused by any other manipulative practice applied to the land. A farming, logging, or flooding operation will have no greater or lesser impact. All three are applied on the District at the present time.

The effect of fire to the soil is dependent largely on the fire intensity and duration. On areas with high fuel loads, a slow backing fire is usually required for containment and desirable results. The intense heats generated by this type fire to kill unwanted plant species or remove slash will have a greater effect on the soils than fast, cool head-fires used on farm fields and wildlife openings. The cool, moist soils of wetter areas in the burn units or areas with little fuel will be unaffected by the fire.

The severity of damage to the soil depends also to a great degree on the thickness and composition of the organic mantle. In many cases where only the top layer of the mantle is scorched or burned, no damage will result to the soil below. This is usually experienced in the forested areas of the burn units.

On open areas such as dry grassland or wet meadow sites, the blackening of the relatively thin mantle will cause greater heat absorption and retention from the sun. This will encourage earlier germination during the spring growing season.

Nutrient release occurs as a result of the normal decomposition process. Fire on the soil will greatly speed up the process. The rate and amount of nutrients released will again be dependent on the fire duration and intensity as well as the amount of humus, duff and other organic materials present in the mantle. The increase, immediately after a burn, of calcium, potash, phosphoric acid and other minerals will give the residual and emergent vegetation a short term boost. However, the rapid leaching through the sandy soils will cause rapid runoff of these nutrients and only short term benefits. The increased nutrification of the soil by the emergent vegetation and increased nutrient release result in rapid regrowth of grasses and other succulent vegetation on the sites.

There is no evidence to show that the direct heating of the soil by the burning of material above it with a fire of low intensity has any significant adverse affect. Fire

on these types of soil has little total affect on the soils, and in most cases would be beneficial.

4.5.6 Escaped Fire

With any prescribed fire there always exists the possibility of its escape into the surrounding area. This can be caused by one or more factors which may be preventable or non-preventable. Inadequate firebreaks, too few personnel, unpredicted changes in weather conditions, peculiar fuel type, being in too big a hurry, and insufficient knowledge of fire behavior are a few factors which could cause loss of control. There is no doubt that an escaped fire could turn into a very serious situation. The damage that could result would be much less severe on the District than if it encroached on private land where buildings, equipment, and land improvements would be involved. Extreme care, careful planning, and adherence to the unit prescription will be exercised when prescribed burning all units with emphasis employed when burning areas that are near or adjacent to WPA boundaries.

In the event that a prescribed fire does jump a firebreak and burn into unplanned areas, there is a high probability of rapid control with minimal adverse impact. In general, prescribed burns will be small in size (average 75 to 150 acres), have light fuel loads (0.25 to 3 tons of fuel per acre), will be burned under low fuel moisture conditions, and will be burned under specific wind direction and atmosphere stability conditions. The network of firebreaks and roads will greatly assist in rapid containment. In most cases all of the District fire fighting equipment will be immediately available at the scene with all nearby water sources previously located. The applicable DNR fire suppression crews and local fire departments will always be notified of a prescribed burn. Thus, maximum numbers of experienced personnel and equipment are immediately available for wildfire suppression activities.

4.6 Impacts Common to All Alternatives

4.6.1 Climate Change

All Alternatives would positively increase carbon sequestration, but the cumulative impact of Alternative 3 would be greatest because more land would be acquired and planted with native vegetation.

In January 2001, the Department of Interior issued an order requiring its land management agencies to consider potential climate change impacts as part of long range planning endeavors.

The increase of carbon within the earth's atmosphere has been linked to the gradual rise in surface temperature commonly referred to as global warming. In relation to comprehensive conservation planning for national wildlife refuges, carbon sequestration constitutes the primary climate-related impact to be considered in planning. The U.S. Department of Energy's "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.

Conserving habitat for wildlife is the heart of any long range plan for units of the National Wildlife Refuge System. Under all alternatives considered in this EA, land and water would be conserved and enhance carbon sequestration. This in turn contributes positively to efforts to mitigate human-induced global climate changes. The Preferred Alternative would have the most positive impact as it calls for increases in both acquisition and active management and improvement of habitat.

4.6.2 Environmental Justice

None of the proposed alternatives disproportionately place an adverse environmental, economic, social, or health impacts on minority or low-income populations.

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

4.6.3 Unavoidable Adverse Impacts

Under all Alternatives, the potential development of access roads, trails, dikes, control structures, fences, visitor parking areas, and reclamation of former building sites could lead to local and short-term negative impacts to plants, soil, and some wildlife species. Some loss of cultural resources could occur by restoring former wetlands. Greater public use may result in increased littering, noise, and vehicle traffic.

4.6.4 Short-Term Use Versus Long-Term Productivity

The local short-term uses of the environment under Alternatives 2 and 3 include wetland restoration and enhancement, and conversions of other lands to wetlands or upland cover. Both alternatives would also include development of public use facilities. The resulting long-term effects of these alternatives include increased protection of threatened and endangered species, increased waterfowl and songbird production, and long-term recovery of a myriad of species dependent on quality wetland and grassland habitats. In addition, the public will gain long-term opportunities for wildlife-oriented recreation and education.

4.6.5 Irreversible and Irretrievable Commitments of Resources

Funding and personnel commitments by the Service or other organizations under all three alternatives would be unavailable for other programs. Fee-title acquisition of

lands by the Service would make them "public lands" and preclude individual freedom to use these lands in accordance with individual desires. Traditional land uses may change since uses on Service lands must be shown to be compatible with the purposes for which the land is acquired. Any lands purchased will lose their potential for future development by the private sector as long as they remain in public ownership. Structural improvements that are purchased with any land may be declared surplus to government needs and sold or demolished on site.

4.6.6 Property Taxes and the Districts Revenue Sharing Act

The Districts Revenue Sharing Act of June 15, 1935, as amended, provides for annual payments to counties or the lowest unit of government that collects and distributes taxes based on acreage and value of District land located within the county. The monies for these payments come from two sources: (1) net receipts from the sale of products from National Wildlife Refuge System lands (oil and gas leases, timber sales, grazing fees, etc.) and (2) annual Congressional appropriations. Annual Congressional appropriations, as authorized by a 1978 amendment, were intended to make up the difference between the net receipts from the Districts Revenue Sharing Fund and the total amount due to local units of government.

Payments to the counties are calculated based on whichever of the following formulas provides the largest return: (1) $.75 per acre; (2) 25 percent of the net receipts collected from Districts lands in the county; or (3) three-quarters of 1 percent of the appraised value. In the State of Minnesota, three-quarter of 1 percent of the appraised value always brings the greatest return to the taxing bodies. Using this method, lands are re-appraised every 5 years to reflect current market values.

In addition, at the time of purchase if revenue sharing payments are anticipated to fall short, a "Trust Fund Payment" of up to 10 percent of the purchase price is made to the county. The intent of this payment is to provide a principle cash investment off of which the interest can be used to make up the difference in the revenue sharing payment and the actual taxes on the property purchased. Therefore, fee-title land acquisition by the Service should not adversely affect tax revenues if private lands are purchased by the Service and removed from the area tax base.

4.6.7 Relocation Benefits

The uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), provides for certain relocation benefits to home owners, businesses, and farm operators who chose to sell land to the Service. The law provides for benefits to eligible owners and tenants in the following areas:

- Reimbursement of reasonable moving and related expenses;
- Replacement housing payments under certain conditions;
- Relocation assistance services to help locate replacement housing, farm, or business properties;
- Reimbursement of certain necessary and reasonable expenses incurred in selling real property to the government.

4.6.8 Landowner Rights Adjacent to Districts Lands

Service or other agency control of access, land use practices, water management practices, hunting, fishing, and general use next to any tracts acquired under Alternative 2 (No Action) or Alternative 3 (Preferred Alternative) is limited only to those lands in which the Service or other entities have acquired that ownership interest. Any landowners adjacent to lands acquired retain all the rights, privileges, and responsibilities of private land ownership, including the right of access, hunting, vehicle use, control of trespass, right to sell to any party, and obligation to pay taxes.

Any land acquired for the Minnesota Wetland Management Districts would be purchased from willing sellers.

4.6.9 Crop Depredation

Neighboring farmers are suffering crop losses due to grazing geese. Geese graze on soybeans and to a lesser extent on corn for several weeks in the spring. Damage by grazing geese and goslings usually occurs when adjacent farmland is within 10 miles of Service wetlands. Crop damage varies by location, with some District neighbors suffering greater losses than others.

Under all of the alternatives, Districts would continue to assist landowners suffering crop depredation when requested. Assistance in the past has been given to those landowners losing soybeans to Canada geese with goslings. For this the Districts provide technical advice on scare tape, goose-proof fences, scarecrows, and propane guns and shell crackers.

4.6.10 Cultural Resources

The consequences of each alternative in terms of cultural resources are the same. Undertakings accomplished on the District have the potential to impact cultural resources. Although the presence of cultural resources including historic properties cannot stop a federal undertaking, the undertakings are subject to Section 106 of the National Historic Preservation Act and sometimes other laws.

The District Manager will, during early planning, provide the Regional Historic Preservation Officer a description and location of all projects, activities, routine maintenance and operations that affect ground and structures, requests for permitted uses, and alternatives being considered. The RHPO will analyze these undertakings for potential to affect historic properties and enter into consultation with the public and local government officials to identify concerns about impacts by the undertaking. This notification will be at least equal to, preferably with, public notification accomplished for NEPA and compatibility.

4.7 Agricultural Production

The WPAs form a tiny fraction of the total acreage available for agricultural production within the Districts ranging from .01 to 2.2 percent of available land in the six Districts. Any change in land use brought about by acquisition or management would have minimal effect in overall agricultural production. The alternatives outlined in this section discuss the direction of these small changes.

Alternative 1 would have negligible effects on existing agricultural production. No new land would be acquired for the Districts, leaving it available for farming. On the other hand, much of the land the Service would be interested in acquiring is considered marginal farmland, and landowners would have one less potential buyer for land they want to sell.

Alternative 2 (No Action) could result in somewhat reduced agricultural production when existing cropland is converted to wetland or permanent upland cover. Approximately 3,000 acres of cropland is acquired in the six Districts annually by the Service and converted to wildlands (willing seller only). However, these lands are spread over a 43-county area, resulting in minimal impacts.

Alternative 3 (Preferred Alternative) could result in reduced agricultural production when existing croplands are converted to wetland or permanent upland cover. Approximately 45,000 acres of cropland in the Districts could be acquired by the Service and converted to wildlands (willing seller only) over the next 15 years. Certain programs, such as the Conservation Reserve Program (CRP) and other State and Federal private lands programs, offer landowners short-term contracts while keeping land in private ownership. Any conversion of agricultural land to other uses would occur gradually as acquisition and habitat restoration dollars become available over time and as landowners emerge as willing participants and/or sellers.

Table 10: Summary of Environmental Impacts

Issues and Needs	Alternative 1	Alternative 2	Alternative 3 (Preferred Alternative)
Impacts Associated with Wildlife and Habitat			
Waterfowl Productivity	Waterfowl productivity on District lands would remain the same.	Waterfowl productivity on District lands would slightly decrease over time due to acquisition of isolated, smaller parcels of land.	Waterfowl productivity would increase on District lands due to increased quantity and quality of habitat.
Other Migratory Birds	Species requiring larger block sizes would gradually decline. Other species would benefit from continued grassland restoration and wetland and watershed improvement.	Same as Alternative 1.	Would result in increased migratory bird use and productivity of District lands as additional land is acquired focusing on prime habitat and bigger block sizes. Implementation of habitat management programs would also benefit migratory birds.
Threatened and Endangered Species	Populations of listed species on District land would likely remain the same or increase slightly as grasslands are restored and wetlands and the watershed are improved.	Populations of listed species on District land would likely remain the same or decrease slightly as critical habitats degrade due to the dilution of management activities.	Populations of listed species on District land would likely increase over time as new lands are added to the Districts in a manner aimed at concentrating resources in high priority areas within the Districts.
Native Species	Populations of native species would remain the same or decline somewhat depending on their adaptability to edge habitat.	Native species would benefit from acquisition and gradual restoration of land depending on their adaptability to edge habitat.	Focus on acquiring larger block sizes and prime habitat would benefit native species. Native species would benefit from efforts to prohibit the introduction of non-natives.
Biological Inventories and Monitoring	Biological inventories and monitoring would continue at the existing level.	Same as Alternative 1.	Inventories and monitoring would be significantly expanded and techniques would be scientifically defensible. Management would be more soundly based on sound science.
Federal Trust Species vs. Resident Wildlife	Efforts to balance needs of resident wildlife and trust species would remain the same as Districts continue to work with state wildlife agencies and local organizations.	Same as Alternative 1.	Positive impact as Districts continue work with state wildlife agencies and expand these efforts to include incentives to local landowners to implement techniques for creating, maintaining and enhancing habitat.
Invasive Species	Impact would be neutral – existing efforts to control invasive species would continue.	Acquisition of additional land while maintaining current management practices and staffing would negatively impact invasive species control. There would be fewer staff to cover more acres.	Same as Alternative 1.

Table 10: Summary of Environmental Impacts

Issues and Needs	Alternative 1	Alternative 2	Alternative 3 (Preferred Alternative)
Habitat Restoration and Management	Positive impacts due to continued grassland restoration and wetland/ watershed improvement on existing land. Because no new land would be acquired, funding would be available for habitat restoration.	Slightly negative impact due to acquisition based on opportunity rather than habitat quality and having fewer staff to manage more land.	Positive impact due to acquisition focused on prime habitat and larger WPA block size, and increases in staffing that allow active management of newly acquired lands.
Contaminants	Water quality would improve as grassland restoration and wetland/ watershed restoration continues on existing lands.	Water quality would remain the same or improve as grassland restoration and wetland and watershed improvements were implemented. Benefits would be limited by staff and funding availability for work on newly acquired lands.	Positive impacts due to combination of more land being acquired and restored, more staff available for restoration and technical assistance, and working with cooperating landowners in the Districts on applying conservation and environmental farming practices on their lands.
Impacts Associated with Public Use			
Wildlife Dependent Recreation and Education	Opportunities would remain the same and possibly improve as funding became available for augmenting programs.	Opportunities would decrease due to limits on staffing and funding. More land would be available for access and programs, however these would only be added as funding permitted.	Opportunities would be expanded on existing and newly acquired WPAs.
Impacts Associated with Operations			
Land Acquisition	No additional land acquisition would occur on the Districts.	Somewhat positive impact. Districts would continue acquiring lands up to the goal acres agreed to by each county in the District (164,068 in total remaining for all districts). Acquisition would be sporadic and unfocused.	Positive impact. Districts would continue acquiring land up to the goal acres agreed upon by each county (164,068 remaining for all six districts), and acquisition would focus on prime habitat follow SWAP guidelines.
Partners for Fish and Wildlife Program	Program would increase in size as efforts previously spent on land acquisition would be shifted to this program. Area of influence (scope) would remain the same.	Program would remain the same in size and scope.	Program would remain the same in size but would be focused within high priority areas within the Districts.
Equipment	Equipment funding would remain the same. However, the spending power would increase over time as no additional lands would be added to the Districts in the future. This assumes a continuation of historic funding levels.	Equipment funding would remain the same.	Equipment funding would remain the same. Management efficiencies would be attained as larger blocks of habitat would reduce the per acre cost of management.

Table 10: Summary of Environmental Impacts

Issues and Needs	Alternative 1	Alternative 2	Alternative 3 (Preferred Alternative)
Management Consistency Among Districts	Somewhat positive impact. Individual WPA plans would be developed as staff and funding permit; no coordination among the WMDs in Minnesota and border states would be achieved.	Same as Alternative 1.	Positive impact. Development plans for WPAs would be completed within 3 years; management among the WMDs in Minnesota would be more consistent with districts in border states.
General Impacts Analysis: Habitat Restoration			
Fire Management	Positive impacts. Fire management would continue to be used as a habitat restoration tool, and all Service policies would be followed to assure the safety of neighboring property.	Same as Alternative 1.	Same as Alternative 1.
Climate Change	Positive impact in carbon sequestration.	Same as Alternative 1.	Same as Alternative 1.
Environmental Justice	No impact to minority or low income populations would occur.	Same as Alternative 1.	Same as Alternative 1.
Crop Depredation	Positive impact. Districts would continue to work with local landowners to reduce depradation..	Same as Alternative 1.	Same as Alternative 1.
Archeological and Cultural Values	Positive impact. Historic preservation would continue on existing District lands.	Positive impact. Historic preservation would continue on existing and newly acquired District lands.	Same as Alternative 2.

Chapter 5: List of Preparers

Don Hultman	*Refuge Supervisor, Great Lakes/Big Rivers Regional Office, Fort Snelling, Minnesota (former).* Contributed to writing and editing the EA.
Kevin Brennan	*Wetland Manager, Fergus Falls Wetland Management District, Fergus Falls, Minnesota.* Responsible for public involvement, CCP/EA preparation and review, and implementation of the CCP.
Barry Christenson	*Wetland Manager, Litchfield Wetland Management District, Litchfield Minnesota.* Responsible for public involvement, CCP/EA preparation and review.
John Dobrovolny	*Regional Historic Preservation Officer, Great Lakes/Big Rivers Regional Office, Fort Snelling, Minnesota.* Responsible for cultural resources information and NEPA compliance.
Mike Marxen	*CCP Coordinator, Region 1, U.S. Fish & Wildlife Service.* Responsible for public involvement and CCP preparation and review.
Jan Eldridge, Ph.D.	*Fish and Wildlife Biologist, Great Lakes/Big Rivers Regional Office, Fort Snelling, Minnesota.* Responsible for CCP preparation and review, environmental assessment preparation, and NEPA compliance.
Thomas Larson	Chief, Ascertainment and Planning, *Great Lakes/Big Rivers Regional Office, Fort Snelling, Minnesota.* Contributed to writing and editing the EA.
Mary Mitchell	*Wildlife Biologist/Regional GIS Coordinator, Great Lakes/Big Rivers Regional Office, Fort Snelling, Minnesota.* Responsible for GIS development.
John Schomaker, Ph.D.	*Refuge Planning Specialist/CCP Coordinator, Great Lakes/Big Rivers Regional Office, Fort Snelling, Minnesota.* Responsible for CCP preparation.
Gary Muehlenhardt	*Wildlife Biologist, Great Lakes/Big Rivers Regional Office, Ft. Snelling, Minnesota.* Contributed to writing the EA.
Tom Magnuson	*Fish and Wildlife Biologist, Great Lakes/Big Rivers Regional Office, Fort Snelling, Minnesota.* Contributed to writing the EA.
Jane Hodgins	*Technical Writer/Editor, Ascertainment and Planning, Great Lakes/Big Rivers Regional Office, Fort Snelling, Minnesota.* Responsible for CCP preparation.

Bibliography

Ball, I.J. Eng, R. L., Ball, S. K. 1995. Population density and productivity of ducks of large grassland tracts in northcentral Montana. Wildlife Society Bulletin 23:767-773.

Burger, L. D., L. W. Burger, Jr., and J. Faaborg. 1994. Conservation of nongame birds and waterfowl: conflict or complement? Trans. N. Amer. Wildl. Nat. Resour. Conf. 59:337-347.

Duebbert, H. F., and J.R. Lokemoen. 1976. Duck nesting in fields of undisturbed grass-legume cover. J. Wildl. Manage. 40:39-49.

Fitzgerald, J. A., D. N. Pashley, S. J. Lewis, and B. Pardo. 1998. Partner's in Flight Bird Conservation Plan for the Northern Tallgrass Prairie (Physiographic Area 40). Version 1.0 59pp.

Herkert. J. R. 1994. The effects of habitat fragmentation on Midwestern grassland bird communities. Ecological Applications 4: 461-471.

Herkert, J.R. 1994. Breeding bird communities of Midwestern prairie fragments: the effects of prescribed burning and habitat-area. Natural Areas Journal 14: 128-135.

Hunter, M.L. 1995. Fundamentals of conservation biology. Rand McNally, Inc. Taunton, MA 482 pp.

Johnson, D. H. and M. D. Schwarz. 1993b. The Conservation Reserve Program: habitat for grassland birds. Great Plains Research 3: 273-295.

Johnson, R.G. and S. A. Temple. 1990. Nest predation and brood parasitism of tallgrass prairie birds. J. Wildl. Mgmt. 54:106-111.

Klett, A.T., T.L. Shaffer, and D.L. Johnson. 1988. Duck nest success in the prairie pothole region. J.Wildl. Manage. 52: 431-440.

Knopf, F. L. 1994. Avian assemblages on altered grasslands. Studies in Avian Biology 15: 247-257.

Krapu G.L. and K.J. Reineke. 1992. Foraging ecology and nutrition. *In* Ecology and Management of Breeding Waterfowl, *Eds.* D. J. Batt, A.D. Afton, M.G. Anderson, C.D. Ankney, D. H. Johnson, J.A. Kadlec, and G. L. Krapu. PP 1-29.

Sample, D. W. and M. J. Mossman. 1997. Managing habitat for grassland birds: a guide for Wisconsin. Wisconsin Department of Natural Resources. 154pp.
Samson, F. B. and F. L. Knopf. 1996. Prairie conservation: preserving North America's most endangered ecosystem. Island Press, Washington D.C.

Samson, F. B. and F. L. Knopf. 1994. Prairie conservation in North America. BioScience 44: 418-421.

Soule, M. E. and J. Terborgh. 1999. Conserving nature at regional and continental scales–a scientific program for North America. BioScience 49: 809-817.

Stewart, R.E., and H.A. Kantrud. 1971. Classification of natural ponds and lakes in the glaciated prairie region. U.S. Fish and Wildlife Service Resource Publication 92. 57pp.

Tilman, D. and J. A. Downing. 1994. Biodiversity and stability in grasslands. Nature 367:363-65.

Wiens, J. A. 1995. Habitat fragmentation: Island versus landscape perspectives on bird conservation. Ibis 137: 97-104.

Table 7: Wetland Management District Issues

	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Wildlife & Habitat				
1. Low waterfowl productivity	1	5	9	7
2. Strategic acquisition	1	6	8	9
3. Managing uplands	1	5	9	6
4. Managing and restoring wetlands	1	6	9	7
5. Improve biological inventories and monitoring.	5	5	10	6
6. Stem loss of prairie migrating birds.	1	6	7	5
7. Manage to preserve & enhance endangered species.	1	6	7	5
8. Reintroduce rare native species.	1	5	6	5
9. Mitigate negative external influences on WPAs.	1	6	8	5
10. Needs of federal trust species vs. resident species.	1	5	7	5
11. Reduce crop loss from Canada geese.	1	7	8	5
12. Control of invasive species.	1	7	8	5
People				
1. Conflicting views on cost vs. benefit of public land.	5	5	7	5
2. Provide adequate facilities for the public in a compatible way.	1	6	8	4
Operations				
1. Improve operations through increased staff and fund-raising.	1	5	10	7
2. Ensure all Districts apply policy and practice in a consistent manner.	1	6	10	6

Alternative 1: No management; stop all management actions.
Alternative 2: Maintain current level and program.
Alternative 3: Implement CCP (preferred)
Alternative 4: Focus management and land acquisition program.

Table 8: Objectives of the Wetland Management Districts

Objectives	Alt. 1	Alt. 2	Alt. 3	Alt.4
Objective 1: Strive to preserve and maintain the diversity and increase the abundance of waterfowl species of the Northern Tallgrass Prairie Ecosystem.	1	5	9	8
Objective 2: Within current acquisition acreage goals, identify the highest priority acres for acquisition taking into account block size and waterfowl productivity data. These priority areas should drive acquisition efforts whenever possible.	1	5	8	9
Objective 3: Restore native prairie plant communities using local ecotypes of seed and maintain the vigor of these stands through natural processes such as fire.	1	7	9	6
Objective 4: Restore functioning wetland complexes within Waterfowl Production Areas (WPAs). There should be no drained wetlands on WPAs.	1	6	9	6
Objective 5: Maintain the cyclic productivity of wetlands on WPAs by increasing the amount and quality of water level management.	1	5	9	4
Objective 6: Monitor the impact of management on target species as directed by the Monitoring Plan. Monitoring is an integral part of management decisions within the Districts.	2	4	9	6
Objective 7: Collect baseline biological data using proven scientific methods so that adequate information is available to evaluate management actions.	5	4	8	6
Objective 8: Preserve, restore, and enhance habitats to support diverse migratory bird populations.	1	6	9	8
Objective 9: Preserve, enhance, and restore rare native Northern Tallgrass Prairie flora and fauna that may become extinct.	2	6	8	8
Objective 10: Preserve, restore, and enhance rare and endangered native communities.	1	6	8	8
Objective 11: Where feasible in both ecological and social/economic terms, reintroduce native species on WPAs in cooperation with the Minnesota DNR.	1	5	8	6
Objective 12: Assess the external threats to each WPA during the preparation of individual WPA Development Plans. Develop action plans to address these threats.	1	6	8	7
Objective 13: Preserve, restore, and enhance resident wildlife populations where compatible with waterfowl production and preservation of other trust resources.	1	6	6	7
Objective 14: Work with the Minnesota DNR and the Department of Agriculture to seek sustainable solutions to the impact of Canada geese on adjacent private croplands.	1	5	7	5
Objective 15: Continue efforts for direct control of invasive species to minimize damage to aquatic and terrestrial communities.	1	5	8	6
Objective 16: Ultimately, our efforts should lead to a long-term solution to the problem of invasive species with increased emphasis on biological control.	1	5	8	6
Objective 17: Continue efforts to restore wetlands and better define the role of each District in assisting private landowners with upland and riparian restorations.	5	5	7	6

Table 8: Objectives of the Wetland Management Districts (continued)

Objectives	Alt. 1	Alt. 2	Alt. 3	Alt.4
Objective 18: Service land acquisition should have no negative impact on net revenues to local government.	10	3	6	4
Objective 19: Understand and communicate the economic effects of Federal land ownership on local communities.	1	5	8	5
Objective 20: Provide opportunities for compatible public uses that promote understanding and appreciation of the Prairie Pothole Region.	2	6	8	5
Objective 21: Promote greater understanding and awareness of the Wetland Management District programs, goals and objectives.	1	6	9	7
Objective 22: Provide opportunity for environmental education that advances public and private stewardship responsibility for the Prairie Pothole Region and brings about understanding of the multiple values of prairie wetlands and grasslands.	1	6	8	5
Objective 23: Provide necessary levels of maintenance, technician, and administrative support staff to achieve other Wetland Management District goals.	2	5	10	4
Objective 24: Provide all Districts with adequate and safe office, maintenance, and equipment storage facilities.	2	5	10	5
Objective 25: Acquire adequate equipment and vehicles to achieve other District goals. Maintain District equipment and vehicles at or above Service standards.	2	5	10	5
Objective 26: Ensure that annual capital development funds are large enough to meet necessary development of new WPA land.	2	5	9	5
Objective 27: Annually, have adequate funds available to permit completion of maintenance needs for each Wetland District's current land base of WPAs.	2	5	9	5
Objective 28: Complete Geographic Information System (GIS) based WPA Development Plans for each unit in each District.	2	6	8	5
Objective 29: Provide Districts with GIS to assist with acquisition, restoration, management, and protection of public and private lands.	2	6	8	5
Objective 30: Develop and apply consistent policies for habitat, public use, and and resource protection. Ensure frequent coordination among Districts, both in Minnesota and in neighboring states with WPAs (North Dakota, South Dakota, Iowa and Wisconsin).	2	4	8	5