

Chapter 3—Threats to and Status of Resources

This chapter describes the threats to resources in the DGCA and expected effects of the easement program.

Threats to the Resources

The uniqueness of the DGCA lies in the millions of depressional wetlands that constitute one of the richest wetland systems in the world. These prairie potholes and their surrounding grasslands are highly productive and support an incredible diversity of birdlife—breeding habitat for a myriad of wetland and grassland birds along with large numbers of spring and fall migrants. However, the PPR is one of the most altered, yet also one of the most important, migratory bird habitats in the Western Hemisphere. It is the backbone of North America’s “Duck Factory” and is critical habitat for many wetland- and grassland-dependent migratory birds (Beyersbergen et al. 2004, Peterjohn and Sauer 1999).

The project area is within one of the most threatened landscapes in North America. Once vast grassland, the PPR is now largely an agricultural system dominated by cropland. Recent changes in agricultural economics and advances in crop genetics are increasing the rate of habitat transformation—from an expansive mosaic of native prairie and wetland used for livestock ranching to a landscape dominated by tillage agriculture. According to Stephens et al. (2008), more than 280,000 acres of native prairie were converted to cropland in the project area during 2005–2007. Drainage history in the PPR, as well as many past efforts to change or remove the swampbuster provision of the Farm Bill, show that the risk of wetland drainage is highest and more immediate for the smaller, less permanent wetlands embedded in cropland.

Under the Food Security Act, conversion of native prairie to cropland is possible even if the soils are marginal for crop production. The producer simply must implement an approved conservation plan such as strip cropping or leaving strips of stubble. Furthermore, the technological advances in agricultural machinery and farming techniques increase the likelihood of conversion of native prairie to cropland each year. Another factor is the development of genetically modified crops that enables grassland



James C. Leupold / USFWS

This yellow-headed blackbird is on the lookout from his bulrush perch.

conversion in areas farther north and west, which before would have been too cold to support crop growth. The detrimental effects on most wildlife species of converting native prairie to cropland, such as growing corn for ethanol production, are well known. Additionally, the PPR is being targeted for the production of biofuels and wind energy, which have unknown effects.

The conversion of native prairie, with interspersed areas of intensive agriculture and tame grassland, has resulted in altered plant communities as follows:

- Invasion of exotic grass species such as Kentucky bluegrass and smooth brome, along with noxious weeds such as leafy spurge.

- Contamination of wetlands and watersheds with pesticides and fertilizers.
- Siltation of wetlands and watersheds through wind and water erosion.
- Loss of the plant, animal, and insect biodiversity of native prairie habitats.

The suppression of native plants by invasive plants causes a ripple effect in the native prairie ecosystem by affecting insects, birds, and mammals that depend on the native community for survival. For growth and reproduction, many species of butterflies need the specific and essential food that only native prairie forbs can provide. As a result, species that rely on native prairie are pushed into smaller and smaller tracts of habitat.

The PPR is an extraordinary biome (a defined geographical area and its living organisms that interact with the environment) for its ability to produce and sustain tremendous numbers of waterfowl. However, virtually no other biome in North America historically has offered a landscape more conducive to rapid and widespread agricultural development. About 70 percent of the grassland in the PPR of the Dakotas has been converted to other uses, mostly to cropland (USFWS unpublished data). South Dakota has lost 35 percent of the wetland in the PPR, and North Dakota has lost 49 percent of its PPR wetland (Dahl 1990). Large-scale, land use changes continue to expand into the remaining grassland tracts and wetlands that represent the best remaining breeding bird habitat.

The DGCA project will conserve priority species' populations by protecting the most productive remaining wetland and grassland habitats. Given the importance of the PPR to continental populations of waterfowl and other migratory birds, the need to protect grassland and wetland in the project area is critical. At current budget levels, it would take the Service 150 years to acquire wetland and grassland easements that protect the remaining native prairie tracts in the DGCA. At current grassland conversion rates, one-half of the remaining native prairie would be destroyed in only 34 years.

Effects on the Physical Environment

The DGCA provides the Service with a strong strategy for conservation action in anticipation of changes in climate. Implementing the project will help secure the carbon already stored within native prairie soils. As preserving migratory bird corridors becomes increasingly important, the DGCA will provide a contiguous north–south stand of native mixed-grass and tallgrass prairie within the central flyway. Conservation actions will help maintain intact the character of this native prairie in the PPR.

In addition, the DGCA will serve as a model for engagement on the issue of climate change by working with producers, nongovernmental organizations (The Nature Conservancy, Ducks Unlimited, Delta Waterfowl, Pheasants Forever, and many local wildlife organizations scattered throughout the DGCA), State and local agencies (South Dakota Game, Fish and Parks; and North Dakota Game and Fish Department), and Federal agencies including the NRCS.

Effects on the Biological Environment

This section describes the estimated effects of the project on uplands, wetlands, and federally listed species.



Emergent vegetation in this wetland easement is excellent cover for nesting waterbirds.

UPLAND AND WETLAND EFFECTS

Establishing the DGCA project enables the Service to protect in perpetuity up to 240,000 acres of wetland and 1.7 million acres of grassland. In addition to the other funding sources available, the Service will also use money from the LWCF to buy wetland and grassland conservation easements. The increase in available money will result in increased acreage to complement the Service's current conservation easement program and the existing public grasslands (such as waterfowl production areas and State wildlife management areas)—allowing for the preservation of a network of grasslands throughout the project area. At current easement acquisition rates, the Service will achieve the acreage objectives for the project within 30 years. Importantly, these protected areas will exist regardless of changes in agricultural policy or economy, which are known to affect the rate of grassland conversion (Gerard 1995).

Protection of native prairie watersheds using conservation easements may be one of the best defenses to preclude further degradation of streams and prairie wetlands and the aquatic resources that depend on them. In addition, conservation easements in the DGCA will help maintain the uniqueness of the relatively intact grasslands that harbor a wide variety of wildlife species. Buying grassland easements within the project boundary will prevent the conversion of grassland, where nest success for waterfowl is higher, to cropland where nest success is lower (Klett et al. 1988). Other species of upland-nesting birds also have higher nest success rates in grassland than in cropland (Kantrud and Higgins 1992). Furthermore, nest success increases when the percentage of the landscape in grass increases (Ball et al. 1995, Greenwood et al. 1995, Reynolds et al. 2001). Thus, protecting the relatively intact grasslands in the project area represents a strategic opportunity for maintaining waterfowl populations throughout the PPR.

Protecting grasslands in the DGCA will help buffer the population declines grassland birds are experiencing in other parts of their ranges. Grassland bird populations are steady or increasing in the project area while decreasing throughout many other parts of their ranges (Sauer et al. 1997). Long-term prospects for grassland birds are considered poor (Sauer et al. 1995), and preserving grasslands in this part of the birds' ranges may prevent some of these species from needing protection under the Endangered Species Act. The agricultural economy, and in particular the livestock industry, is cyclical. In general, high prices of cereal crops generate accelerated conversion of grassland to cropland and lower the number of cattle due to high costs and

small profit margins related to feeding and finishing beef cattle. Conversely, low crop prices generate gradual buildup of cattle herds to take advantage of low feed costs. This contributes to the cyclical nature of the beef production industry, which does not benefit from protections provided by farm policy and programs to agricultural crop producers. Grassland easement protection through the DGCA project has the potential to augment and moderate the cyclical nature of the livestock industry, helping keep viable cattle production and ranching industries.

Preventing the establishment of some new cropland will slow the increase in volume of pesticides into the environment. Pesticide use is almost entirely associated with cropland, and 90 percent of all cropland in North Dakota receives at least one application of herbicide each year (Zollinger et al. 1996). Protected grasslands will also act as buffers for wetlands near pesticide-treated cropland by filtering up to 70 percent of the water runoff (Hartwig and Hall 1980). This may reduce the negative effects on wildlife, such as nesting ducks, from ingesting contaminated invertebrates or from the loss of the invertebrate food base due to die-offs caused by pesticides (Grue 1988, Kantrud et al. 1989). In addition, an increase in the number of acres of upland buffers will provide an even greater benefit to aquatic resources.

Wetland and grassland easements are the most cost-effective, socially and politically acceptable means to ensure protection of critical habitats in the project area. Although habitat protection through fee title remains an option in some locations, the Service sees easements as the most viable way to conserve lands at the landscape scale necessary to protect wildlife values in the DGCA. The cost for acquisition of easements in the project area is approximately \$588 million. Fee-title acquisition would triple or quadruple the cost of land conservation in addition to requiring increases in long-term management and operational costs for the Service.

The Service views a strong and vibrant rural lifestyle, of which ranching is the dominant land use, as one of the key components to ensuring habitat integrity and wildlife resource protection. The conservation easement program will augment the efforts of other conservation agencies and groups.

FEDERALLY LISTED SPECIES EFFECTS

With an accelerated purchase of wetland and grassland easements, the Service anticipates that all endangered, threatened, and candidate species will benefit from the extensive habitat protection under the DGCA. Although management of lands with easements remains primarily with the private land-

owner, maintaining wetland and grassland habitats directly and indirectly benefits federally listed species. Direct improvement is expected in habitats for listed species such as western prairie fringed-orchid and indirect habitat improvement for other listed species such as pallid sturgeon.

The Service's Ecological Services Field Offices in North Dakota and South Dakota have concurred with the determination of a "May Affect, Not Likely to Adversely Affect" for federally listed species in the DGCA project area (appendix I).

Effects on Cultural Resources

There will be potential for more protection of cultural resources due to the accelerated purchase of wetland and grassland easements.

Effects on the Socioeconomic Environment

This section describes the estimated effects of the project on landownership, land use, subsurface resource (oil and gas) development, and wind energy development.

LANDOWNERSHIP AND LAND USE EFFECTS

Landownership will not be affected. The additional funding source for the acquisition of wetland and grassland easements from willing sellers improves the Service's ability to protect wetland and grassland resources. In addition, the economic incentive of easement purchases may provide opportunities for farming and ranching operations to remain viable.

In most instances, wetland and grassland easement requirements will be compatible with the current operations on the properties. Protected wetlands may be hayed and grazed without restriction and may be farmed when dry of natural causes. The wetland easements will prohibit the draining, burning, filling, or leveling of protected wetland basins. The grassland easements will not restrict grazing, will prohibit the conversion of the grasslands, and will restrict haying until after July 15.

A recent GAO report indicated that the conversion of grassland to agricultural production in South Dakota would result in a net increase in farm revenue 4 out of 5 years with farm program subsidies (GAO 2007a). However, without farm program subsidies, the farm revenue would only increase 1 out of 5 years. Therefore, maintaining the local ranching

communities will provide a much more stable income and will not increase overall farm subsidy payments.

Conservation easements secure a limited interest in private lands, and landowners will continue to pay property taxes. While there is the potential that grassland that could be converted to cropland could generate higher tax revenue than grassland, this Service's conservation easement program will have no direct effect on the existing value of the land. Although the Service acquires a limited interest in an easement property, there is no transfer of ownership. The landowner keeps all access control; except the Service may enter the property to ensure compliance with the terms of the easement.

SUBSURFACE RESOURCE EFFECTS

The Service will follow policies and procedures in the Easement Manual (USFWS 2011a), which are summarized below.

Wetland Easements

Following Region 6 policy for wetland conservation easements, the Service exercises jurisdiction over all subsurface resources such as sand, gravel, clay, scoria, black soil, other soils, fill, and rock-like materials. This jurisdiction does not include the traditional minerals—gas, oil, and coal—because the rights to these resources are not included in easements. It needs to be emphasized that this jurisdiction relates only to the wetland protected under easement. If any of the subsurface, resource-extraction activities can be accomplished on upland sites without affecting protected wetlands either directly or indirectly (watershed interference), there is no easement jurisdiction and the activities may occur.

Grassland Easements

Region 6 policy for grassland easements specifies the Service's jurisdiction over limited subsurface resources such as clay, fill, black soil, or other soils; however, under the policy, the Service will not exercise jurisdiction over sand and gravel. As with wetland easements, Service jurisdiction does not include gas, oil, and coal. This policy is consistent with existing grassland easement program administrative guidance, and that has been used by realty and management staffs, as well as portrayed by easement vendors to landowners in the past.

Surface Protection

When it is stated that Region 6 will not exercise jurisdiction over certain subsurface exploration or extraction practices—as described above for sand and gravel on grassland easements—the intent is that no jurisdiction is expressed nor implied. Manag-



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A variety of reptiles, including the western painted turtle, use habitat in the project area.

ers may, however, suggest reclamation procedures or work with the extraction entity or the landowner to minimize surface disturbances; but managers cannot require specific conditions of people or entities exercising their subsurface resource rights. Recommendations can be sent by letter with a map that (1) shows the location of proposed facilities and (2) identifies the natural resource features where minimized disturbance is needed to protect resources and to avoid negative effects on easement interests. In most cases, disturbance to a tame grass site is less detrimental than on a native prairie site.

The mineral estate owner has a legal obligation to take reasonable measures to protect the surface estate under laws in most States. The Service's involvement is necessary to protect and reduce the negative effects on the wetland and grassland resources. The best situation is for the Service, the mineral company, and the landowner to discuss the alternatives and choices before any agreements between two of the three parties. Region 6's role is limited to those aspects that affect Service easement interests and are reasonable. The Service gives recommendations in writing to the energy or mineral company and the landowner; if agreed to, all three

parties sign the recommendations. The approved recommendations are retained and passed on to various entities within the mineral company and will protect the surface interests of the Service and future landowners in case the land or the company is sold.

There are situations related to oil and gas production on easements where the Service has the authority to permit or deny the use and where the Service's compatibility policy will apply. For example, the Service has the authority to deny the crossing of easement lands with pipelines or roads to access oil and gas production on lands not within a Service easement.

WIND ENERGY DEVELOPMENT EFFECTS

The Service will address requested uses such as wind energy development under the policy of reasonable accommodation as described in the Easement Manual (USFWS 2011a). The Service will evaluate wind energy development that could affect an easement's provisions and will authorize the use only if appropriate. The policy includes an evaluation process that could allow wind energy development to occur on an easement by exchanging that easement for another easement property, with a reversionary clause to reinstate the original easement after development activities cease. The project will increase the number of reviews of easement modifications for wind-energy-related requests.

Unavoidable Adverse Impacts

Any adverse effects that may be unavoidable while carrying out the easement program described below.

The increased protection of wetland and grassland habitats will reduce fragmentation, increase water quality, maintain current levels of carbon sequestration, and maintain the area's rich biological diversity. Management of lands for wetlands and grasslands will benefit ranching operations but may reduce the potential production of agricultural crops in the area, although most areas to be protected are not well suited for crop production.

Irreversible and Irretrievable Commitments of Resources

There will not be any irreversible or irretrievable commitments of resources associated with the establishment of the DGCA project. If funded through the LWCF, easements will require an irretrievable and

irreversible commitment of resources for the long-term administration of the easement provisions. The administration costs are shared among the 16 wetland management districts that cover the project area; the costs represent only a minor increase in overall Service costs to the existing easement-monitoring program.

Short-Term Use versus Long-Term Productivity

The increased ability to acquire perpetual wetland and grassland easements provides an immediate economic benefit to participating landowners, allowing many operations to expand or simply stay in operation—having positive economic short- and long-term effects. The conservation of remaining wetland and grassland tracts will (1) reduce long-term fragmentation of these vital habitats of many dependent species, (2) maintain current carbon sequestration capabilities, (3) keep the area's rich biological diversity, and (4) protect endangered, threatened, and rare species currently using wetland and grassland habitats. Lands added to the Refuge System through the DGCA will increase the costs associated with monitoring and management of the Refuge System; however, staff at several existing management units will share this work, which will require no additional Federal resources.

Cumulative Impacts

As defined by policy for the National Environmental Policy Act (NEPA), cumulative impacts on the environment are those that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes the other actions (40 Code of Federal Regulations [CFR] § 1508.7).

This section describes the past, present, and reasonably foreseeable actions related to the DGCA. The following discussion documents the analysis of the cumulative impacts of these actions in combination with the actions of the easement program.

PAST ACTIONS

The Service's past, land protection efforts within the PPR have included establishment of the Dakota Tallgrass Prairie Wildlife Management Area and the North Dakota Wildlife Management Area, both in 2000. Since the 1960s, the Service has actively used Federal Duck Stamp money to buy wetland

and grassland easements. In total, the Service has protected in perpetuity approximately 2,420,414 acres. The Service's Partners for Fish and Wildlife Program has worked with many private landowners on site-specific conservation efforts.

The USDA's Conservation Reserve Program has approximately 3,800,000 acres enrolled in the voluntary conservation program. In addition, the USDA administers approximately 45,000 in the Wetland Reserve Program. Nongovernmental organizations such as Ducks Unlimited have purchased approximately 39,000 acres of conservation easements.

PRESENT ACTIONS

The Service's establishment of the DGCA conservation easement program—up to 240,000 acres of wetland and 1.7 million acres of grassland—is one of the largest known actions for land protection in the PPR of North Dakota and South Dakota. If approved, the Service will use money from the LWCF in addition to money from the Migratory Bird Stamp and NAWCA. If money can be secured, there will likely be an increase in the number of wetland and grassland easements purchased.

REASONABLE FORESEEABLE FUTURE ACTIONS

Reasonably foreseeable actions are activities independent of the DGCA and are anticipated to occur regardless; however, the foreseeable actions could result in cumulative or additive effects when combined with the project actions. The primary, reasonably foreseeable actions in the PPR are the development of energy (oil, gas, and wind), agriculture, and prairie conservation efforts by a variety of organizations.

Oil and Gas Development

Northwestern North Dakota has recently seen a dramatic increase in oil and gas activity in what is commonly known as the Bakken formation. Recent advances in rock fracturing techniques have made oil production more economically viable, and there is an estimated 3.65 billion barrels of recoverable oil in the Bakken formation within North Dakota and Montana (Pollastro et al 2008). North Dakota has 174 drilling rigs operating; this number of rigs is estimated to remain stable or increase (NDOGC 2011).

Wind Energy Development

North Dakota and South Dakota have remarkable wind energy potential. More than 127,000 square miles or about 85 percent of both States are suitable for commercial wind energy production, with an estimated energy capacity of 1.65 million megawatts (NREL 2011). The DGCA has less than 2.4 percent

of North Dakota and South Dakota's wind development area (some priority wetland and grassland resources are not in commercially viable areas).

In coordination with the Western Area Power Administration, the Service is developing a programmatic environmental impact statement to analyze the environmental and socioeconomic effects of wind energy development in two administrative areas: (1) the Upper Great Plains Region of the Western Area Power Administration, which covers all or parts of Iowa, Minnesota, Montana, Nebraska, North Dakota, and South Dakota; and (2) the Service's wetland and grassland easements in North Dakota, South Dakota, and Montana. The environmental impact statement will identify typical environmental effects of wind energy development; prescribe mitigation strategies, standard construction practices, and best management practices; and establish a comprehensive environmental program for evaluating future projects. The final analysis is expected to be completed in 2 years.

Agricultural Development

North Dakota and South Dakota predominantly comprise farming and ranching operations. Commodity prices and farm program subsidies are the main factors leading to the conversion of grassland to cropland. Although farm program subsidies are reviewed on a regular basis, few changes are expected. In contrast, commodity prices are difficult to estimate and change on a daily basis but tend to be cyclic over time.

Other Conservation

Governmental agencies, primarily NRCS, and non-governmental organizations such as The Nature Conservancy and Ducks Unlimited are expected to continue offering multiple programs to landowners. The project augments these efforts by collaborating with landowners to provide benefits to wildlife and fisheries resources along with the farming and ranching communities. If the goals of the project are achieved, it is expected the Service will continue to implement the remaining elements of the Conservation Strategy. That process will be analyzed at such time.

DEVELOPMENT IMPACTS

The project is a voluntary program where individual landowners determine if wetland or grassland easements are appropriate for their operations. Although the extent of energy development is dynamic, the Service will evaluate energy development on a case-by-case basis and authorize it if appropriate; the project could influence where energy development companies select production sites. In addition, the perpetual conservation program may reduce the potential production of agricultural crops in the area, although most areas to be protected are not well suited for crop production.

OTHER CONSERVATION IMPACTS

The accelerated acquisition of conservation easements up to 240,000 acres of wetland and 1.7 million acres of grassland will conserve a large part of the remaining wetland and grassland resources within the PPR, with an emphasis on conserving native prairie. This conservation effort will do the following:

- Reduce the loss of vegetative species diversity
- Maintain key habitat blocks for a variety of wetland- and grassland-dependent birds
- Conserve carbon sequestration capabilities
- Protect the area's water resources

CONCLUSION

Development of lands for either agriculture or energy development is largely determined by the private landowner. Similarly, private landowners determine if protection of lands via wetland and grassland easements is in their best interest. This voluntary program is not expected to have an adverse impact.