

U. S. Fish & Wildlife Service

Dakota Tallgrass Prairie

Wildlife Management Area



*Grassland Easement Program
Environmental Assessment*

Environmental Assessment

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Wildlife Management Area

Grassland Easement Program

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Purpose of and Need For Action

Introduction and Background

The Great Plains of North America once covered over a million square miles through the center of the continent. The eastern third of this prairie ecosystem, from Manitoba, to Illinois and south to Texas, is known as the tallgrass prairie region (Figure 1). The tallgrass prairie, like the Great Plains as a whole, was shaped under disturbances such as regular fire, repeated grazing and frequent droughts. Beneath these cycles of change and disturbance, decaying prairie plants assimilated nutrients and returned them to the ground, creating rich, dark soils considered some of the most fertile in the world.

This tallgrass prairie region once stretched across almost 200 million acres, but today, less than 4 percent of the original tallgrass prairie remains (Steinauer and Collins 1996). The rich soils, combined with gently rolling topography, made the region prime for agricultural development. Much of the tallgrass prairie was converted to cropland in a single decade, 1870-1880, as railroads and Land Acts provided economic incentives, although conversion of native prairie continues today (Billington 1960, The Nature Conservancy 1998). As tallgrass prairie has been plowed and fragmented, the once expansive, complex ecosystem has been simplified and the forces of fire and grazing bison no longer recreate the tallgrass prairie of the past (The Nature Conservancy 1998). The tallgrass prairie region has become one of North America's most endangered ecosystems (Noss *et al.* 1995).



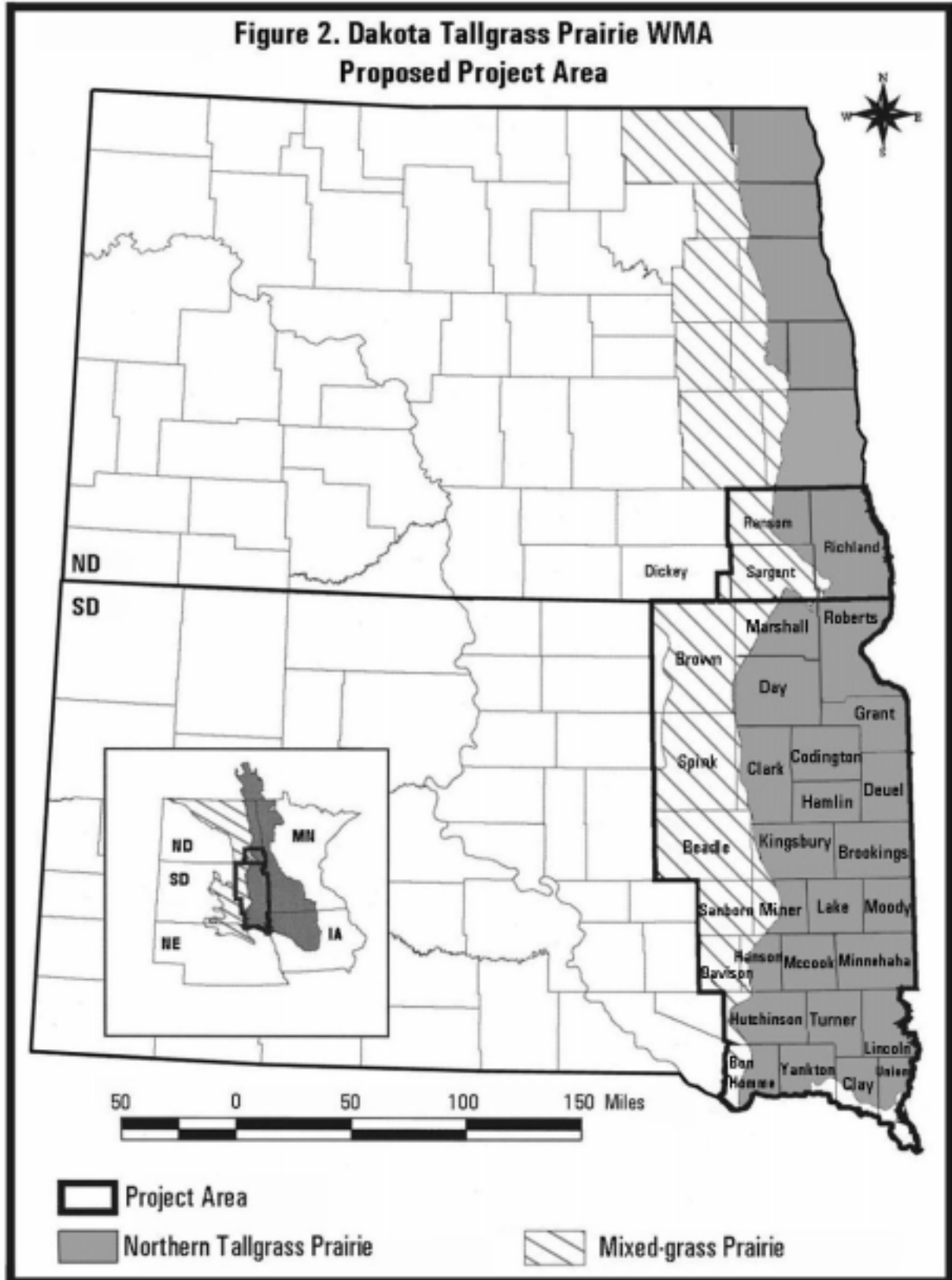
Proposed Action

The U.S. Fish and Wildlife Service (the Service) proposes to create the Dakota Tallgrass Prairie Wildlife Management Area (WMA) to preserve 185,000 acres of native tallgrass prairie in eastern North and South Dakota. Prairie will be preserved primarily through the purchase of perpetual grassland easements from willing sellers. Easements would not restrict grazing in any way and haying would be permitted after July 15th each year, but plowing the prairie would be prohibited. Occasionally, fee title purchase of tracts and/or reseeding native prairie also may occur. The project is estimated to take a minimum of seven years and cost a total of \$14 million. Areas acquired by the Service would be managed under standards and guidelines set for the National Wildlife Refuge System. This project would be funded through the Land and Water Conservation Fund (LWCF). Monies from this fund are derived primarily from oil and gas leases on the outer continental shelf, excess motorboat fuel tax revenue and sale of surplus Federal property.

Project Area

The northeastern portion of the tallgrass prairie including portions of Manitoba, North and South Dakota, Minnesota, and Iowa has been designated the Northern Tallgrass Prairie Ecoregion (Figure 1) (McNab and Avers 1994, Keys et al. 1995, The Nature Conservancy 1998). The Dakota Tallgrass Prairie WMA encompasses all of the Northern Tallgrass Prairie in South Dakota and a portion in North Dakota. The portion of North Dakota in the project area contains the largest blocks of northern tallgrass prairie remaining in the state.

The proposed project boundary includes 32 counties in eastern North and South Dakota (Figure 2). The project area covers some of the transitional zone into mixed grass prairie where, under appropriate conditions, tallgrass prairie can be found.



Purpose of and Need for Proposed Action

The primary purpose of the Dakota Tallgrass Prairie WMA is to preserve 185,000 acres of high-quality tallgrass prairie habitat in eastern North and South Dakota. Other goals of the Dakota Tallgrass Prairie WMA are to help maintain biodiversity and slow habitat fragmentation within the project boundary by clustering the 185,000 acres into 10,000 to 20,000 acre blocks. The Dakota Tallgrass Prairie WMA also would create opportunities to manage existing prairies for biodiversity in cooperation with landowners and in some cases, reseed native prairie grasses.

The Dakota Tallgrass Prairie WMA is needed because the tallgrass prairie ecosystem has already been reduced to less than 4 percent of its original size, and more continues to be lost every year (Steinauer and Collins 1996). Within the proposed project boundary, the original 10.3 million acres of tallgrass prairie already has been reduced to 2.1 million acres, primarily through conversion to cropland (HAPET 2000). The conversion of native prairie not only results in a direct loss of biodiversity, but also fragments the landscape by creating prairie "islands." These islands are more vulnerable to pesticide drift and contamination, soil erosion, and general degradation (Caughley and Gunn 1996, Steinauer and Collins 1996, The Nature Conservancy 1998). While it is difficult to know how much prairie will be converted in the future, as much as 5 to 15 percent of the native prairie has been converted to cropland in the last 15 years (NRCS 1999), and historical data shows that when agricultural markets become favorable, there is a related increase in the conversion of native prairie (Gerard 1995). Therefore, this project also is needed to preserve prairie both in the present and the long-term future.

The Dakota Tallgrass Prairie WMA also is needed to help preserve the rich diversity of plant and animal species supported by tallgrass prairie habitat, in part, by providing additional funds to protect high quality native prairie not eligible for current programs. There are at least 300 species of plants, 113 species of butterflies, 35 species of reptiles and amphibians, 60 species of mammals, and 260 species of birds known to breed in or use tallgrass prairie habitat within the proposed project area (see Affected Environment for full description). According to the North and South Dakota Natural Heritage Programs, 237 species of plants and animals are considered rare within the project boundary, and of those, 59 are threatened or endangered at the State level. Although it should be noted, in North Dakota these species have been designated by the State Wildlife Society, but do not have legal status. At the Federal level, 13 species are under consideration or listed as threatened and endangered in the project area such as the western prairie fringed orchid, piping plover, and topeka shiner (see Appendix A).

The proposed boundary of the Dakota Tallgrass Prairie WMA would encompass the largest blocks of native tallgrass prairie remaining in the Northern Tallgrass Prairie Ecoregion. The 2.1 million acres of tallgrass prairie in the proposed project boundary account for 80 to 90 percent of the remaining Northern Tallgrass Prairie. Thus the Dakotas, especially northeastern South Dakota, are essential to the preservation of the Northern Tallgrass Prairie ecosystem.

Decisions to be Made

Based on the analysis provided in this Environmental Assessment, the Regional Director of the U.S. Fish and Wildlife Service, Region 6 - Mountain Prairie Region, will make three decisions.

1. Determine whether the Service should establish the Dakota Tallgrass Prairie Wildlife Management Area. If yes,
2. Select an approved Wildlife Management Area boundary that best fulfills the habitat protection purpose; and
3. Determine whether the selected alternative will have a significant impact upon the quality of the human environment. This decision is required by the National Environmental Policy Act (NEPA) of 1969. If the quality of the human environment is not affected, a Finding of No Significant Impact will be signed and will be made available to the public. If the alternative will have a significant impact, then an Environmental Impact Statement will be prepared to further address those impacts.

Issues Identified and Selected for Analysis

Comments were solicited from the public for the Dakota Tallgrass Prairie WMA through news releases and a series of public meetings. A news release explaining the project and providing Service contact information was sent to 20 newspapers in North Dakota and 28 newspapers in South Dakota in early September 1999. A total of 72 people attended the public meetings or provided written comments on the project. Meetings were held in Fargo, North Dakota on September 7, 1999; Yankton, South Dakota on September 15, 1999; and Brookings, South Dakota on September 16, 1999. In addition, personal visits were made to the offices of the Congressional delegations for both States.

Most people commenting on the project were supportive of the effort to preserve native tallgrass prairie. Some additional wildlife habitat and management issues were raised, as well as social and economic concerns.

Biological Issues

Native Tallgrass Prairie Habitat

- P Native Tallgrass Prairie is one of the most endangered and fragmented forms of wildlife habitat in North America. Perpetual grassland easements are a means of preserving tallgrass habitat for future generations. Many people attending the meetings, both landowners and the general public, felt that preserving and protecting native tallgrass prairie habitat for plants and wildlife was important.

Social and Economic Considerations

- P Several people indicated that they would like retired cropland that has been planted to native grasses, such as under the Conservation Reserve Program, to be eligible for Dakota Tallgrass Prairie WMA easements.
- P Tracts of less than 40 acres in size should be eligible for grassland easements.
- P Some people felt that the perpetual nature of the easements was too restrictive, effectively making decisions for future generations.
- P If tax dollars are used to protect wildlife habitat, then that habitat should be made open to public hunting access.

Issues Not Selected for Analysis

- P Provisions and plans for burning native prairie to control weeds and maintain vigor should be part of the management of grassland easements.

Money from the Land and Water Conservation Fund, which is the source for this project, cannot be used for management costs such as developing burn plans and administering prescribed burns. The Service Coordinator for the tallgrass region is working on developing a private lands burning program which would be administered in conjunction with State and County offices. Funding for such a program will have to be acquired through grants or funds other than the LWCF.

- P The ability to accept easements for wind generators on grassland easements under the Dakota Tallgrass Prairie WMA was a concern for some individuals.

The disturbance of native grass associated with establishing wind generators is not compatible with the provisions of a grassland easement. Wind generators for commercial sale of power are not considered a related agricultural use that might be allowed through the Service's easement permitting process for modifying easements.

Related Actions and Activities

The Northern Tallgrass Prairie National Wildlife Refuge is a tallgrass prairie preservation project administered by Region 3 of the U.S. Fish and Wildlife Service. The project has a goal of preserving 77,000 acres of native tallgrass prairie habitat in western Minnesota and northwestern Iowa, primarily with grassland easements. Because the native tallgrass prairie is highly fragmented and more than 99 percent of the original prairie is gone in this Region, this program also focuses on restoration of native prairie. Despite some differences in goals and priorities between the Northern Tallgrass Prairie NWR and the Dakota Tallgrass Prairie WMA, Regions 3 and 6 of the Service will be working together closely, with the possibility of combining the projects at some future date.

Dakota Tallgrass Prairie WMA, Phase I is a Service program which is working to protect 5,000 acres of native prairie in northeast Brown County in South Dakota. Protection will be accomplished primarily through perpetual grassland easements although some fee-title purchase may occur.

North American Waterfowl Management Plan was enacted in 1986 to address declining waterfowl populations. Under this Plan, the Prairie Pothole Joint Venture was created to coordinate the efforts of North Dakota, South Dakota, Minnesota, Iowa, and Montana. The Tewaukon Wetland Management District in southeastern North Dakota is currently working on a project to enhance waterfowl habitat that includes the protection of approximately 13,000 acres of upland habitat. Land protection efforts will focus on good waterfowl habitat, i.e., grasslands associated with wetlands, but not specifically tallgrass prairie. The funding and efforts for this project are based on a partnership between private landowners, U.S. Fish and Wildlife Service, Ducks Unlimited, North Dakota Game and Fish Department, the North Dakota Wetlands Trust, Delta Waterfowl, and the Ransom County Soil Conservation District.

Migratory Bird Conservation Act established the Migratory Bird Conservation Commission which oversees the purchase and rental of properties benefitting migratory birds. These land acquisitions are funded primarily through money generated by the purchase of Migratory Bird Hunting and Conservation Stamps or "Duck Stamps." With these funds the Service has purchased over 185,000 acres of grassland easements in South Dakota within the Dakota Tallgrass Prairie WMA. Purchase of grassland easements with these funds is an on-going process in the project area. These funds are also used to purchase wetland easements in North and South Dakota.

The Nature Conservancy is active in conservation and preservation issues in the Northern Tallgrass Prairie Region of the Dakotas. In 1998, an ecoregional planning document for the Northern Tallgrass Prairie was completed and an implementation team formed to address the issues in the Region. The Conservancy recently acquired the Brown Ranch, 1,500 acres of tallgrass prairie adjacent to the Sheyenne National Grasslands in southeastern North Dakota. In addition, the Conservancy owns the 560-acre Pigeon Point Preserve in Ransom County, North Dakota and nine preserves in the tallgrass region of South Dakota, which currently protect almost 3,400 acres of a variety of tallgrass prairie subtypes. The Service is currently working with the Conservancy to coordinate planning efforts in the Tallgrass Region.

U.S. Department of Agriculture, Natural Resources Conservation Service has several programs active in North and South Dakota aimed at conserving tallgrass prairie rangeland resources in the project area. Both states have the Environmental Quality Incentives Program (EQIP) which provides farmers and ranchers with information and resources for grazing systems, water development projects and educational programs. In North Dakota, the Sheyenne River Basin has been identified as a priority area for this program. The Conservation Reserve Program has an option known as Conservation Practice 2 or CP2 under which highly erodible cropland is planted specifically with a mixture of native grasses for 10 to 15 year contracts. Approximately 112,000 CP2 acres are within the project area. North Dakota NRCS also has a Sustainable Agriculture Resources Education grant which will assist in improving range management through grazing systems. In South Dakota, the Wildlife Habitat Incentive Program (WHIP) provides expertise and funding for planting native grasses and floodplain and wetlands easement programs have associated native grass plantings.

U.S. Forest Service manages the Sheyenne National Grasslands, a 70,000-acre parcel of grassland in southeastern North Dakota. The Forest Service is currently developing an Environmental Impact Statement addressing the management plan for the next 10 years on the grasslands. Of the 70,000 acres, approximately 53,000 are native tallgrass prairie which make the Sheyenne Grasslands the largest, contiguous block of tallgrass prairie in North Dakota.

Ducks Unlimited is currently working with the Tewaukon Wetland Management District in southeastern North Dakota on a project to enhance waterfowl habitat that will include the protection of approximately 13,000 acres of upland habitat. Also, Ducks Unlimited is initializing a Revolving Land Acquisition Program on the Prairie Coteau of northeastern South Dakota that is aimed at restoration of waterfowl habitat on large tracts.

Friends of Prairie is a group of private citizens that have organized to address issues related to the conservation and preservation of tallgrass prairie in the Dakotas. The group is presently focused on raising public awareness and support.

Private landowners own over 98 percent of the project area and have primary stewardship of the remaining tallgrass prairie. A significant portion of biodiversity of tallgrass prairie, in particular the rare species and species of special concern, occur on private lands. Many landowners in the area are concerned with protecting wildlife and preserving grasslands and have entered into cooperative agreements with the Service and other partner agencies.

National Wildlife Refuge System and Authorities

The Service proposes to protect lands within the project area through grassland easements to enhance the survival prospects of endangered and threatened species in the area, and to protect and maintain grassland and wetland habitat for migratory birds and other species of animals and plants. The proposed grassland easement program would be administered as part of the Refuge System and operated under a Wildlife Management Area in accordance with the overall mission of the National Wildlife Refuge System. The mission of the National Wildlife Refuge System is to preserve a national network of lands and waters for the conservation and management of fish, wildlife, and plant resources of the United States for the benefit of present and future generations. The proposed resource protection actions also would be consistent with the guiding principles and goals for the National Wildlife Refuge System.

Guiding Principles of the National Wildlife Refuge System

1. **Habitat.** Fish and wildlife will not prosper without high-quality habitat, and without fish and wildlife, traditional uses of refuges cannot be sustained. The Refuge System will continue to conserve and enhance the quality and diversity of fish and wildlife habitat within refuges.
2. **Public Use.** The Refuge System provides important opportunities for compatible wildlife-dependent recreational activities involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation.
3. **Partnership.** America's sportsmen and women were the first partners who insisted on protecting valuable wildlife habitat within national wildlife refuges. Conservation partnership with other Federal agencies, State agencies, Tribes, organizations, industry and the general public can make significant contributions to the growth and management of the Refuge System.
4. **Public Involvement.** The public should be given full and open opportunity to participate in decisions regarding acquisition and management of our National Wildlife Refuges.

Goals of the National Wildlife Refuge System

- A. To preserve, restore and enhance in their natural ecosystems (when practicable) all species of animals and plants that are endangered or threatened with becoming endangered.
- B. To perpetuate the migratory bird resource.
- C. To preserve a natural diversity and abundance of fauna and flora on refuge lands.
- D. To provide an understanding and appreciation of fish and wildlife ecology and the human's role in the environment.
- E. To provide refuge visitors with high quality, safe, wholesome and enjoyable recreational experiences oriented toward wildlife, to the extent these activities are compatible with the purpose for which the refuge was established.

The proposed Dakota Tallgrass Prairie Wildlife Management Area would be managed as part of the National Wildlife Refuge System in accordance with the National Wildlife Refuge System Administration Act of 1966, Refuge Recreation Act of 1962, Executive Order 12996 (Management and General Public Use of the National Wildlife Refuge System), National Wildlife Refuge System Improvement Act of 1997, and other relevant legislation, executive orders, regulations, and policies.

Conservation of wildlife habitat in Dakota Tallgrass Prairie Wildlife Management Area would also continue to be consistent with the following policies and management plans:

1. Prairie Pothole Joint Venture (PPJV 1987, 1998 updated)
2. North American Waterfowl Management Plan (USFWS 1987, updated 1994, 1998)
3. Piping Plover Recovery Plan (Great Lakes and Northern Great Plains) (USFWS 1988)
4. Bald Eagle Recovery Plan (Northern states) (USFWS 1983)
5. Whooping Crane Recovery Plan (USFWS 1994 revised)
6. American Burying Beetle Recovery Plan (USFWS 1991)
7. Pallid Sturgeon Recovery Plan (USFWS 1993)
8. Western Prairie Fringed Orchid Recovery Plan (1996)

The Habitat Protection and Land Acquisition Process

Once a project area boundary is approved, habitat protection will primarily be through the purchase of grassland easements; however, fee-title purchase, no-cost transfer, long-term lease, donation or exchange also may occur. It is the established policy of the Service to acquire land or interest of land from willing sellers.

The authority for the acquisition of property interests within the proposed Dakota Tallgrass Prairie Wildlife Management Area is the Fish and Wildlife Act of 1956 (16 U.S.C. 742 f (b) (1), as amended. Acquisition funding is made available through the Land and Water Conservation Fund Act of 1965. The Land and Water Conservation Fund is derived primarily from oil and gas leases on the outer continental shelf, excess motorboat fuel tax revenues and sale of surplus Federal property. Additional funds could be made available through Congressional appropriations, North American Waterfowl Conservation Act Funds, donations from non-profit organizations or other sources to acquire lands, waters, or interest therein for fish and wildlife conservation purposes.

The basic considerations in acquiring land are the biological significance of the land, existing and anticipated threats to wildlife resources, and landowner's willingness to sell conservation easements, or otherwise make property available to the project. The purchase of grassland easements progresses according to the availability of funds.

Under provisions of the Refuge Revenue Sharing Act (Public Law 95-469), the Service would annually reimburse counties to offset revenue lost as a result of fee-title acquisition of private property. This Law states that the Secretary of the Interior (Secretary) shall pay to each county in which any area acquired in fee title is situated, the greater of the following amounts:

1. An amount equal to the product of 75 cents multiplied by the total acreage of that portion of the fee area which is located within such county.
2. An amount equal to $\frac{3}{4}$ of 1 percent of the fair market value, as determined by the Secretary, for that portion of the fee area which is located within such county.
3. An amount equal to 25 percent of the net receipts collected by the Secretary in connection with the operation and management of such fee area during such fiscal year. However, if a fee area is located in two or more counties, the amount for each county shall be apportioned in relationship to the acreage in that county.

The Refuge Revenue Sharing Act also requires that Service lands be reappraised every five years to ensure that payments to local governments remain equitable. Payments under this Act would be made only on lands that the Service acquires in fee title. On lands where the Service acquires only partial interest through easement, all taxes would remain the responsibility of the individual landowner.

Alternatives for the Dakota Tallgrass Prairie Wildlife Management Area

This Section describes the three alternatives identified for this project: a No Action alternative, an alternative giving the Service the authority to create the Dakota Tallgrass Prairie Wildlife Management Area (WMA) as originally proposed, and a third alternative, expanding the scope of the grassland easement program within the WMA. The alternatives are summarized in Table 1.

If the preferred alternative is selected, current and future grassland easements acquired by the U.S. Fish and Wildlife Service will be administered in accordance with Executive Order 12996, *Management and General Public Use of the National Wildlife Refuge System (1996)* and the *National Wildlife Refuge System Improvement Act (1997)*. Management activities would include monitoring the properties to ensure that landowners did not violate the terms of the easement. The Service would continue to monitor the status and recovery of endangered, threatened and candidate species, conduct other activities for enhancing wildlife habitat and restoring native species with landowners permission and coordinate with private organizations and State and Federal agencies.

Table 1. Summary of Actions Under Each Alternative

	Alternative A	Alternative B	Alternative C
Acres Preserved	0	P 185,000 acres of native tallgrass prairie preserved in North and South Dakota	P 185,000 acres of grassland preserved in North and South Dakota
Elegible Grasslands	none	P primarily native tallgrass prairie	P native tallgrass prairie P CRP/planted cover
Restrictions of Easements	n/a	All easements: P cannot plow prairie P no grazing restrictions P haying after July 15th	<u>Native Prairie:</u> P cannot plow prairie P no grazing restrictions P haying after July 15th <u>CRP:</u> P cannot plow P no grazing or haying except to rejuvenate every 3 to 5 years
Size of Individual Tracts	0	P at least 40 acres, 160 acres preferred	P any size
Public Access on Easement Tracts	none	P right to control access remains with landowner for easements P public access may be part of fee-title purchases	P public access provided by the Service purchasing the right from the landowner with easements P public access may be part of fee-title purchase

Alternative A. No Action.

Under the No Action alternative, the Service would not establish the Dakota Tallgrass Prairie Wildlife Management Area and the 185,000 acres of native tallgrass prairie would not be perpetually protected.

Alternative B. Establish the Dakota Tallgrass Prairie Wildlife Management Area as Originally Proposed. (Preferred Alternative)

Under Alternative B, the Service would establish the Dakota Tallgrass Prairie Wildlife Management Area (WMA) within the proposed boundary including 32 counties in eastern North and South Dakota. The Dakota Tallgrass Prairie WMA would preserve 185,000 acres of high quality, native tallgrass prairie primarily with perpetual grassland easements, although some fee-title purchase of land may occur. The goal of the project is to preserve prairie in blocks of 10,000 to 20,000 acres. To meet this goal, focus areas have been identified within the project area that contain relatively large, unfragmented blocks of native prairie where it may be possible to preserve 10,000 to 20,000 acre areas (Figure 3). Within these focus areas, grassland tracts will be given first priority for purchase if they are native tallgrass prairie, larger than 160 acres (although as small as 40 acres will be considered), nearby other protected lands and have biological significance, such as the presence of rare or listed species. In some cases, small pieces of planted cover/CRP may be included in a larger easement for native prairie if the CRP rounds out a tract or connects two grassland easements. Under this Alternative, the total number of CRP acres would be small relative to the acres of native prairie and probably would be only 5 to 10 percent of the 185,000 acre goal. As additional biological information becomes available, these focus areas may be refined to better preserve the biodiversity of the tallgrass prairie.

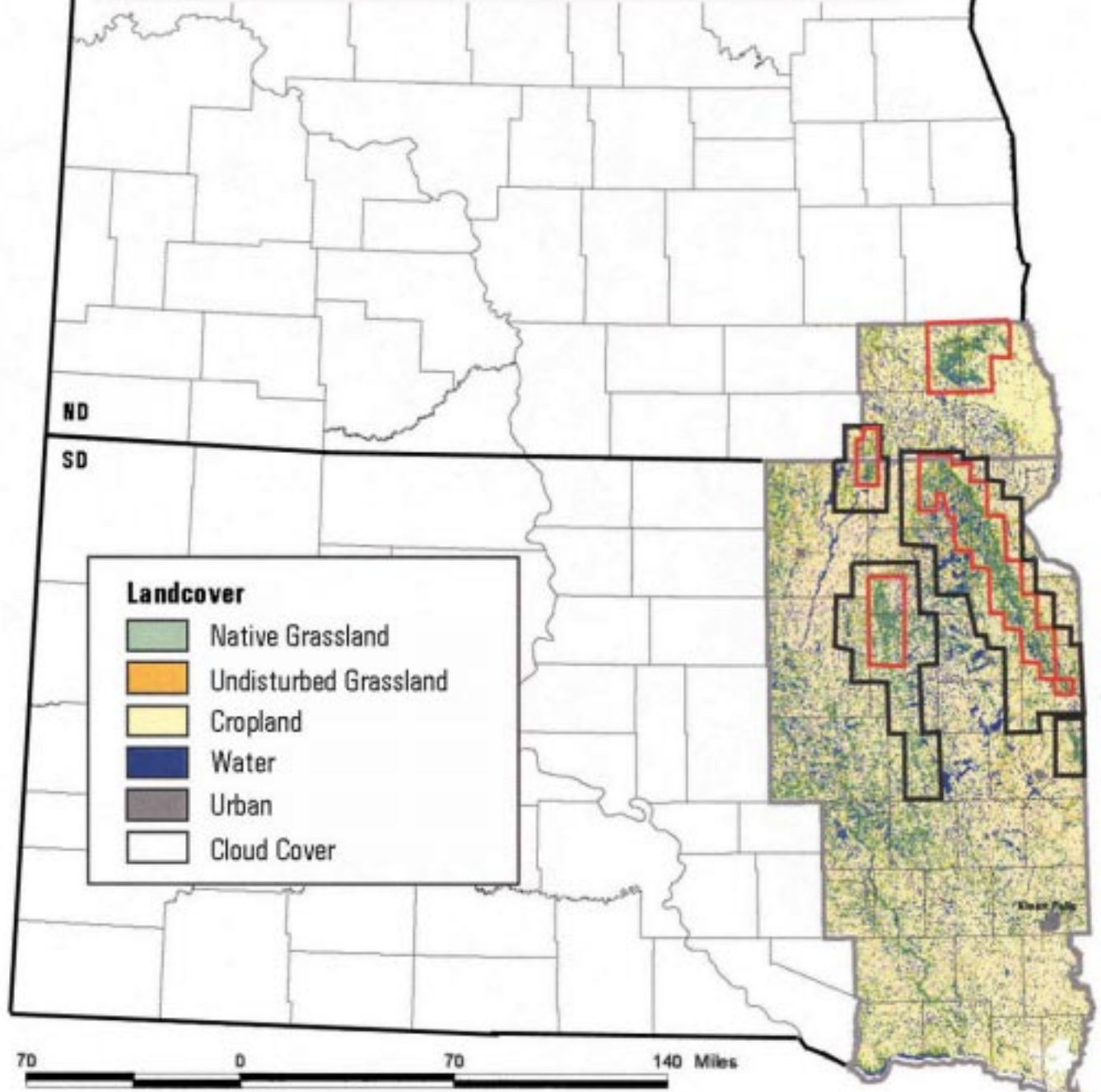
The easement program would rely on voluntary participation from landowners. Grazing would not be restricted on the land included in the easement contract, although haying would be restricted until after July 15th. Plowing the land would not be permitted. All land with easements would remain in private ownership; therefore, property tax, weed control, and control of public access would remain the responsibility of the landowner. Any fee title land purchased by the Service would be managed in accordance with Executive Order 12996, *Management and General Public Use of the National Wildlife Refuge System (1996)* and the *National Wildlife Refuge System Improvement Act (1997)* and the county in which the land is located would receive payment-in-lieu-of-taxes through the Service's Revenue Sharing Program (see Purpose of and Need for Action).

Alternative C. Establish the Dakota Tallgrass Prairie Wildlife Management Area incorporating options to broaden eligibility for the program and increase public access.

Under Alternative C, the Service would establish the Dakota Tallgrass Prairie Wildlife Management Area (WMA) within the proposed boundary including 32 counties in eastern North and South Dakota. The Dakota Tallgrass Prairie WMA would preserve 185,000 acres of high quality, native tallgrass prairie primarily with perpetual grassland easements, although some fee-title purchase of land may occur. The goal of the project is to preserve prairie in blocks of 10,000 to 20,000 acres. To meet this goal, focus areas have been identified within the project area that contain relatively large, unfragmented blocks of native prairie where it may be possible to preserve 10,000 to 20,000 acre areas (Figure 3). Grassland tracts would be eligible if they were native prairie and/or planted cover, of any size, nearby other protected lands and/or had biological significance, such as the presence of rare or listed species. Under this Alternative, 20 to 30 percent of the 185,000 acre goal may be planted cover/CRP.

The easement program would rely on voluntary participation from landowners. On native prairie tracts, grazing would not be restricted, although haying would be restricted until after July 15th. On tracts of planted cover/CRP annual grazing and haying would be prohibited. Although, burning, haying or grazing may be needed every 3 to 5 years to maintain the quality of the grass. Plowing the land would not be permitted with any easement. All land with easements would remain in private ownership; therefore, property tax and weed control would remain the responsibility of the landowner. In addition, under this Alternative, public access would be associated with land for which the Service had purchased a grassland easement. Any fee title land purchased by the Service would be managed in accordance with Executive Order 12996, *Management and General Public Use of the National Wildlife Refuge System* (1996) and the *National Wildlife Refuge System Improvement Act* (1997) and the county in which the land is located would receive payment-in-lieu-of-taxes through the Service's Revenue Sharing Program (see Purpose of and Need for Action).

Figure 3. Focus Areas for the Dakota Tallgrass WMA under Alternatives B and C



Landcover

- Native Grassland
- Undisturbed Grassland
- Cropland
- Water
- Urban
- Cloud Cover

70 0 70 140 Miles

Upland land cover was derived from an unsupervised/supervised classification of Landsat Thematic Mapper (TM) Satellite Imagery (28.5m resolution). TM scene dates range from 1991-1995. Overall producers accuracy exceeded 80% for all TM scenes. U.S.F.W.S. National Wetlands Inventory data was used to identify wetland areas. This map was completed in January 2000. Habitat and Population Evaluation Team, U.S.F.W.S.

- Project Boundary
- First Priority Focus Areas
- Second Priority Focus Areas

All other areas within the project boundary are Third Priority Focus Areas



Affected Environment

Biological Environment

Climate

The region encompassed by the proposed Dakota Tallgrass Prairie WMA has a continental climate, with warm summers and cold winters. Mean minimum January temperatures range from -7 degrees Fahrenheit in North Dakota to 8 degrees Fahrenheit at the southern tip in South Dakota and average maximum temperature increases from 82 degrees Fahrenheit in North Dakota to 88 degrees Fahrenheit in southern South Dakota (Bryce *et al.* 1998).

Annual precipitation increases from west to east across the Great Plains, making the tallgrass prairie relatively moist compared to the mixed and shortgrass prairies. In fact, the tallgrass prairie is the only prairie region with enough moisture to support native or natural tree growth (Bragg 1995, Steinauer and Collins 1996). As with temperature, mean precipitation increases from 15 to 19 inches in North Dakota to 19 to 23 inches in South Dakota, with most of the precipitation falling from April to September (Chapman *et al.* 1998). Periodic droughts, which can be severe, are also common in the tallgrass region (Steinauer and Collins 1996).

Ecoregions

With the exception of the southernmost tip, the topography in the Dakota Tallgrass Prairie WMA was created by glaciers that advanced and retreated over the surface 10,000 to 12,000 years ago. As the sheets of ice advanced, they ground up the surface, mixing ice with rock and soil. As they melted and retreated, the debris (i.e. glacial till) was left strewn across the landscape creating the undulating, gently rolling plains that cover much of the project area.

This landscape has been divided into ecological or physiological regions by several authors (Bailey 1995, McNab and Avers 1994, Keys *et al.* 1995, Johnson *et al.* 1995, Bryce *et al.* 1998). Most of the Dakota Tallgrass Prairie WMA lies in the Prairie Parkland Province, characterized by tallgrass prairie vegetation and interspersed woody vegetation (Bailey 1995). The Prairie Parkland Province extends from central Canada south to Oklahoma and as far east as Indiana. This province has been divided into several sections, and the two northernmost, the Lake Agassiz Plain and Northern Glaciated Plains, have been designated as the Northern Tallgrass Prairie (Figure 4) (McNab and Avers 1994, Bailey 1995, Keys *et al.* 1995, The Nature Conservancy 1998, USFWS 1998). The remainder of the Dakota Tallgrass Prairie WMA is a transition zone to shortgrass prairie, known as the mixed-grass prairie. In this portion of the project area, tallgrass prairie may be found if conditions are appropriate. Mixed-grass prairie is in the Great Plains-Palouse Dry Steppe Province (Bailey 1995).

Tallgrass Prairie Lake Agassiz Plain

The proposed Dakota Tallgrass Prairie WMA project boundary includes the southeastern corner of the Lake Agassiz Plain. The Plain was formed along North Dakota's eastern border 12,000 years ago as glaciers melted and the area flooded forming Lake Agassiz (Bluemle 1991, McNab and Avers 1994). When Lake Agassiz eventually disappeared, a virtually flat plain with sediment deposits of silt and clay up to 95 feet thick was left behind (Bryce *et al.* 1998). The Plain has few wetlands and is crossed by slow moving, meandering streams that flow to the north and east into the Red River. The ancient lake sediments developed into highly productive soils, and today, over 80 percent of the Plain is used for agricultural production of crops (HAPET 2000).

Included in the proposed boundary for the Dakota Tallgrass Prairie WMA is the Sheyenne delta where the Sheyenne River once emptied into ancient glacial Lake Agassiz (Figure 5). On this ancient delta lies the largest, contiguous block of native prairie on the Lake Agassiz Plain. The sandy soils in this area are not ideal for most crop production and much of this area is used for grazing. Approximately 120,000 acres of native vegetation still exist (Chapman *et al.* 1998). The U.S. Forest Service owns and manages 70,000 of these acres as the Sheyenne National Grasslands. Native prairie on the Sheyenne delta includes mesic, wet-mesic and dry-mesic tallgrass prairie characterized by big and little bluestem, Indiangrass, porcupine grass, green needlegrass, and sideoats grama as well as species typical of sand prairie including prairie sandreed, sand bluestem, and sand dropseed. Typical forbs include prairie blazing star, stiff sunflower, leadplant, white prairie clover, wild lily, and white camas. In very sandy, blown out and xeric areas forbs such as green sage, green milkweed, and longbract spiderwort also can be found. Conversely, in wetter areas, switchgrass, northern reedgrass, blackeyed Susan and Baltic rush generally occur (Shenk and Lenz 1998, Boe and Lenz 1999). Oak savannahs, relatively open woodlands with an understory of prairie grasses such as big and little bluestem, porcupine grass, and sideoats grama, are also common on the delta (Shenk and Lenz 1998, Boe and Lenz 1999). Scientific names for all species can be found in Appendix C.

The Sheyenne delta is also a haven for many rare, threatened and endangered plants. An intensive survey of privately owned prairie in Richland and Ransom counties, which mostly occurs around the Sheyenne delta, found 51 species of rare plants including white lady's slipper, small yellow lady's slipper orchid, dotted smartweed, and eastern marsh fern (Shenk and Lenz 1998). Some of the rare plants are considered critically imperiled in North Dakota such as purple sandgrass, Richardson's sedge, handsome sedge, and hooked crowfoot (NDNHP 2000).

The Sheyenne Delta is also the location for one of only three large populations of the federally threatened western prairie fringed orchid that exist in the United States. The orchid most often occurs in unplowed prairie and sedge meadows, although it may occur in previously disturbed sites such as roadside ditches and old fields (USFWS 1996a). Recent surveys estimate the population on the Sheyenne delta to be around 7,758 individual plants (K. Kreil pers. comm, Lenz 1997).

Figure 4. Ecoregions of the Dakota Tallgrass WMA

(McNab and Avers 1984, Keys et al. 1995, The Nature Conservancy 1998)

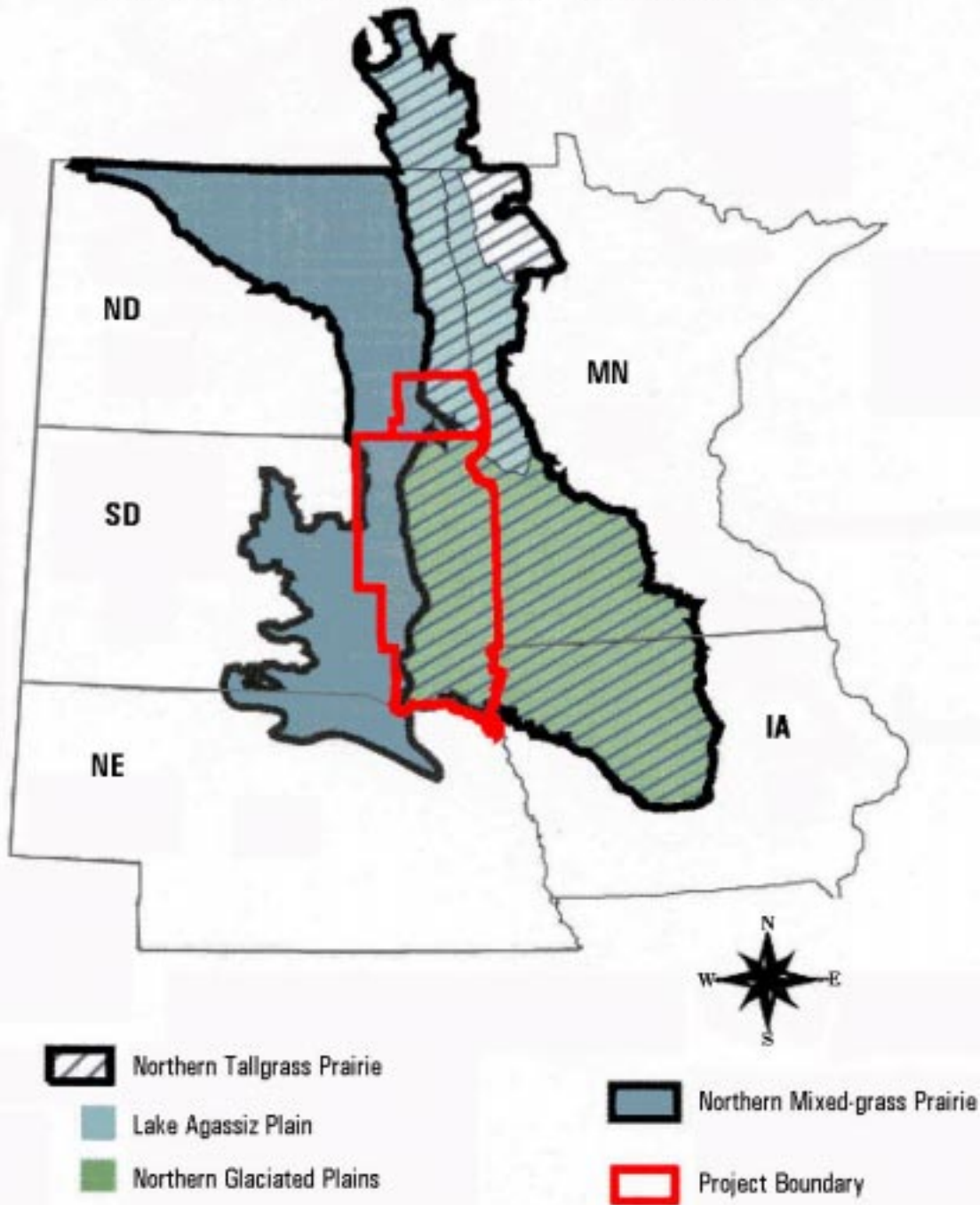
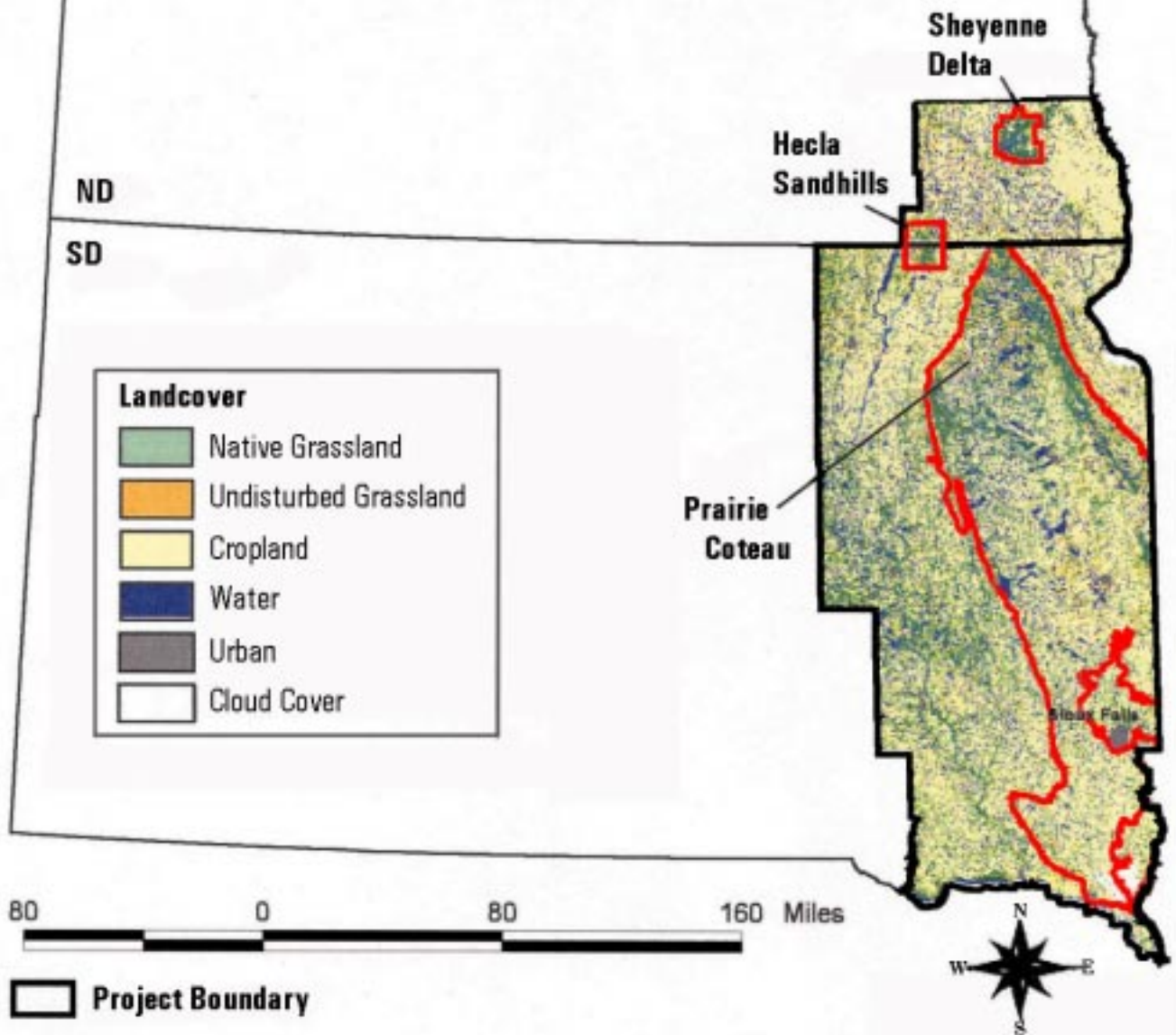


Figure 5. Landcover and Physiographic Regions of the Dakota Tallgrass Prairie WMA



Upland land cover was derived from an unsupervised/supervised classification of Landsat Thematic Mapper (TM) Satellite Imagery (28.5m resolution). TM scene dates range from 1991-1995. Overall producers accuracy exceeded 80% for all scenes. Wetlands were identified using U.S.F.W.S. National Wetlands Inventory data. This map was completed in January 2000. U.S.F.W.S. Habitat and Population Evaluation Team. Prairie Coteau boundary from Johnson et al, 1995.

North-Central Glaciated Plains

Within the Dakota Tallgrass Prairie WMA, the tallgrass prairie of eastern South Dakota occurs in the North-Central Glaciated Plains section (McNab and Avers 1994). It is generally a flat to rolling landscape covered by glacial debris or 'till' created as glaciers moved over the area grinding up the surface and mixing it with ice. As the glaciers receded, the ice melted unevenly, depositing surface debris arbitrarily and creating a pocked landscape. The depressions between rises in debris form numerous shallow basins, which fill with water, forming temporary and seasonal wetlands. The rolling uplands were historically covered by tallgrass prairie, but the glacial till has developed into rich soils intensively cultivated today (Omodt *et al.* 1968, Bluemle 1991, Bryce *et al.* 1998). With the exception of the Prairie Coteau (discussed below), the remaining native tallgrass prairie is largely on hillsides flanking streams and rivers (Figure 5). Rare plants of these areas include snow trillium, bush clover, Turk's cap lily, and compass plant (Houtcooper *et al.* 1985).

Prairie Coteau

The dominant feature of the tallgrass region in South Dakota is the Prairie Coteau (Figure 5). The Coteau was formed as the glaciers advanced and retreated, carrying a mixture of surface material and ice over a pre-existing shale plateau. The result is a highland rising approximately 300 to 600 feet above the plain with a topography of knobby, raised uplands and depressed basins. The basins on the Coteau, however, are generally large, leading to the formation of semipermanent wetlands and lakes (Bryce *et al.* 1998).

In the North-Central Glaciated Plains of South Dakota, most of the relatively unfragmented, large blocks of native tallgrass prairie are found on the Coteau (The Nature Conservancy 1998, Loeschke 1997, HAPET 2000). This is largely because the hilly nature of the Coteau limits crop production, and livestock grazing is common. Dry-mesic hill prairie and northern mesic tallgrass prairie, characterized by grass species such as big and little bluestem, Indiangrass, porcupine grass, prairie June grass, and sideoats grama, are two of the most common plant communities on the Coteau. Intermingled with the grasses are forbs such as prairie blazing star, stiff sunflower, yellow and prairie coneflowers, leadplant, and white prairie clover. At least 45 species of rare plants exist on the Coteau including small fringed gentian, sage leaf willow, Kalm's lobelia, small white lady's slipper, wild cranesbill, and wood anemone, which are all considered imperiled at the state level (Loeschke 1997, SDNHP 1999). The Coteau receives sufficient precipitation to support plains American basswood and bur oak forests along the margins of the wetlands (Bryce *et al.* 1998).

The northern and eastern edges of the Coteau, where it slopes down to the surrounding level plain, create a unique ecological region. Perennial streams that flow off of this edge provide cool, oxygenated water unlike surrounding habitats. These drainages are often flanked by deciduous woodlands of bur oak, green ash, elm, quaking aspen, American basswood, chokecherry, and smooth sumac with an understory of prairie grasses (Loeschke 1997, Bryce *et al.* 1998).

Mixed-Grass Prairie

The remainder of the Dakota Tallgrass Prairie WMA lies in the Great Plains-Palouse Dry Steppe province (Bailey 1995). This area also has a gently rolling topography created by glacial till. The tallgrass prairie in the east gives way to mixed-grass prairie to the west creating a transition zone over much of the area. Thus, conditions at individual sites dictate whether tallgrass species such as little and big bluestem, Indiangrass, and porcupine grass or the mixed-grass species such as western wheatgrass and green needlegrass are present. A good example are the Hecla sandhills (see Figure 5), where tallgrass species are commonly found even though this area is in the mixed-grass zone. Several rare prairie plants can be found in this area including prairie loosestrife, moonwort, alpine rush, meadowsweet, and Great Plains ladies'-tresses (USFWS 2000). This area has persisted in part, because the sandy soils, where ancient river deltas emptied into glacial lakes, is currently unsuitable for most crop production. Another example of tallgrass prairie communities in the mixed-grass zone is the Sheyenne River Valley in Ransom County, North Dakota. Along the River, central-mesic and dry-mesic tallgrass prairie, as well as bur oak forests, woodlands and eastern bur oak savanna, can all be found (Shenk and Lenz 1998).

The mixed-grass portion of the Dakota Tallgrass Prairie WMA contains a significant number of native grassland acres, and this area has been losing prairie at a relatively high rate (NRCS 1999). Within this area in South Dakota, a large percentage of Beadle and Sanborn counties (30 to 40 percent) are still in native grassland, although these grasslands are fragmented (NASS 1999b, HAPET 2000). At least 12 rare plant species that have been documented exist in the mixed-grass zone of the Dakota Tallgrass Prairie WMA (NDNHP 2000, SDNHP 1999).

Wildlife

Invertebrates

In general, insect populations in the project area are not well studied. Much of the research has focused on invertebrates in wetlands that comprise the diets of waterfowl. The diversity of insects in wetlands is limited by harsh conditions including wide fluctuations in temperature, hydrology, and chemical composition of the water (Euliss *et al.* 1999).

At least 113 species of butterflies occur throughout the Dakota Tallgrass Prairie WMA area (Opler *et al.* 1995). Six of these butterflies have been identified as species of concern on the Great Plains, and of these, the Dakota skipper, powesheik skipperling, and the regal fritillary butterflies are considered vulnerable or imperiled at the global level (Sidle 1998, NDNHP 2000). These three butterflies are all prairie specialists, and the Dakota Tallgrass Prairie WMA encompasses some of the last remaining habitat and strongholds for these species (Sidle 1998, Royer 1997, Skadsen 1998). A recent survey of the Dakota skipper on the Prairie Coteau found 58 sites with skipper populations, but of those, only 37 of the populations were considered secure (Skadsen 1998).

The American burying beetle, which is federally listed as endangered, was found historically in the project area. The beetle has been found recently in South Dakota counties outside of the project area, and until comprehensive surveys are completed, the project area is considered possible habitat. Fragmentation of habitat, such as the Dakota Tallgrass Prairie WMA seeks to prevent, is thought to be one of the main causes of this species' decline (USFWS 1991).

Fish

Within the project area boundary, at least 32 species exist of common fishes and another 15 species that are rare, of concern or listed under the Endangered Species Act. The majority of the common species are found in the Missouri River and its tributaries. A minority of common species are found primarily in large lakes and reservoirs within the project area and a few, including fathead minnows, creek chubs, brook sticklebacks, and Johnny darters, are common species primarily found in tallgrass prairie streams and wetlands (Neumann and Willis 1994). Rare species, such as the federally endangered Topeka shiner, the State threatened northern redbelly dace and trout perch, utilize habitat in smaller prairie streams and rivers which may be currently protected by tallgrass prairie along the banks and shores. Other federally listed species in the project area, including the endangered pallid sturgeon and candidate sicklefin chub, inhabit the Missouri River.

Amphibians and Reptiles

Fifteen species of amphibians and 20 species of reptiles are in the project area (Wheeler and Wheeler no date, Del Fosse 1973). Common and widespread species found in a variety of habitats include the tiger salamander, leopard frog, snapping turtle, and the plains garter snake. Tallgrass prairie grasslands in the project area provide habitat for the great plains toad, Woodhouse's toad, and the western hog-nosed snake. The false map turtle and eastern hog nose snake are threatened at the State level in South Dakota, and the lined snake, which is found in the southern Great Plains, is endangered in South Dakota. Rare species within the project area include the wood frog, plains leopard frog, eastern gray treefrog, Cope's gray treefrog, Blanchard's cricket frog, mudpuppy, and the prairie skink, which is a specialist of sand dunes and grasslands (Fischer *et al.* 1999, NDNHP 2000).

Mammals

At least 60 different species of mammals can be found in the project area (Jones *et al.* 1985). Several of these species, particularly rodents, are adapted specifically to grasslands. These include the Franklins' ground squirrel, Richardson's ground squirrel, thirteen-lined ground squirrel, northern grasshopper mouse, the prairie vole, and two species of jumping mice. At least two prairie specialists, the plains pocket mouse and the least shrew, are considered rare in the project area (Houtcooper *et al.* 1985). Several species, particularly predators, have a wide distribution across many habitats including the red and gray fox, coyote, striped skunk, and long-tailed weasel as well as the wide ranging white-tailed and mule deer. Marshy areas provide habitat for meadow voles, muskrats, the least weasel and mink.

Birds

The Dakota Tallgrass Prairie WMA area has a wide diversity of bird species. Approximately 260 species of birds exist that use the tallgrass prairie region. Of these, 160 species are known breeders, and the remaining 100 species use the area during their migration (Stewart 1975, South Dakota Ornithologist's Union 1991).

Numerous species of birds are directly associated with the grasslands of the tallgrass prairie. These include raptors, such as northern harriers and ferruginous hawks, shorebirds, such as killdeer, upland sandpipers, willets, and marbled godwits, and songbirds, such as grasshopper sparrows, bobolinks, western meadowlarks, and dickcissels. Additional grassland species include the short-eared owl, horned lark, greater prairie-chicken, and marsh wren.

Woodlands along the river margins and dispersed throughout the tallgrass prairie provide habitat for additional bird species. Swainson's hawks, mourning doves, kingbirds, American goldfinches, great horned owls, clay-colored sparrows, song sparrows, and yellow warblers are some of the species that breed in woodlands throughout the project area. The woodlands also provide migratory stop-over sites for at least 20 species of warblers including the yellow-rumped warbler, American redstart, blackpoll warbler, and the orange-crowned warbler.

Wetlands, which are often associated with areas of tallgrass prairie in the project area, attract additional bird species. Temporary wetlands, which hold water for shorter periods, attract Wilson's phalaropes, common yellowthroats, and western meadowlarks. Seasonal ponds, which hold water for most of the summer, attract most of the duck species in the area including gadwall, mallards, northern pintails, blue-winged and green-winged teals, northern shoveler, redheads, and American wigeons. Wading birds such as sora, American coots, American avocet, Virginia rail, and marbled godwits are also found on seasonal wetlands. Semipermanent and permanent wetlands, such as those found on the Prairie Coteau, provide breeding habitat for water birds like the horned grebe, black-crowned night heron, ring-billed gull, and double-crested cormorant.

While winter is a time when most birds leave the tallgrass prairie region, several species migrate to this area in the winter. Lapland longspurs and snow buntings are two particularly common species. Brown creepers, Bohemian waxwings, pine and evening grosbeaks, and white-winged and red crossbills also may utilize the project area during winter.

Twenty species of birds exist within the Dakota Tallgrass Prairie WMA which are designated as species of concern by the U.S. Fish and Wildlife Service (USFWS 1996b). The veery and American bittern are found primarily in North Dakota while the common loon, white-faced ibis, ferruginous hawk, barn owl, burrowing owl, olive-sided flycatcher, and sedge wren are found more commonly in South Dakota. The upland sandpiper, black tern, northern harrier, red headed woodpecker, Sprague's pipit, loggerhead shrike, grasshopper sparrow, Baird's sparrow, chestnut-collared longspur, dickcissel, and lark bunting are found throughout the project area. With the exception of the black tern, red headed woodpecker, and loggerhead shrike, all of the species of concern are grassland specialists, relying on prairie habitat for breeding (Stewart 1975, South Dakota Ornithologist's Union 1991).

Several threatened and endangered bird species at the State and Federal level occur in the project area. These include the federally endangered whooping crane and least tern and the threatened bald eagle and piping plover. At the State level, the osprey is considered threatened in South Dakota, and in North Dakota, the greater prairie-chicken and yellow rail are threatened (Bry 1986, Sidle 1998).

Social and Economic Considerations

The Dakota Tallgrass Prairie WMA encompasses 15.7 million acres and 32 counties in North and South Dakota. Within the project area, approximately 200 communities of less than 1,000 people exist. Approximately 36 towns of 1,000 to 10,000 people occur. Eight cities exist with over 10,000 people, and the largest city in the project area is Sioux Falls, South Dakota with a population of over 100,000 people. Population densities within the counties vary considerably throughout the project area, with the highest densities found in counties with large cities (US Census Bureau 2000).

Agricultural Resources

Agriculture is a major sector of the economies of both States. In North Dakota, the primary enterprise is agriculture which accounts for one-third of the total economy. Other enterprises with major contributions to the economy of North Dakota include the Federal Government and energy producing businesses (Leistritz and Coon 1991). In South Dakota, agriculture also generates just over one-third of the total economic activity in the state (Beutler 1997). The remaining economic activity in South Dakota has diversified over the last 20 years, including manufacturing, computer, and service industries (Beutler 1997).

Agricultural uses of the land vary throughout the Dakota Tallgrass Prairie WMA. For example, the proportion of the county land converted to cropland ranges from 80 to 90 percent in southeastern North Dakota to 50 to 60 percent in northeastern South Dakota (NASS 1999a, 1999b). The largest crops, in terms of the number of acres planted, are soybeans, corn, and wheat (NASS 1999a, 1999b). The largest acreage of pastureland is found in counties of northern South Dakota where it is primarily used for cattle grazing. Average gross agricultural income ranges from \$70,000 to \$190,000 for counties in the project area (NASS 1999a, 1999b).

In the proposed project area, approximately 850,000 acres are enrolled in the Conservation Reserve Program (CRP) (USDA 1999). Under the Conservation Reserve Program, farmers voluntarily agree to plant marginal or highly erodible cropland with approved cover and maintain that cover for 10 to 15 years in exchange for annual payments. In the Dakotas, the most common type of planted cover is either a mixture of introduced grasses and legumes (known as Conservation Practice 1 or CP1) or a mixture of native grasses (CP2), although there are 25 total Conservation Practice options. In North Dakota, 2,041 CRP acres are planted in native grasses under CP2, and in South Dakota 110,180 acres are planted in native grasses (USDA 1999).

Despite these differences in land use and income, farm operators in the project area share many characteristics. Most farm operators are full or part owners of their operation. Most have been on the farm an average of 20 to 25 years. In most counties, the largest group of farm operators are in the 35 to 44 age category, although some counties do have more operators in the 45 to 54 age category. Farming is still the principal occupation of most farm operators, although this number has decreased in virtually all counties of the project area since 1992 (NASS 1999a, 1999b).

Mineral Resources

Deposits of non-metallic mineral resources such as sand and gravel, stone, cement, and clay are found throughout the project area. In South Dakota, sand and gravel are the most important non-metallic mineral commodity, and are produced in nearly every county of the project area (USGS 1964, Durkin *et al.* 1998). Extensive deposits are also present in North Dakota, particularly along the beach ridges and deltas of the Lake Agassiz Plain, but the quality is highly variable (Bluemle 1991). Sand and gravel are used primarily for road construction projects (Durkin *et al.* 1998). Sioux quartzite is also mined extensively in southeastern South Dakota and used primarily for construction. Oil and gas are not mined in the project area, nor are precious metals such as gold (Durkin *et al.* 1998, Murphy no date).

Landownership

Most of the land in the 15.7 million acre Dakota Tallgrass Prairie WMA is privately owned. Approximately 2 percent, or 369,521 acres, is public land. Of the publicly owned land, about 60 percent is federally owned and the other 40 percent is owned by the States of North and South Dakota. Federally managed lands include U.S. Fish and Wildlife Service National Wildlife Refuges and Waterfowl Production Areas. The U.S. Forest Service manages the largest block of public land in the project area, the Sheyenne National Grasslands. The Sheyenne National Grasslands cover 70,000 acres of southeastern North Dakota. State managed lands include school lands granted to the States, State parks and wildlife management areas/game production areas managed by the North Dakota Game and Fish Department and the South Dakota Game, Fish, and Parks Department.

Property Tax

Property tax on private land is currently paid to the counties by the landowners. Since acquisition of easements does not result in a transfer of land title, private landowners would continue to pay property taxes. If any fee title acquisitions occur by the Service, the affected counties would receive mitigated payments from the Service in-lieu-of-taxes under the Refuge Revenue Sharing Act (see Purpose of and Need for Action).

Public Use and Wildlife Dependent Activities

Hunting, fishing and other non-consumptive wildlife related uses such as wildlife watching, feeding, and photography are popular among residents in the project area. A recent survey of South Dakota residents found that one-third hunt, one-third fish, and almost half are involved in non-consumptive wildlife-related activities (Gigliotti 1996). Hiking and camping are also popular activities in the project area.

The public hunts for a variety of game animals, and hunters can generate a significant amount of revenue for communities in the project area. Game includes deer, waterfowl, furbearers, and upland birds. North Dakota hunters and anglers spent \$578 million dollars on related expenditures in 1996, which was 8 percent of the State's economy (Meyer and Harmoning 1999). Pheasant hunting is particularly popular in South Dakota. Last year, half of all pheasant hunters hunted land in the project area, generating \$38.2 million dollars (SDGFP 1998).

Since most of the land in the project area is privately owned, most hunting is done on private land. In North Dakota, 87 percent of hunters use private land and in South Dakota, 92 percent of hunters use private land (McDannold 1993, Dietz *et al.* 1996). The State wildlife agencies in both North and South Dakota have developed programs in cooperation with landowners to increase public access to private land. Within the project area, approximately 85,000 acres exist of Walk-in Access in South Dakota and 360 acres of Private Land Open to Sportsmen (PLOTS) in North Dakota. In addition, 150,000 acres of State land exist, such as parks and game areas, and 220,000 acres of Federal land, such as wildlife refuges and national grasslands, for a total of 455,000 acres open to both consumptive and non-consumptive uses in the project area.

Cultural Resources

The U.S. Fish and Wildlife Service, as a Federal agency, has a trust responsibility to Tribes which includes the protection of the sovereignty of the Tribal government and preservation of Tribal culture and other trust resources. The easement program does not compromise Tribal jurisdiction or Tribal rights because it deals only with willing sellers of private land for an easement. The protection of trust resources is enhanced with the easement program by conservation of wildlife habitat and protection of resources from land conversion and development.

Archaeological and historical resources within any fee title lands would receive protection under Federal laws mandating the management and protection of cultural resources. These laws include, but are not limited to, the Archaeological Resources Protection Act, the Archaeological and Historic Preservation Act, the Native American Graves Protection and Repatriation Act, Native American Religion Freedom Act, and the National Historic Preservation Act.

Currently, the Service does not propose any project, activity, or program that would result in changes in the character of, or would potentially adversely affect any historic cultural resource or archaeological site. When such undertakings are considered, the Service would take all necessary steps to comply with section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. The Service would also pursue proactive compliance with section 110 of the NHPA to survey, inventory, and evaluate cultural resources.

Contaminants and Hazardous Wastes

Fieldwork for the pre-acquisition contaminant survey will be conducted prior to the purchase of any land interests. The preliminary survey will be conducted on these properties to determine if contaminants pose a threat to fish and wildlife or if they would be a liability to the Service. The Environmental Contaminants Specialist located at Bismarck, North Dakota, or Pierre, South Dakota, Ecological Services Offices, will be contacted to ensure policies and guidelines are followed before acquisition.

Environmental Consequences

Effects on the Biological Environment

This section assesses the environmental impacts expected to occur from the implementation of Alternatives A, B, and C, as described in Alternatives for the Dakota Tallgrass Prairie Wildlife Management Area (Table 2). Environmental impacts are analyzed by issues for each alternative and appear in the same order as discussed in Purpose of and Need For Action.

Native Tallgrass Prairie Habitat

Alternative A (No Action)– Under the No Action alternative, the Service would not establish the Dakota Tallgrass Prairie WMA and 185,000 acres of native tallgrass prairie would not be protected with grassland easements and fee title purchase over the next seven years. Over the last 15 years, the Natural Resources Conservation Service (NRCS) has tracked changes in land use through its Natural Resources Inventory (NRI). NRI estimates that since 1982, 278,000 acres of native prairie were lost through conversion to other uses in the proposed project area, which averages to 18,500 acres/year (NRCS 1999). If this trend continues, almost 130,000 acres of prairie could be lost over the next seven years. It is difficult to predict the rate of future prairie conversion, but historically the rate of conversion is tied closely to commodity prices, rising and falling with the agricultural economy (Gerard 1995, The Nature Conservancy 1998).

Future losses of native prairie would have a direct impact on the biodiversity in the project area. The majority of rare plant and animal species in the project area occur on privately owned native prairie (Chapman and Waterhouse 1997). Once native prairie has been plowed, the full biodiversity of that site, including rare species, is lost immediately and complete restoration in the future is impossible.

Furthermore, as prairie is converted, the landscape becomes fragmented creating a patchwork of small grass islands which increases the vulnerability of wildlife and plants to negative impacts. For example, studies have shown that for both waterfowl and other ground-nesting birds, nest predation increases as fragmentation of the landscape increases (Cowardin *et al.* 1985, Johnson and Temple 1990, Ball *et al.* 1995). In addition, smaller prairie fragments may not support certain grassland birds at all (Heckert 1994). Smaller pieces of grass do not buffer wildlife and plants as well from the impacts of pesticide use such as loss of nesting cover and reduced invertebrate food sources (Hartwig and Hall 1980, Grue *et al.* 1988, Zollinger *et al.* 1996).

Alternative B (Dakota Tallgrass Prairie WMA, Preferred Alternative)– If the trends in prairie conversion listed under Alternative A continue, the loss of native prairie over the next seven years in the project area could be almost 130,000 acres. Under Alternative B, the Service would preserve 185,000 acres of native tallgrass prairie primarily through grassland easements at a rate of about 27,000 acres per year over seven years, although it may take longer. The Dakota Tallgrass Prairie WMA would focus on protecting native tallgrass prairie in both North and South Dakota and would be a mechanism for developing further voluntary agreements with landowners for managing and improving the overall health and diversity of native tallgrass prairie.

The strategy of the Dakota Tallgrass Prairie WMA is to cluster the easements to preserve blocks of prairie from 10,000 to 20,000 acres in size. These blocks of prairie would be formed in conjunction with other Service programs, such as grassland easements purchased with Migratory Bird Conservation Act funds in South Dakota and North American Wetland Conservation Act grants in North Dakota. The preservation of blocks of native tallgrass prairie will not only protect the existing biodiversity perpetually, but will also reduce the future impacts of fragmentation.

Slowing fragmentation can affect prairie habitat and wildlife positively by reducing the effect of external impacts such as pesticides and predators (Hartwig and Hall 1980, Cowardin *et al.* 1985, Grue *et al.* 1988, Johnson and Temple 1990, Ball *et al.* 1995, Zollinger *et al.* 1996). For example, as the size of a block of native grasslands increases, both species diversity and survivorship increase for grassland birds (Johnson and Temple 1990, Heckert 1994). This is particularly important because grassland birds have shown consistent population declines over the last 30 years (Sauer *et al.* 1997). In addition, larger areas of native prairie can better buffer wildlife and plants against drift and runoff from pesticide application on neighboring croplands, which can harm wildlife directly or indirectly by removing nesting cover and reducing invertebrate food sources (Hartwig and Ball 1980, Zollinger *et al.* 1996). Larger blocks of prairie also reduce the chance that a population of plants or animals will become isolated resulting in a local extinction and reducing the overall survivorship of the species (Steinauer and Collins 1996).

Alternative C (Dakota Tallgrass Prairie WMA, broader scope)– Under this Alternative, 185,000 acres would still be protected primarily with grassland easements and they would be arranged in the same manner as discussed under Alternative B. Therefore, the biological effects of this Alternative would be similar to those expected under Alternative B. However, since 20 to 30 percent of the acres may be CRP instead of 5 to 10 percent under Alternative B, 30,000 to 40,000 fewer acres of native prairie would be preserved perpetually with Alternative C. This reduced preservation of native prairie may result in a greater loss of biodiversity, particularly plant diversity.

Social and Economic Considerations

Eligibility of Planted Grasslands

Alternative A (No action)- Under this No Action Alternative, the Service will have no impact on the continued existence of the 850,000 Conservation Reserve Program (CRP) acres in the proposed project area. It is generally accepted that the conversion of such a large number of acres of cropland to planted cover through the CRP program has been beneficial to wildlife, particularly birds. CRP increases wildlife habitat diversity in the landscape by creating areas of tall, dense vegetative cover (Johnson and Schwartz 1993). The CRP program is associated with improved nest success and population increases of waterfowl and nongame grassland birds (Kantrud 1993, Reynolds *et al.* 1994, Delisle and Savidge 1997, McCoy *et al.* 1999). Breeding grassland bird species that appear to have benefitted from CRP include mallards, gadwalls, blue-winged teal, sedge wrens, common yellowthroats, grasshopper sparrows, American goldfinches, bobolinks, and savannah sparrows (Johnson and Schwartz 1993, Johnson and Igl 1995, Delisle and Savidge 1997, McCoy *et al.* 1999). Of these, the sedge wren and grasshopper sparrow are USFWS species of concern (USFWS 1996b). In winter, American tree sparrows and pheasants also benefit from the residual cover (Best *et al.* 1998, McCoy *et al.* 1999).

Despite the current popularity of CRP and its benefits to wildlife, the long-term persistence of CRP in the Dakota Tallgrass Prairie WMA is not guaranteed. The CRP program costs about 2 billion dollars annually and the renewal of the program is subject to Congressional approval (Osborn 1993). Although sign-up for CRP contracts has remained steady over the last several years, it is always vulnerable to change. CRP contracts last 10 to 15 years, and surveys have shown that about 30 percent of landowners expect to return their CRP to cropland at the end of their contract, which is relatively easy to do under current regulations, and another 37 percent do not know (Mortensen *et al.* 1989, Osborn 1993). According to landowners, the most important factor in determining whether or not to re-enroll CRP acres is the economic conditions at the time the contract expires (Osborn 1993).

Therefore, if enrollment significantly decreased due to improved economic conditions or the CRP program was eliminated, up to 67 percent of landowners may return their CRP to cropland. Such a change may mean that positive population trends for waterfowl and nongame grassland birds would reverse and sedge wrens, grasshopper sparrows, dickcissels, lark buntings, and savannah sparrows might be particularly vulnerable (Johnson and Igl 1995). Other conservation programs that might be implemented in place of CRP, such as annual set-asides, are not considered as beneficial to wildlife as the CRP program (Osborn 1993, Johnson and Igl 1995).

Alternative B (Dakota Tallgrass Prairie WMA, Preferred Alternative)- Under the current proposal for the Dakota Tallgrass Prairie WMA, CRP acres would not be eligible for grassland easements. In some cases, small pieces of CRP may be included in a larger easement for native prairie if the CRP rounds out a tract or connects two grassland easements. In these cases, the CRP acres would be small relative to the acres of native prairie, probably 5 to 10 percent or 10,000 to 20,000 acres, in the project area. In addition, once the CRP contract expired, the land could then be grazed or hayed after July 15th, similar to the native prairie. CRP acres are not eligible to be re-enrolled in a new CRP contract if a grassland easement has been purchased for the land.

If the Service implements the Dakota Tallgrass Prairie WMA under this Alternative, the overall landscape level impact on CRP acres would be similar to the effects of not implementing the project (Alternative A). If the CRP program were to end or decline significantly, the small number of CRP acres with grassland easements, approximately 10,000 to 20,000 acres, would not maintain the wildlife benefits the current CRP program provides, even though those CRP acres could not be converted to cropland.

Alternative C (Dakota Tallgrass Prairie WMA, Broader Scope)- Under this Alternative, 20 to 30 percent of the grassland easements in the Dakota Tallgrass Prairie WMA (40,000 to 60,000 acres) could be purchased for CRP acres or planted cover. Those CRP acres with grassland easements would be maintained in the landscape even if the CRP program ceased to exist or the agricultural economy changed.

The overall goal of the Dakota Tallgrass Prairie WMA is to help preserve the biodiversity of native tallgrass prairie (see Purpose of and Need for Action). CRP acres planted in native prairie grasses do not have the plant diversity of native prairie. However, CRP contributes to the biodiversity of tallgrass prairie by creating areas of tall, undisturbed vegetation that are not hayed or grazed annually which benefit nesting birds (King and Savidge 1995). If CRP acres with easements were to contribute to the goal of the Dakota Tallgrass Prairie WMA, which is to maintain diversity of the tallgrass prairie, the CRP acres would need to remain in the same condition with no annual grazing or haying.

Restricting grazing or haying on grassland easements would be different than the originally proposed easement program. Typically, grassland easements do not restrict grazing, and haying can be done after July 15th of each year. The easement only purchases the right to convert the land to cropland and generally costs about 25 to 35 percent of the full fee-title value of the land. In order to restrict grazing and haying on CRP land under easement, the Service would have to purchase the grazing and haying rights from the landowner. Easements with these restrictions are purchased by the Service in Minnesota and Iowa, and it is estimated that such easements cost approximately 80 to 90 percent of the full fee-title value of the land, although it can vary. In addition, since the value of the land is based on its "highest and best use," CRP acres that have been used as cropland would have a higher value than native prairie that had only been used as grazing land (S. Wacker, W. Enquist *pers comm*). Together, these factors would make easements on CRP 2 to 3 times more expensive per acre than easements on native prairie.

CRP acres with easements would require additional enforcement considerations since CRP would have a different type of easement, with different restrictions, than native prairie easements. Furthermore, additional management, such as burning, haying or grazing CRP easements every 3 to 5 years, would be needed to remain in the same condition for wildlife habitat (Millenbah 1996).

Minimum Eligible Tract Size

Alternative A (No Action)- If the Dakota Tallgrass Prairie WMA is not created, then no easements, or fee-title lands, of any size would be purchased.

Alternative B (Dakota Tallgrass Prairie WMA, Preferred Alternative)- If the Service enacts the Dakota Tallgrass Prairie WMA as originally proposed, grassland tracts of at least 160 acres would be given first priority, but tracts of at least 40 acres in size would be eligible for grassland easements. Tracts less than 40 acres generally would not be eligible except under special circumstances such as a location adjacent to other grasslands easements or the presence of rare species.

For the prairie species that have been studied, 25 percent can sustain a population on 40 acres of habitat (USFWS 1998). Eleven of 12 key grassland bird species also can sustain a population on at least 40 acres (USFWS 1998). In general, larger tracts of prairie support more biodiversity and localized extinction of populations is less likely (Hopkins 1955, Conner and McCoy 1979, Diamond 1988).

Processing an easement from beginning to end costs the Service an estimated \$2,300 if it is in a new area, and around \$700 if easements are nearby (S. Wacker, *pers comm*). Therefore, the maximum cost to process an easement of 40 acres would be \$18 to \$58/acre. This cost is largely independent of the size of the tract, and therefore, the Service gets more acres per dollar for larger tracts than for smaller ones. Furthermore, it is often easier to find sales of land at least 40 acres in size on which to base appraisals, making the overall process more efficient. Larger tracts, however, require more time to search courthouse records and more complex analysis of land details, such as soil composition.

Based on other Service grassland protection programs, it is estimated that preserving 185,000 acres of grassland in the Dakota Tallgrass Prairie WMA would involve approximately 700 to 800 landowners (R. Severson, *pers comm*). A survey of landowners in the Prairie Pothole Region found that approximately one-fourth own less than 40 acres of grassland (Responsive Management 1998). Therefore, some landowners will be prevented from participating in the program if parcels must be larger than 40 acres. Landowners with tracts of less than 40 acres adjacent to additional tracts of native prairie may still be eligible if they coordinate with neighbors to sign-up a block of prairie greater than 40 acres.

Limiting eligible grassland tracts to a 40-acre minimum will exclude some of the native prairie that currently exists. Landcover data taken with satellite imagery indicate that about 25 to 30 percent of native prairie occurs in pieces smaller than 40 acres (HAPET 2000). Therefore, of the 2.1 million acres of tallgrass prairie in the project area (HAPET 2000), the exclusion of one-third would leave 1.4 million acres. If the prairie that is already protected with easements and public land also is excluded, there would be 1 to 1.2 million acres of tallgrass prairie eligible for the program.

Alternative C (Dakota Tallgrass Prairie WMA, Broader Scope)- Tracts less than 40 acres in size, as stated under Alternative B, support less biodiversity than larger tracts. Surveys in the project area have found that tracts of grass less than 40 acres tend to be irregularly shaped which increases 'edge effect' (Shenk and Lenz 1998). Edge effect is the ability of negative external forces such as erosion, pesticide drift, and predators, to reduce the diversity of the tract (Caughley and Gunn 1996). Smaller tracts are also more likely to be isolated, putting populations of species on that tract at higher risk for extinctions (Conner and McCoy 1979). In addition, less than 25 percent of prairie species, for which data is available, can sustain a population on less than 40 acres (USFWS 1998).

Purchasing easements for tracts smaller than 40 acres would reduce efficiency and increase costs for the Service because these smaller parcels require more appraisal time to search records (S. Wacker *pers comm*). Since the total cost to process an easement is \$2,300, the maximum cost to Service Realty staff to process easements as small as 1 to 10 acres would be \$230 to \$2,300/acre. In addition, processing many, smaller tracts would be more expensive (\$2,300 each) than fewer, larger tracts. Furthermore, tracts less than 40 acres in size are often an irregular shape that cannot be described by traditional legal descriptions, and therefore, would require additional money and time to be surveyed (R. Severson, *pers comm*). Easements on surveyed tracts are historically more difficult to enforce and manage as the boundary is often difficult to define.

All landowners who own native prairie in the project area would be eligible to participate in the program. If more easements were purchased for less than 40 acres, the number of landowners that could participate would be greater than the 700 to 800 estimated under Alternative B. If land with easements and public land is excluded, an estimated 1.7 to 1.9 million acres of the 2.1 million acres of native tallgrass prairie in the project area would be potentially eligible for grassland easements under this Alternative.

Perpetual Nature of Easements

Alternative A (No Action)– If the Service does not create the Dakota Tallgrass Prairie WMA, then the additional 185,000 acres of prairie would not be perpetually restricted from conversion to cropland. Landowners, from whom easements might have been purchased, would retain the right to develop the land without any restrictions. However, even without easements, landowners may still make irreversible decisions. For example, if a landowner converts native prairie to cropland, the native prairie can never be fully restored.

Depending on the land and the crop, individuals may generate more personal income from native prairie converted to cropland. However, the economic multiplier for crop production is 3.7, whereas for livestock production it is 4.5 (Coon *et al.* 1989). The economic multiplier estimates how many times money from a particular source is multiplied in the community. Therefore, native prairie pastureland that is converted to cropland would have to generate enough money to offset the difference in economic multipliers or the total revenue generated for the community would decrease. Landowners would receive no income from the Service for easements or fee-title purchase with this Alternative.

Alternative B (Dakota Tallgrass Prairie WMA, Preferred Alternative)– If the Service creates the Dakota Tallgrass Prairie WMA, then Land and Water Conservation Funds would be used to preserve 185,000 additional acres of native tallgrass prairie, including areas that are not high priority waterfowl habitat, but are nonetheless high quality native prairie. The perpetual nature of the easements would ensure that 185,000 acres of native tallgrass prairie persisted regardless of future changes in agricultural economics or policies, the major factor influencing conversion of native prairie to cropland (Gerard 1995). Data indicate that less than perpetual easements typically do not provide long-term protection for wildlife habitat. Short-term (20 year) wetland easements in the Dakotas in the 1960s and 1970s prevented wetland loss during the term of the contract, but immediately after the contract expired, annual drainage rates increased 10 times and drainage occurred on almost one-third of the tracts formerly under easement (Higgins and Woodward 1986).

If the Service purchases grassland easements for the full 185,000 acres, the land use on those acres will not change, consequently, the revenue generated from that land will not change. If the Service does purchase some of the 185,000 acres in fee-title, the land may still be hayed or grazed under lease agreements with private parties, but likely to a lesser extent than under private ownership. This small change in land use may lower the overall gross business volume slightly. Fewer acres purchased in fee-title by the Service within the project area will result in a smaller effect on the total gross business volume.

Any decrease in the gross business volume as a result of Service ownership could be offset by an increase in recreation and tourism expenditures, for example through hunting. The economic multiplier for recreation and tourism dollars is 3.3 (Coon *et al.* 1989). An increase in recreation and tourism is not unrealistic as public access for hunting would likely increase on lands that came under Service ownership.

In addition, there will be an estimated total income to landowners of 25 to 35 percent of the fee-title value of their land from the Service for the purchase of grassland easements. Household incomes have an economic multiplier of 3.1, which means the income generated through easement payments will have three times the impact on the overall gross business volume within the project area (Coon *et al.* 1989). Local communities could expect to receive this economic boost over the length of time needed to complete the project, currently estimated at a minimum of seven years.

A detailed economic analysis was conducted for a 77,000-acre perpetual tallgrass prairie easement program administered by the Service in Minnesota and Iowa. The study found that during the course of the project, the expenditures by the Service increased the gross business volume for the community. At the completion of the project, a slight decrease occurred in total business volume because of changes in land use and reduced development for crop production (Leitch *et al.* 1997, USFWS 1998). The conclusion of the analysis was that the project would have a minor effect on the community economy and would not be significantly different than conditions without the project. The Dakota Tallgrass Prairie WMA proposes to preserve more acres, but plans fewer changes in land use than the program in Minnesota and Iowa.

If the Service implements the Dakota Tallgrass Prairie WMA, landowners in the project area will have three choices relative to grassland easements (Tegene *et al.* 1999). A landowner could choose not to sell an easement, but continue to keep the land in grass, sell an easement or convert the native prairie to cropland. Both the decision to sell an easement and to convert to cropland are irreversible decisions. Once an easement has been sold, the land cannot be converted, and once land has been converted to cropland, restoration of the original prairie is impossible. If the Service implements the Dakota Tallgrass Prairie WMA under this Alternative, landowners will still have the opportunity to choose among these three options since the program is voluntary.

Alternative C (Dakota Tallgrass Prairie WMA, Broader Scope)– Under this Alternative, perpetual easements would still be purchased for up to 185,000 total acres; therefore, the expected impacts would be similar to those listed under Alternative B. However, the larger number of CRP acres that could have perpetual easements under this Alternative would mean that more acres of former cropland would be permanently taken out of production. This may result in a larger long-term reduction in gross business volume because of the loss of potential crop production.

Hunting Rights/Public Access to Easements

Alternative A (No Action)- If the Service does not create the Dakota Tallgrass Prairie WMA, access to public and private lands for hunting will not change. Currently, the States of North and South Dakota and the Service own approximately 370,000 acres within the project area, which provide various levels of access and hunting opportunities, and the State agencies have contracted with landowners for hunting access on another 85,360 acres. In South Dakota, 77 percent of hunters were satisfied with their hunting experience (Gigliotti 1996). Among those that were dissatisfied, poor access to land was cited as the main reason; however, other surveys have found that only 13 percent of South Dakota hunters considered limited access to land a reason to hunt less and 5 percent of North Dakota hunters considered access a problem (McDannold 1993, Gigliotti 1996).

Alternative B (Dakota Tallgrass Prairie WMA, Preferred

Alternative)- Under the originally proposed Dakota Tallgrass Prairie WMA, the Service estimated that 10 percent, or 18,500 acres of the total 185,000-acre goal, of the project may be purchased in fee-title primarily in South Dakota. Public hunting and access may be permitted by the Service on these lands. Public access to land for which easements are purchased would remain under the control of the private landowner.

Alternative C (Dakota Tallgrass Prairie WMA, Broader Scope)- The right to trespass and hunt on land is part of the rights of ownership of the land. If grassland easements in the Dakota Tallgrass Prairie WMA project area provided public access for hunting, the Service would need to purchase that right from the landowner as the Service currently proposes to purchase the right to break the sod and restrict haying until after July 15th. The Service is bound by law to provide compensation to the landowner for any real interest acquired in their property (Public Law 91-646). Examples from habitat leasing programs such as PLOTS and Walk-in areas conducted by the North and South Dakota state wildlife agencies indicate that these rights cost an average of \$2 to \$15/acre to lease on a short-term basis, the higher price reflects habitat improvements usually in conjunction with access (SDGFP 1999, Link, *pers. comm.*). The cost to the Service would be higher since the term of the agreements would be perpetual. However, at rates similar to the State programs, public access added to 160,000 acres of easements would add a minimum of \$320,000 to \$2,400,000 to the total cost of the project.

The overall effect of the addition to hunting rights to easements in the Dakota Tallgrass Prairie WMA would be to make an additional 185,000 acres available for public access, approximately 160,000 in easements and 18,500 in fee-title. However, surveys of landowners have found that many are concerned with safety and liability issues with hunters on their property, and therefore, interest in grassland easements might be reduced if hunting access was also part of the agreement (McDannold 1993).

Table 2. Projected Impacts Associated with Implementing Alternatives A, B, and C

Impacts	Alternative A No Action	Alternative B Preferred Alternative	Alternative C Broader Scope
Native Prairie Habitat Protection	P 130,000 acres lost over seven years P 0 acres protected	P 1 to 1.2 million acres native prairie eligible P 130,000 acres lost over seven years P 185,000 acres of prairie in North and South Dakota (90 to 95% of acres will be native tallgrass prairie)	P 1.7 to 1.9 million acres native prairie eligible P 130,000 acres lost over seven years P 185,000 acres of prairie in North and South Dakota (70 to 80% of acres will be native tallgrass prairie)
CRP	P 0 acres perpetually protected	P 10,000 to 20,000 acres of CRP perpetually protected P no additional grazing or haying restrictions P easements on CRP acres cost 25 to 35% of fee-title value of land	P 40,000 to 60,000 acres of CRP perpetually protected P annual grazing and haying prohibited P easements on CRP acres cost 80 to 90% of fee-title value of land
Minimum Tract Size	P N/A	P \$18 to \$58/acre maximum to process easements P 40-acre minimum tract size supports at least 25% of prairie species	P \$230 to \$2,300/acre maximum to process easements P tracts less than 40 acres support less than 25% of prairie species
Landowners	P 0 able to participate P irreversible decisions mad about land use	P 700 to 800 landowners P irreversible decisions made about land use	P 800+ able to participate P irreversible decisions made about land use
Public Access Added in the Project Area	P 0 acres	P up to approximately 18,500 acres of public access added with fee-title land purchase	P up to 185,000 acres of public access added P additional cost of \$330,000 to \$2,400,000+ to provide public access to easement land

Unavoidable Adverse Impacts

Under Alternative A, adverse impacts such as direct loss of native tallgrass prairie habitat and degradation of the remaining prairie habitat for native plants and animals likely would occur. With Alternatives B and C, no adverse impacts would occur to the biological environment. In the future, some individuals who may want to convert native prairie to cropland will be unable to if the land has a perpetual easement. This may adversely affect their personal economic condition.

Irreversible and Irrecoverable Commitment of Resources

The selection of the No Action Alternative would not result in any irreversible or irretrievable commitment of resources. The purchase of easements and fee-title lands under Alternative B and C would require an irreversible and irretrievable commitment of money and staff time to process the agreements. Additional resources would be needed, such as expenditures for fuel and staff, to monitor easements once they are acquired.

Short-term Uses Versus Long-term Productivity

Under Alternatives B and C, the local short-term uses of the environment following acquisition include managing wildlife habitats and maintaining compatible agricultural practices. The Dakota Tallgrass Prairie WMA would help maintain the long-term biological productivity of the remaining tallgrass prairie ecosystem. This would be accomplished in part by maintaining the biological diversity and protecting rare, threatened and endangered species. The public would also gain long-term opportunities for wildlife-dependent recreational activities.

Cumulative Impacts

Alternative A: Without the Dakota Tallgrass Prairie WMA, current Service programs would continue such as the grassland easement program funded with Migratory Birds Conservation Act funds in South Dakota. This program perpetually preserves an average of 15,000 to 20,000 acres of grassland per year in the project area. Therefore, over the next seven years, this program could preserve 105,000 to 140,000 acres of grassland. Approximately 10 percent of these acres, or 10,500 to 17,500 may be CRP land. The acres of grassland preserved under current Service programs, however, would be almost exclusively in South Dakota and would not specifically focus on tallgrass prairie. Other efforts and programs to enhance native tallgrass prairie habitat in the project area include agreements with private landowners to burn, graze or hay prairie and restoration of native prairie; however, these programs can be 2 to 4 times more expensive than grassland easements, and cannot fully recreate native prairie.

These programs purchase grassland easements and fee-title lands from about 50 to 100 landowners per year in the Dakota Tallgrass Prairie WMA project area, for a projected total of 350 to 700 landowners over the next seven years. Under this Alternative, no acres of public access would be added to the 455,000 currently available in the project area.

Alternative B: With the proposed Dakota Tallgrass Prairie WMA, 185,000 acres of native tallgrass prairie would be preserved in addition to the 105,000 to 140,000 acres of grassland easements projected to be purchased with Migratory Bird Conservation Act funds in South Dakota. Over the next seven years, a total of 190,000 to 325,000 acres could be preserved within the project area. The Dakota Tallgrass Prairie WMA would provide an additional \$14 million to purchase easements and fee-title lands from up to 700 to 800 landowners. Over the next seven years, the Dakota Tallgrass Prairie WMA, in addition to current Service grassland easement programs, would enable a total of 1,050 to 1,500 landowners to participate. Under this alternative, approximately 18,500 acres of public access may be added to the 455,000 acres currently provided in the project area for a total of 473,500 acres.

Alternative C: Under this alternative, 185,000 acres of native tallgrass prairie would be preserved in addition to the 105,000 to 140,000 acres of grassland easements projected to be purchased with Migratory Bird Conservation Act funds in South Dakota. Over the next seven years, a total of 190,000 to 325,000 acres could be preserved within the project area. The eligibility of smaller tracts under this Alternative, in addition to current Service grassland easement programs, would enable over 1,500 landowners to participate. Under this Alternative, up to 185,000 acres of land open to public access could be added to the 455,000 acres currently provided in the project area, for a total of 640,000 acres.

Table 3. Cumulative Impacts Over the Next Seven Years, the estimated length of time of the Dakota Tallgrass Prairie WMA Program, under Alternatives A, B, and C

Cumulative Impacts	Alternative A	Alternative B	Alternative C
Acres Protected with Easements and/or Fee-title	P 105,000 to 170,000 acres of native grassland, primarily in South Dakota through MBCC Funding	P 190,000 to 360,000 acres of native grassland in North and South Dakota, with 185,000 targeted for tallgrass prairie	P 190,000 to 360,000 acres of native grassland in North and South Dakota
CRP Acres Protected Perpetually	P 10,500 to 17,000	P 19,000 to 36,000	P 50,500 to 77,000
Total Landowner Participation	P 350 to 700	P 1,050 to 1,500	P 1,500+
Total Acres with Public Access for Various Uses	P 455,000	P 473,500	P 640,000

Coordination and Environmental Review

Agency Coordination

The proposal for the establishment of the Dakota Tallgrass Prairie Wildlife Management Area, through the authorization of an executive boundary to protect 185,000 acres, has been discussed with landowners, conservation organizations, Federal, State, and county governments, and other interested groups and individuals.

This Environmental Assessment addresses the protection of native grasslands, primarily through acquisition of grassland easements, by the Service under the direction of the National Wildlife Refuge System.

Funding for acquisition of grassland easements will be provided by the Land and Water Conservation Fund. Management activities associated with easements may be funded through other sources, such as the North American Wetlands Conservation Act grants, Ducks Unlimited, Pheasants Forever, and Partners for Fish and Wildlife.

National Environmental Policy Act

As a Federal agency, the U.S. Fish and Wildlife Service must comply with provisions of the National Environmental Policy Act (NEPA). An Environmental Assessment is required under NEPA to evaluate reasonable alternatives that will meet stated objectives and to assess the possible impacts to the human environment. The Environmental Assessment serves as the basis for determining whether implementation of the proposed action would constitute a major Federal action significantly affecting the quality of the human environment. The Environmental Assessment also facilitates the involvement of government agencies and the public in the decision making process.

Other Federal Laws, Regulations, and Executive Orders

In undertaking the proposed action, the Service would comply with a number of Federal laws, Executive Orders and legislative acts, including:

- P Floodplain Management (Executive Order 11988)
- P Intergovernmental Review of Federal Programs (Executive Order 12372)
- P Protection of Historical, Archaeological, and Scientific Properties (Executive Order 11593)
- P Protection of Wetlands (Executive Order 11990)
- P Management and General Public Use of the National Wildlife Refuge System (Executive Order 12996)
- P Endangered Species Act of 1973, as amended
- P Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, as amended
- P Refuge Recreation Act, as amended
- P Refuge System Administration Act, as amended
- P National Historic Preservation Act of 1966, as amended

Distribution and Availability

Copies of the Environmental Assessment were sent to Federal and State legislative delegations, Tribal Councils, agencies, landowners, private groups and other interested individuals (see Appendix B). Additional copies of these documents are available at:

- P U.S. Fish and Wildlife Service, Wetland Acquisition Office, 3425 Miriam Ave Bismarck, North Dakota 58501 (phone 701-250-4415; fax 701-250-4412)
- P Tewaukon National Wildlife Refuge, 9754 143½ Avenue SE, Cayuga, North Dakota 58013 (phone 701-724-3598; fax 701-724-3683)
- P U.S. Fish and Wildlife Service Regional Office, Land Acquisition and Refuge Planning, P.O. Box 25486-DFC, Denver, Colorado 80225 (phone 303-236-8145 ext. 658; fax 303-236-4792)

Copies will also be available at Service offices within the project boundary.

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Appendix A. Endangered and Threatened Species

Species documented from counties within the Dakota Tallgrass Prairie Wildlife Management Area

Plants:

western prairie fringed orchid *Platanthera praeclara* (T)

Invertebrates:

American burying beetle *Nicrophorus americanus* (E)
scaleshell mussel *Leptodea leptodon* (P)

Fish:

topeka shiner *Notropis topeka* (E)
pallid sturgeon *Scaphirhynchus albus* (E)
sicklefin chub *Macrhybopsis meeki* (C)

Mammals:

lynx *Lynx canadensis* (C)

Birds:

bald eagle *Haliaeetus leucocephalus* (T)
Eskimo curlew *Numenius borealis* (E)
interior least tern *Sterna antillarum athalassos* (E)
piping plover *Charadrius melodus* (T)
whooping crane *Grus americana* (E)
mountain plover *Charadrius montanus* (P)

Key:

(E)	Endangered	Listed (in the Federal Register) as being in danger of extinction
(T)	Threatened	Listed as likely to become endangered within the foreseeable future
(P)	Proposed	Officially proposed (in the Federal Register) for listing as endangered or threatened
(C)	Candidate	Candidate to become a proposed species

Appendix B.

Distribution List for the Environmental Assessment

North Dakota

U.S. Congress

- P Senator Byron Dorgan
- P Senator Kent Conrad
- P Representative Earl Pomeroy

Federal Government

- P US Department of Agriculture
- P Farm Services Agency
- P Natural Resources Conservation Service
- P US Forest Service
- P US Bureau of Reclamation
- P US Bureau of Land Management
- P US Fish and Wildlife Service
 - Bismarck ES
 - Devils Lake WMD
 - Valley City WMD
- P USGS-Northern Prairie Wildlife Research Center

State Offices

- P Office of the Governor, Edward Shafer
- P North Department of Game and Fish
- P Department of Agriculture
- P State Historical Society
- P North Dakota State Library
- P North Dakota Parks and Recreation Department
- P North Dakota State Water Commission
- P North Dakota State Soil Conservation Committee

State Congressional Delegates

- P District 27 Sen Joel Heitkamp
 - Rep Howard Grambo
 - Rep Robert Huether
- P District 25 Sen Russell Thane
 - Rep Bruce Eckre
 - Rep Myron Koppang
- P District 26 Sen Jerome Kelsh
 - Rep Micheal Brandenburg
 - Rep Pam Gulleason

County Offices

Ransom, Richland, and Sargent County Commissioners

Groups

- 4 Corners Wildlife Club
- Alice Wildlife Inc.
- Bluestem Co.
- Cogswell Gun Club
- Dakota Wildlife Trust
- Delta Waterfowl Foundation
- Dickey County Wildlife Federation
- Ducks Unlimited
- Fargo Area Sportsmen
- Ft. Ransom Sportsmen
- Kindred Wildlife Club
- L.A.N.D.
- Lake Region Wildlife Club
- Ludden Sportsmens' Club
- National Audubon Society
- North Dakota Birding Association
- North Dakota Chapter of the Wildlife Soc.
- North Dakota Soil and Water Conservation Society
- North Dakota Stockmen's Association
- Pheasants Forever, Fargo, Ransom Co., Sargent Co.
- Red River Valley Potato Growers Assoc.
- Red River Area Sportsmen
- Richland Wildlife Club
- Rutland Sportsmens' Club
- Sheyenne Valley Grazing Association
- Sierra Club, Fargo
- Tewaukon Rod and Gun Club
- The Farm Bureau of North Dakota
- The Nature Conservancy, Fargo and MN
- Wild Rice SCD

Individuals (23)

South Dakota

U.S. Congress

- P Senator Tom Daschle
- P Senator Tim Johnson
- P Representative John Thune

Federal Government

- P US Department of Agriculture
- P Farm Services Agency
 - Clark, Grant, Marshall
- P Natural Resources Conservation Service
 - Brookings, Day Co., Huron, Aberdeen, Redfield
- P US Fish and Wildlife Service
 - Big Stone NWR, MN
 - Brookings WHO, SD
 - Morris WMD, MN
 - Pierre ES, SD

Tribes

- P Sisseton-Wahpeton-Sioux Tribe

State Offices

- P Office of the Governor, William Janklow
- P South Dakota Natural Heritage Program
- P South Dakota Game, Fish, and Parks Department
- P DENR- Div of Water Rights
- P Department of Agriculture, Aberdeen, Huron, Sioux Falls, Watertown
- P South Dakota State University Coop Research Unit

City Offices

- P Mayor of Watertown
- P City of Waubay
- P Mayor of Webster

State Congressional Delegates

- P District 1 Sen Paul Symens
 - Rep. Gary Hanson
 - Rep. Mike Jaspers
- P District 2 Sen Paul Dennert
 - Rep. Steve Cutler
 - Rep Duane Sutton
- P District 3 Sen Jim Lawler
 - Rep Elmer Diedtrich
 - Rep Al Waltman
- P District 4 Sen Harold Halverson
 - Rep Larry Diedtrich
 - Rep Robert Weber
- P District 5 Sen Don Brosz
 - Rep Claire Konold
 - Rep Burdette Solum
- P District 6 Sen Randy Frederick
 - Rep Art Fryslie
 - Rep Doug Kazmerzak
- P District 7 Sen Arnold Brown
 - Rep Robert Roe
 - Rep Orville Smidt
- P District 8 Sen Gerald Lange
 - Rep Dale Slaughter
 - Rep Dan Sutton
- P District 9 Sen Dennis Daugaard
 - Rep Kevin Crisp
 - Rep Clarence Kooistra
- P District 10 Sen David Munson
 - Rep Roger Hunt
 - Rep Roger Brooks
- P District 16 Sen Kenneth Albers
 - Rep Michael Broderick
 - Rep Roland Chicoine
- P District 17 Sen John Reedy
 - Rep Judy Clark
 - Rep Junior Engbrecht
- P District 18 Sen Garry Moore
 - Rep Matthew Michaels
 - Rep Donald Munson
- P District 19 Sen Frank Kloucek
 - Rep Jim Putnam
 - Rep Richard Wudel
- P District 20 Sen Mel Olson
 - Rep Deb Fischer-Clemens
 - Rep Lou Sebert
- P District 21 Sen Charles Flowers
 - Rep Pat Haley
 - Rep Ron Volesky
- P District 22 Sen Robert Duxbury
 - Rep Quinten Berg
 - Rep Joanne Lockner

County Offices

- P Conservation District: Brookings, Clark, Codington, Day, Deuel, Grant, Hamlin, Kingsbury, Lake, Marshall, McCook, Miner, Minnehaha, Moody, Roberts
- P County Commissioners (ALL)
- P Extension Agent: Clark

Groups

29-90 Club

Brookings County Pheasant Restoration

Clark County Pro Pheasants

Dakota Bass Club

Dell Rapids Sportsman's Club

Ducks Unlimited, Splitrock, Sioux Falls, Sioux Falls-
Ladies

Friends of Prairie

Garretson Sportsman's Club

Lakota Audubon Society

Minnehaha Archers

Minnehaha Sportsman's Club

Minnehaha Bowhunters

National Wild Turkey Association

National Wild Turkey Federation

Outdoorswomen of South Dakota-NE

Outdoorswomen of South Dakota

Pheasants Forever, Minnehaha County

Prairie Restorations, Inc.

Pro Pheasants, Madison

River Improvement Society

Rocky Mountain Elk Foundation

SD Bass Federation

SE Area Field Governor

SF Izaak Walton League

Sierra Club, Sioux Falls

Sioux Falls Birding Club

Soo Bassmaster, Inc.

South Dakota Shooting Association

South Dakota Farm Bureau

South Dakota Wildlife Federation

South Dakota Ornithologists Union

The Nature Conservancy, Clear Lake, Leola

United Sportsmen for South Dakotans

USBR Watershed Project

Wall Lake Association

Whitetail Bowman Archery Club

Wildlife Management Institute

Individuals (29)

Appendix C.

Common and Scientific Names Used in the Text

Plants

alpine rush	<i>Juncus alpinus</i>
quaking aspen	<i>Populus tremuloides</i>
Baltic rush	<i>Juncus balticus</i>
American basswood	<i>Tilia americana</i>
big bluestem	<i>Andropogon gerardii</i>
blackeyed Susan	<i>Rudbeckia hirta</i>
prairie blazing star	<i>Liatris pynchostachya</i>
bur oak	<i>Quercus macrocarpa</i>
bush clover	<i>Lespedeza spp.</i>
chokecherry	<i>Prunus virginiana</i>
compass plant	<i>Silphium laciniatum</i>
dotted smartweed	<i>Polygonum punctatum</i>
Drummond's milkvetch	<i>Astragalus drummondii</i>
dwarf spikerush	<i>Eleocharis parvula</i>
elm	<i>Ulmus spp.</i>
Great Plains ladies'-tresses	<i>Spiranthes magnicamporum</i>
green milkweed	<i>Asclepias viridiflora</i>
green needlegrass	<i>Nasella viridula</i>
green ash	<i>Fraxinus pennsylvanica</i>
green sage	<i>Artemisia campestris</i>
handsome sedge	<i>Carex formosa</i>
hooked crowfoot	<i>Ranunculus recurvatus</i>
Indiangrass	<i>Sorghastrum nutans</i>
prairie Junegrass	<i>Koeleria pyramidata</i>
juneberry	<i>Amelanchier alnifolia</i>
Kalm's lobelia	<i>Lobelia kalmii</i>
leadplant	<i>Amorpha canescens</i>
little bluestem	<i>Schizachyrium scoparium</i>
eastern marsh fern	<i>Thelypteris palustris</i>
meadowsweet	<i>Spiraea alba</i>
Missouri gooseberry	<i>Ribes missouriense</i>
moonwort	<i>Botrychium minganense</i>
northern reedgrass	<i>Calamagrostis stricta</i>
peduncled sedge	<i>Carex pedunculata</i>
pinweed	<i>Lechea spp.</i>
porcupine grass	<i>Stipa spartea</i>
prairie sandreed	<i>Calamovilfa longifolia</i>
prairie loosestrife	<i>Lythrum alatum</i>
prairie coneflower	<i>Ratibida columnifera</i>
purple sandgrass	<i>Triplasis purpurea</i>
Richardson's sedge	<i>Carex richardsonii</i>
sage leaf willow	<i>Salix candida</i>
sand dropseed	<i>Sporobolus cryptandrus</i>
sand bluestem	<i>Andropogon hallii</i>
sideoats grama	<i>Bouteloua curtipendula</i>
small yellow lady's slipper	<i>Cypripedium parviflorum</i>
small fringed gentian	<i>Gentianopsis procera</i>
snow trillium	<i>Trillium nivale</i>
longbract spiderwort	<i>Tradescantia bracteata</i>
stiff sunflower	<i>Helianthus rigidus</i>
smooth sumac	<i>Rhus glabra</i>
switchgrass	<i>Panicum virgatum</i>
Turk's cap lily	<i>Lilium canadense</i>
w. prairie fringed orchid	<i>Platanthera praeclara</i>
western wheatgrass	<i>Pascopyrum smithii</i>
white prairie clover	<i>Dalea candida</i>
white camas	<i>Zigadensus elegans</i>
white lady's slipper	<i>Cypripedium candidum</i>
wild lily	<i>Lilium philadelphicum</i>
wild cranesbill	<i>Geranium maculatum</i>
wood anemone	<i>Anemone quinquefolia</i>
woodreed	<i>Cinna arundinacea</i>

Invertebrates

American burying beetle	<i>Nicrophorus americanus</i>
Dakota skipper	<i>Hesperia dacotae</i>
powesheik skipperling	<i>Oarisma powesheik</i>
regal fritillary	<i>Speyeria idalia</i>

Fish

brook stickleback	<i>Culaea inconstans</i>
creek chub	<i>Semotilus atromaculatus</i>
fathead minnow	<i>Pimephales promelas</i>
Johnny darter	<i>Etheostoma nigrum</i>

Amphibians and Reptiles

Blanchard's cricket frog	<i>Acris crepitans blanchardi</i>
Cope's gray treefrog	<i>Hyla chrysoscelis</i>
eastern gray treefrog	<i>Hyla versicolor</i>
eastern hognose snake	<i>Heterodon platyrhinus</i>
false map turtle	<i>Graptemys pseudogeographica</i>
lined snake	<i>Tropidoclonion lineatum</i>
mudpuppy	<i>Necturus maculosus</i>
northern redbelly snake	<i>Storeria o. occipitamaculata</i>
plains leopard frog	<i>Rana blairi</i>
plains garter snake	<i>Thamnophis radix</i>
prairie skink	<i>Eumeces septentrionalis</i>
snapping turtle	<i>Chelydra serpentina</i>
spiny softshell	<i>Trionyx spiniferus</i>
tiger salamander	<i>Ambystoma tigrinum</i>
western hog-nosed snake	<i>Heterodon nasicus</i>
wood frog	<i>Rana sylvatica</i>
Woodhouse's toad	<i>Bufo woodhousei</i>

Mammals

coyote	<i>Canis latrans</i>
Franklin's ground squirrel	<i>Spermophilus franklinii</i>
gray fox	<i>Urocyon cinereoargenteus</i>
jumping mice	<i>Zapus spp.</i>
least weasel	<i>Mustela nivalis</i>
little brown myotis	<i>Myotis lucifugus</i>
long-tailed weasel	<i>Mustela frenata</i>
meadow voles	<i>Microtus pennsylvanicus</i>
mink	<i>Mustela vison</i>
mule deer	<i>Odocoileus hemionus</i>
muskrat	<i>Ondatra zibethicus</i>
n. grasshopper mouse	<i>Onychomys leucogaster</i>
prairie vole	<i>Microtus orchrogaster</i>
red fox	<i>Vulpes vulpes</i>
Richardson's ground squirrel	<i>Spermophilus richardsonii</i>
striped skunk	<i>Mephitis mephitis</i>
thirteen-lined ground squirrel	<i>Spermophilus tridecemlineatus</i>
white-tailed deer	<i>Odocoileus virginianus</i>

Birds

American coot
American avocet
American wigeon
American goldfinch
American bittern
American redstart
Baird's sparrow
bald eagle
barn owl
black tern
black-crowned night heron
blackpoll warbler
blue-winged teal
bobolink
Bohemian waxwing
brown creeper
burrowing owl
chestnut-collared longspur
clay-colored sparrow
common loon
common yellowthroat
Cooper's hawk
dickcissel
double-crested cormorant
downy woodpecker
evening grosbeak
ferruginous hawk
gadwall
grasshopper sparrow
great crested flycatcher
great horned owl
greater prairie-chicken
green-winged teal
hairy woodpecker
horned lark
horned grebe
killdeer
kingbird

Fulica americana
Recurvirostra americana
Anas americana
Carduelis tristis
Botaurus lentiginosus
Setophaga ruticilla
Ammodramus bairdii
Haliaeetus leucocephalus
Tyto alba
Chlidonias niger
Nycticorax nycticorax
Dendroica striata
Anas discors
Dolichonyx oryzivorus
Bombycilla garrulus
Certhia americana
Athene cunicularia
Calcarius ornatus
Spizella pallida
Gavia immer
Geothlypis trichas
Accipiter cooperii
Spiza americana
Phalacrocorax auritus
Picoides pubescens
Coccothraustes vespertinus
Buteo regalis
Anas strepera
Ammodramus savannarum
Myiarchus crinitus
Bubo virginianus
Tympanuchus cupido
Anas crecca
Picoides villosus
Eremophila alpestris
Podiceps auritus
Charadrius vociferus
Tyrannus spp.

Lapland longspur
lark bunting
least tern
loggerhead shrike
mallard
marbled godwit
marsh wren
mourning dove
northern harrier
northern pintail
northern shoveler
olive-sided flycatcher
orange-crowned warbler
osprey
pine grosbeak
piping plover
red crossbill
red-headed woodpecker
red-winged blackbird
redhead
ring-billed gull
sedge wren
short-eared owl
snow bunting
Sprague's pipit
Swainson's hawk
upland sandpiper
veery
Virginia rail
western meadowlark
white-winged crossbill
white-faced ibis
whooping crane
willet
Wilson's phalarope
yellow warbler
yellow rail
yellow-bellied sapsucker
yellow-rumped warbler

Calcarius lapponicus
Calamospiza melanocorys
Sterna antillarum
Lanius ludovicianus
Anas platyrhynchos
Limnosa fedoa
Cistothorus pallustris
Zenaida macroura
Circus cyaneus
Anas acuta
Anas clypeata
Contopus cooperi
Vermivora celata
Pandion haliaetus
Pinicola enucleator
Charadrius melodus
Loxia curvirostra
Melanerpes erythrocephalus
Agelaius phoeniceus
Aythya americana
Larus delawarensis
Cistothorus platensis
Asio flammeus
Plectrophenax nivalis
Anthus spragueii
Buteo swainsoni
Bartramia longicauda
Catharus fuscescens
Rallus limicola
Sturnella neglecta
Loxia leucoptera
Plegadis chihi
Grus americana
Catoptrophorus semipalmatus
Phalaropus tricolor
Dendroica petechia
Coturnicops noveboracensis
Sphyrapicus varius
Dendroica coronata

U.S. Fish and Wildlife Service
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