3 Alternatives

USFWS

Grazing comparison at Moger WPA (Clay County): grazed (left) and ungrazed (right).

Alternatives are different approaches to management of the district. The alternatives are designed to (1) resolve issues; (2) achieve the district's purposes, vision, and goals identified in the draft CCP and EA; (3) help fulfill the mission of the Refuge System; and (4) comply with current laws, regulations, and policies. The NEPA requires an equal and full analysis of both alternatives considered for implementation.

This chapter describes two management alternatives for the Rainwater Basin Wetland Management District: "Alternative A, Current Management (No Action)" and "Alternative B, Integrated Partnership Approach (Proposed Action)."

3.1 ALTERNATIVES DEVELOPMENT

In December 2005, the Service held four meetings with the public to identify the issues and concerns associated with the management of the district. The public involvement process is summarized in greater detail in chapter 1, section 1.6 "The Planning Process." Based on public input and internal scoping of issues as well as guidelines from the NEPA, Improvement Act, and Service planning policy, the Service identified the substantive issues that will be addressed in the alternatives. These issues, detailed in chapter 2, section 2.6 "Planning Issues" are as follows:

- habitat management
- water and wetland management
- invasive plant control
- wildlife disease control
- species of concern
- research and science
- visitor services
- partnerships
- operations

In addition, each alternative addresses three other topics of management concern: land protection, cultural resources, and socioeconomics.

3.2 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

After extensive analysis and discussion, the Service did not consider any alternatives other than the two that are fully developed in this chapter.

3.3 ELEMENTS COMMON TO BOTH ALTERNATIVES

Commonality exists between the two alternatives developed. Vegetation management on the uplands and wetlands would use the same management actions such as prescribed fire, grazing, and rest. Wetland restoration and water pumping are identified as management actions in both alternatives. Control of invasive plants in both alternatives would use IPM to control both noxious and invasive plants.

Management of hunting, wildlife observation, photography, environmental education, and interpretation is common to both alternatives.

3.4 DESCRIPTION OF ALTERNATIVES

Each alternative addresses the previously described issues and topics differently. Partnerships, as the overall strategy for meeting the goals, are described in relevant program areas.

Alternative A—Current Management (No Action)

Under alternative A, management activities being conducted by the Service would remain the same, with changes in land management and public use occurring as opportunities arise. Current habitat and wildlife practices benefiting migratory species and other wildlife would not be expanded or changed. The staff would perform limited, issue-driven research and only monitor long-term vegetation change. No new funding or staff levels would occur and programs would follow the same direction, emphasis and intensity as they do at present.

Habitat Management

The district would manage habitat through adaptive resource management at the WPAs—primarily wetlands and uplands—to attain natural diversity.

Alternative A would maintain the current level of habitat management at the district at approximately the same intensity. Management actions would address resource problems that are threatening or that have deteriorated habitat conditions to the level where the habitat is no longer meeting the vision for the district.

This approach is a "restoration approach" rather than a "maintenance approach" to habitat management. The WPAs that are in good habitat condition would be given little attention. Limited staff and funding would be directed toward improving WPAs that have habitat degraded to a level where severe actions have to be taken to restore quality habitat. Such actions are generally removal of large mature trees, large-scale herbicide application, and mechanical removal of silt from wetlands. The district's removal of trees is a management tool to restore prairie habitat, not to be confused with tree harvesting.

Grasslands would be managed using a combination of prescribed fire, prescribed grazing, limited haying, and tree removal. Restoration activities would use a high-diversity seed mixture collected from the local area. Volunteer trees and select shelterbelts would be removed. No new shelterbelts would be planted. The district would carry out an IPM program for invasive plants using herbicide application, cropping, grazing, prescribed fire, high-diversity native plant seeding, and haying.

Upland restoration activities would focus on (1) previously plowed areas on newly acquired lands, and (2) lands that have heavy weed or nonnative plant infestations. These areas would be cropped for several years before reseeding.

The district would continue to participate in various partnerships including the RWBJV. District staff would continue to serve in leadership roles, but involvement in new projects and programs would be limited.

Livestock grazing would be allowed only at WPAs with suitable facilities (such as fences and livestock water) to mimic intense, short-duration grazing similar to presettlement grazing patterns of wild large ungulates. Areas with no boundary fences or lacking water would be under-managed (receive minimal management) because poor fencing and lack of adequate water supplies would not allow the proper grazing treatment rate to meet management objectives.

Once the appropriate vegetative treatment was used to meet habitat objectives, an area would remain rested until additional treatment was needed.

Wetlands

Water and wetland management would continue at the current intensity. Limited work would be done on wetlands in multiple ownership. Acquisition of the remaining wetland parcels would be low priority and parcels would be acquired when opportunities arise and on a willing-seller basis only.

Annual wetland management would be focused on attaining a natural diversity and interspersion of open-water and early successional plant species—dominated by seed-producing, annual, wetland species. Vegetation would be managed to closely mimic the natural ecological processes of the ecosystem. Staff and resources would allow only some of the WPAs to be managed each year. Wetlands that have quality waterfowl habitat would not be given the needed management and would decline in quality until they become priorities.

Primary management techniques would be periodic prescribed burning, grazing, resting, shredding, weed control, disking, and water pumping. Prescribed fire frequency would be determined by the level of funding available; burning would be limited to controlling trees rather than to enhance the native grassland.


USFWS

Shredder in wetland.

Disking would be used to mimic the herding effect of wild animals by knocking down erect vegetation and disturbing the soil surface. Its use would be limited to areas where grazing and burning are not practical.

Management priority would be given to wetlands over uplands. The WPAs with limited waterfowl habitat would receive low management attention.

Uplands

Management of uplands would focus on attainment of natural diversity and interspersion of grasses and forbs characteristic of the presettlement period. Cropping would be done only to prepare the soil to reseed a high-diversity, native, grass and forb seed mix—using local genotypes (genetic constitution of an organism) whenever possible. Areas with low plant diversity would be "interseeded" with a high-diversity, native, grass and forb mix. Trees would be removed to create an open vista and conditions typical of the presettlement period.

Grassland would be managed to closely mimic the natural ecological processes of the ecosystem. Primary management techniques would include periodic use of prescribed fire, grazing, and haying. Burning frequency would be determined by the level of funding available, with burning being limited to control of trees rather than to enhance the native grassland.

Haying and mowing would be used to remove dense stands of undesirable plant species and to create firebreaks. Its use would be limited to areas where grazing and prescribed fire are not practical.

Water and Wetland Management

Water management is central to meeting the purposes of the district.

Supplemental Water (Pumping)

Wetlands would be managed with a combination of water pumping, prescribed fire, prescribed grazing, tree removal, and limited haying. Nearly all water pumping carried out with district funds and staff would be directed toward spring migration. Fall water pumping would only occur if funding exceeded spring water-pumping needs. Fall water pumping would begin near November 1 to increase the probability that water would still be present during spring migration. Spring water pumping would be directed only toward waterfowl habitat; limited water pumping would be done for shorebirds and other water-dependent species.

Strategies would include targeting wetlands that would provide optimal waterfowl habitat and provide enough water throughout the district to adequately disperse birds.

Water pumping would be limited to a small number of WPAs and would sustain shallow water on large mud flats for shorebird and whooping crane migration.

Water Quality and Quantity

Long-term wetland management would focus on restoring the hydrology of the wetlands to the highest feasible level. Management actions would include removal of sediment, removal of water concentration pits, and clearance of trees.

The district would continue to work with neighboring landowners to improve the quality and quantity of runoff reaching the WPAs.

The district staff would monitor runoff from livestock confinement areas only during large inflow events. Actions associated with water quality and feedlot runoff would be limited to only severe problems that are clearly in violation of state regulations.

Water Rights

The Service would assume that natural surface water runoff to WPA wetlands would not be captured or diverted by non-Service parties. The staff at the district does not have a clear understanding nor a comprehensive compendium of all the water rights held by the Service in the basin. Under alternative A, this situation would continue to be unresolved.

Invasive Plant Control

Invasive plant species would be mapped, treated, and monitored. Areas with invasive plants and other noxious weeds would be mapped and recorded in the Geographic Information System (GIS) to (1) improve response time in future years, and (2) to monitor any change associated with treatments.

Treatments would include chemical application, biological control (insect), mechanical removal (mowing), and physical stressors (burning and grazing). Control priorities would be as follows:

1. state-listed noxious weeds
2. species that degrade wetland habitat
3. species that degrade upland habitat

Lower priority would be given to invasive plant species such as reed canarygrass, crown vetch, intermediate wheatgrass, Kentucky bluegrass, and brome. These species would be treated as available staff and time allowed.

Wildlife Disease Control

The district staff would continue to monitor the WPAs for and respond to wildlife diseases during spring and fall migrations. Monitoring would primarily be looking for bird behavior or mortality that is out of the ordinary. Most monitoring would be done in the spring, primarily during and after the peak migration. Historically, avian cholera outbreaks do not occur until the peak of migration. Fall monitoring would occur on an unscheduled basis. Control would include monitoring, collecting carcasses, and conducting diagnostics. Wildlife disease control is addressed in detail in the district's disease contingency plan.

There would be no monitoring of diseases in upland birds, mammals, and other wildlife.

Species of Concern

No change would occur in the management of prairie dogs or threatened and endangered species. Management would be directed toward mimicking the natural ecological process of the Rainwater Basin. These actions would be compatible with species of concern but would not be directed specifically to individual species.

Research and Science

No change would occur in research. Research would be in line with chance opportunities. The involvement of the district in research projects would vary based on research needs. The district would continue to assist others to conduct research by helping to obtain funds and providing research areas; there would be limited staff and housing assistance.

Habitat and Wildlife

District staff would continue to use quantitative monitoring techniques to assess (1) the effects that management treatments have on plant communities, (2) wetland habitat availability in the spring, and (3) wetland habitat conditions in the fall. There would be annual monitoring of populations of spring "light" geese (Ross' and snow geese).

The district staff would help cooperating partners, universities, and scientists develop research projects that focus on the Service's research priorities. No formal research priorities would be established. However, the Service's priorities would be reflected within the RWBJV research priorities document. Other research projects that may not be a priority for the district would receive staff support to ensure completion. The district staff would (1) help find funding, (2) provide technical review, (3) make WPAs available for projects, and (4) help to develop new methods for research when needed. A limited amount of quantitative monitoring would be done. Most monitoring would be done subjectively to assess the effects of management actions at WPAs.

Socioeconomics

There would be no additional analysis conducted for the socioeconomic situation related to management of the district.

Land Protection

Land acquisition would remain limited to opportunistic fee-title purchases from willing sellers. The Service would focus on acquisition of remaining wetlands that have partial district ownership.

No easement acquisition would occur and the criteria for acquisition would continue to be unclear and focus on larger wetlands only.

Cultural Resources

Cultural resources would continue to receive minimal attention. Inventories would only be done in response to activities that constitute undertakings under section 106 of the National Historic Preservation Act.

Visitor Services

No change in public use would occur. All WPAs would continue to be open to hunting, fishing, wildlife observation, photography, environmental education, and interpretation. Existing information kiosks, trails, and blinds would be maintained. No additional facilities would be constructed. Contact with the public would continue to be low because of the office's location and its long distance from wildlife and their habitats.

Hunting

Hunting and trapping programs would continue for management of wildlife and to provide a compatible, priority, wildlife-dependent use. Hunting would be closed at some WPAs during the late-winter, light goose season.

Fishing

Since the wetlands at the WPAs are not conducive to any type of sport fisheries, there would be no management to develop or sustain fisheries at the WPAs.

Wildlife Observation and Photography

There would be limited, unimproved opportunities for wildlife observation and photography.

Environmental Education and Interpretation

There would be limited environmental education and interpretation opportunities. The district would continue to maintain a website describing the district

and its activities. No environmental education would be provided to schools and groups.

Public Access

The district would close temporarily some WPAs to protect species sensitive to human disturbance. The district would maintain adequate signage at some, but not all of the WPAs. No public use plan would be established.

USFWS

This interpretive sign at Massie WPA (Clay County) was one of three created through a partnership with the NGPC.

Partnerships

Alternative A calls for no change in the district's involvement in partnerships. Partnerships would be limited to those that most directly help the district meet its habitat goals. Partnerships that promote public use, public awareness of the basin's wetlands, and community involvement would continue to receive low priority.

Socioeconomics

The district would continue to be managed much as it is today, thus socioeconomic change would be minimal. No significant capital investment in public use facilities would be made. Wildlife-dependent recreation would likely remain an undeveloped element of the district's operations. (BBC Research and Consulting 2006)

The district would likely remain a destination hunting and wildlife viewing location. On-site employment and visitor counts, as well as off-site effects, would remain at or near current levels. (BBC Research and Consulting 2006)

Current visitor activity at the district generates around $900,000 of new economic activity in the regional economy each year. Visitor spending would likely remain at or very close to current levels. (BBC Research and Consulting 2006)

Operations

General operations to manage the district—including the work of district staff, law enforcement, and facilities for staff and visitors—would continue at current levels.

Alternative A calls for no change in current operations associated with the large distances between WPAs and the headquarters facilities. The large distance requires additional transportation and staff costs to move equipment from storage to the repair site. The infrastructure of the district would remain minimal or substandard.

Staff and Funding

The staff level would remain the same, with a focus on restoration and management of wetlands.

Law Enforcement

Law enforcement functions would be minimal, with most enforcement activities directed toward violations of state and federal game laws.

Facilities and Equipment

Office facilities would continue in the existing leased building in the industrial area of the Kearney. The district would continue to operate out of an inadequate headquarters facility, which lacks needed office space and equipment storage. The staff would continue working in crowded conditions, sharing of office desks and equipment, and having air quality problems.

Maintenance of equipment would be inefficient because of the large distance between equipment storage areas and shop facilities. Valuable large equipment would be exposed to the weather, increasing their wear and maintenance. Equipment would continue be unprotected from weather extremes and vandalism.

Pumping of water for the wetlands would be limited and accomplished with antiquated wells.

Alternative B—Integrated Partnership Approach (Proposed Action)

Alternative B is the proposed action for the CCP for Rainwater Basin Wetland Management District. The emphasis of this alternative is to address all management aspects in a holistic manner. The alternative would encourage cooperation, coordination, and better exchange of information.

The district would work with formal and informal partners, including landowners, to improve WPAs at a landscape level. Actions would strive to build a neighborly interaction for privately owned and district lands within each watershed. An example would be to help a neighbor fill a water concentration pit that benefits the neighbor and the wetland. The district would work with partners to complete the engineering and funding. A second example would be to work with partners to help local livestock producers find enough grazing land to support livestock in the basin. The project would help assure livestock are available if grazing is needed at specific WPAs.

Land management would depend more on adaptive management—as more information is known, changes

could be made to improve management and its effect on the environment. It is expected that local communities would have a better understanding of the local and national benefits of the Rainwater Basin's wetlands and have an increased pride in this basin's contribution to the Central Flyway migration.

Habitat Management

The district would holistically manage habitat at the WPAs—primarily wetlands and uplands—to attain natural diversity. Adaptive resource management would be combined with partnerships to increase its effectiveness.

Boundary fencing and livestock watering would be increased to allow for better plant management at the WPAs. Larger herds would allow for more intense grazing during a shorter period of time.

Through a joint effort with partners, burning frequency would be increased. The focus would shift from control of the spread of woody plants to maintenance and improvement for healthy grasslands and wetlands. The joint effort could allow burns on areas where individual partners did not have enough staff or resources to burn alone.

Wetlands

Annual wetland management would be similar to that described for alternative A. This includes periodic use of prescribed fire, grazing, resting, shredding, weed control, disking, and water pumping. In addition, alternative B would incorporate new partnerships to accomplish the management objectives more efficiently.

An example may be to combine into a planned grazing system the Service's WPAs and the NGPC's wildlife management areas (WMAs). This approach could be expanded to include larger, privately owned wetlands that currently remain idle or unmanaged. Another example would be to develop formal agreements for sharing of staff for prescribed burning. Such agreements could include state and federal agencies, nonprofit organizations, and local fire departments. A third example would be to develop mutual agreements with local sporting clubs to assist in management of nearby WPAs.

As in alternative A, disking would be used to mimic the herding effect of wild animals by knocking down erect vegetation and disturbing the soil surface. Its use would be limited to areas where grazing and burning are not practical.

Uplands

As in alternative A, management of uplands would focus on attaining natural diversity and interspersion of grasses and forbs characteristic of the presettlement period. In addition, alternative B would incorporate new partnerships to accomplish the management objectives more efficiently.

USFWS

Prescribed fire is an important tool used to manage both wetland and upland habitats.

Cropping would be undertaken only to prepare the soil to reseed a high-diversity, native, grass and forb seed mix—using local genotypes whenever possible. Areas with low plant diversity would be "interseeded" with a high-diversity, native, grass and forb mix. Trees would be removed to create an open vista and conditions typical of the presettlement period.

Grassland would be managed to closely mimic the natural ecological processes of the ecosystem. Primary management techniques would include periodic use of prescribed fire, grazing, and haying. Use of prescribed fire would be expanded from a restoration practice to use for maintenance of healthy upland plant communities.

Haying and mowing would be used to remove dense stands of undesirable plant species and to create firebreaks. Its use would be limited to areas where grazing and prescribed fire are not practical.

Water and Wetland Management

Water management is central to meeting the purposes of the district.

Supplemental Water (Pumping)

Water pumping in spring and fall would be done with district funds and additional funds contributed through partnership efforts.

Water Quality and Quantity

As in alternative A, long-term wetland management would focus on restoring the hydrology of the wetlands to the highest, feasible level. Management actions would include removal of sediment, filling of water concentration pits, and clearance of trees.

In addition, expertise and resources would be sought through partnerships to address problems that extend beyond WPA boundaries. Partnerships would be used to increase monitoring of water entering the WPA's wetlands and to assess effects on plants and wildlife.

Water Rights

The Service would obtain and protect necessary water rights. District staff would coordinate with partners to gain public support for the protection of surface water runoff to the basin's wetlands.

District staff would seek to obtain a comprehensive water rights and hydrology compendium for the district from the Service's region 6 water resources division.

Invasive Plant Control

There would be no change in management or control of invasive plants. Control would continue on an annual basis with priority given to those species identified by the state of Nebraska as noxious weeds. The district would continue an IPM program for invasive plants that uses herbicide application, cropping, grazing, prescribed fire, high-diversity native plant reseeding, and haying. Herbicide application would be the primary control method.

Invasive plant control would be the same as for alternative A but would combine cooperative efforts with other land management agencies, primarily the NGPC. Arrangements would be made for each partner to control the other partners' invasive plants on nearby areas.

Wildlife Disease Control

As in alternative A, district staff would continue to monitor for and respond to wildlife diseases during spring and fall migrations. There would be no monitoring of diseases in upland birds, mammals, and other wildlife.

Partnerships would be used to increase awareness and preparedness for monitoring, detection, and techniques to deal with avian cholera, avian influenza, and chronic wasting disease. District staff would develop a wildlife disease plan.

Species of Concern

As in alternative A, no change would occur in the management of prairie dogs or threatened and endangered species. Management would be directed toward mimicking the natural ecological process of the basin. These actions would be compatible with species of concern but would not be directed specifically to individual species.

Research and Science

The district would become more active in identifying research needs, obtaining funding, conducting research, and providing expertise.

Habitat and Wildlife

Through the RWBJV, the resources of various partners would be combined to make certain that research was not redundant and was directed toward priority resource needs. The district would assist research efforts by providing temporary living quarters, office space, and lands for research.

The district would continue to use quantitative monitoring techniques to assess what effects management treatments have on plant communities, wetland habitat availability in the spring, and wetland habitat conditions in the fall. Annual population surveys would go beyond light goose and sandhill crane surveys to include other species such as shorebirds and grassland-nesting species.

The district would join with RWBJV partners to begin to quantify the benefits wetlands provide to local communities and society in general. Research work would focus on (1) wetland benefits associated with groundwater, and (2) surface water quality and quantity.

Socioeconomics

The Service would identify and quantify socioeconomic benefits that local communities derive from the district.

Land Protection

The Service would seek authority to increase the district's acquisition limit from 24,000 acres to 46,000 acres as identified in the 1986 "Rainwater Basin of Nebraska Migratory Bird Habitat Acquisition Plan" (USFWS and NGPC 1986).

The RWBJV would take the leadership role to coordinate land acquisition among the partners. The GIS would be used to help identify wetlands with the highest biological importance. Acquisition would expand beyond fee-title purchases to include perpetual easements.

The RWBJV would help coordinate which areas to acquire in fee-title versus perpetual easement versus other agricultural programs. Easement ownership would be done on those wetlands that provide biological functions while remaining in private ownerships. Such wetlands would include shallow, seasonal wetlands located in pastureland. Acquisition of specific wetlands would be targeted toward the appropriate partner's ownership. An example would be arranging for the NGPC to buy a wetland that is near another wetland owned by them.

Cultural Resources

A partnership through the RWBJV would develop a basin-wide program to identify and evaluate the cultural resources in the basin. A sensitivity model would be established to concentrate survey efforts on areas with a high potential for cultural resources.

Inventories would continue to be done in response to activities that constitute undertakings under section 106 of the National Historic Preservation Act. A multi-

agency programmatic agreement would be carried out that would make the process more efficient.

Visitor Services

As in alternative A, all WPAs would remain open to the six priority wildlife-dependent recreational uses identified in the Improvement Act—hunting, fishing, wildlife observation, photography, environmental education, and interpretation. Additional signs would be placed throughout most of the WPAs, especially at all the high-profile areas. A public use plan would be developed and more emphasis would be placed on outreach and environmental education. The district would continue to maintain a website and increase the amount and timeliness of the information.

Hunting

As in alternative A, hunting and trapping programs would continue for management of wildlife and to provide a compatible, priority, wildlife-dependent use. Hunting would be closed at some WPAs during the late-winter, light goose season.

In addition, a hunt plan would be developed. District staff would work with partners to increase the number of accessible hunting blinds and to provide up-to-date conditions to the public. The district would increase the signage at and around the WPAs.

Fishing

As in alternative A, there would be no management to develop or sustain fisheries at the WPAs.

Wildlife Observation and Photography

District staff would develop partnerships and volunteerism to promote and expand viewing opportunities—more hiking trails and viewing blinds. District staff and partners would develop and distribute bird-viewing guides and maps.

Environmental Education and Interpretation

The district would establish a formal program and facilities for environmental education and interpretation. The district would continue to maintain a website describing the district and its activities. District staff would build support for the district through volunteers and partnerships.

Public Access

The district would close temporarily some WPAs to protect species sensitive to human disturbance. The district would maintain adequate signage at and around the WPAs.

Partnerships

The overlap between the goals and objectives of the district and the RWBJV creates a win–win opportunity for both. The RWBJV partnerships fit "hand-in-glove" with those that have direct and tangible benefit to the district. Mutual support between the district and the RWBJV would enhance accomplishments and more than compensate for the time and leadership commitments of district staff to the RWBJV.

USFWS

Ducks Unlimited and RWBJV funded the installation of nearly 3 miles of pipeline to deliver well water to 10 WPAs.

Socioeconomics

Under this alternative, the district would continue to be managed much as it is today, but with the help of various partnerships the socioeconomic change might be significant. Capital investment in visitor service facilities would be made through partnerships and as funding sources allow. Wildlife-dependent recreation would be further developed. The district would remain a destination location for hunting and wildlife viewing; with the added emphasis on visitor services, these wildlife-dependent recreational opportunities would increase visitor use.

On-site employment and visitor counts, as well as off-site effects, would likely increase from current levels. It is expected that an increased visitor activity at the district would surpass the current $900,000 of new economic activity in the regional economy each year. Visitor spending would likely increase from current levels due to increased visitation.

Operations

The district would construct an office/visitor center, cold-storage building, and shop facility on Service-owned property. The infrastructure of the district would change dramatically.

Staff and Funding

Staffing would increase, as budgetary realities allow, to address the changes that would occur under alternative B. New staff would include an outdoor recreation planner, a full-time law enforcement officer, a maintenance worker, and an additional refuge operations specialist.

Law Enforcement

The district would hire a full-time law enforcement officer and develop a law enforcement plan.

Facilities and Equipment

An office/visitor center and a cold-storage and shop facility would be constructed on Service-owned property. The entire infrastructure would include buildings for equipment storage and repair and temporary quarters for researchers, volunteers, and fire crews.

District staff would maintain property and equipment in a safe, working condition. Adequate radio and telephone communications would be provided for staff safety and management efficiency.

Water-pumping facilities at existing wells would be increased and modernized.

The district would construct livestock water structures and boundary fences around most of the WPAs to facilitate use of grazing as a management tool.

3.5 COMPARISON OF ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

Table 3 displays a comparison of the alternatives' management actions related to the issues and topics described in section 3.2 "Alternatives Development." In addition, the estimated environmental consequences of each alternative's management actions are summarized; the complete narrative about environmental consequences is in chapter 5.

Table 3. Comparison of alternatives and environmental consequences.

Alternative A—Current Management (No Action)	*Alternative B—Integrated Partnership Approach (Proposed Action)*
MANAGEMENT APPROACH	
Manage for migratory species and other wildlife. Continue the current level of public use. Perform limited research. Monitor long-term vegetation change. Apply adaptive resource management.	Manage for migratory species and other wildlife. Work extensively with partners to improve the timing and application of management practices. Increase the level of wildlife-dependent public use. Build community support. Work with partners to increase research. Monitor effects of management and use research results to modify management.
HABITAT MANAGEMENT, Wetlands—Management Actions	
Manage to attain a natural diversity and interspersion of open-water and early successional plant species. Manage to mimic natural ecological processes. Restore wetland hydrology. Fill water concentration pits. Measure sediment depths. Remove sediment in problem areas. Remove trees to re-create historical conditions. Use prescribed fire to restore areas threatened by invasive plants, primarily woody vegetation. Apply grazing that mimics high-intensity, short-duration grazing that occurred presettlement. Use disking to mimic vegetation trampling and soil tilling caused by large herds. Rest areas once the preferred vegetation has been attained.	*Same as alternative A, plus the following:* Use partnerships to more efficiently accomplish objectives. Expand use of prescribed fire—from restoration to use for maintenance of healthy wetland plant communities. Use large livestock herds for more intense grazing in less time.

Table 3. Comparison of alternatives and environmental consequences.

Alternative A—Current Management (No Action)	*Alternative B—Integrated Partnership Approach (Proposed Action)*
HABITAT MANAGEMENT, Wetlands—Environmental Consequences	
Restored wetlands would receive most of their historical watershed runoff. Only areas with high value for migratory birds would receive priority.	The use of grazing would improve through adaptive resource management. Expanded partnerships would allow more district lands to be treated to achieve desirable conditions.
HABITAT MANAGEMENT, Uplands—Management Actions	
Manage to attain a natural diversity and interspersion of grasses and forbs characteristic of presettlement vegetation. Manage to mimic natural ecological processes. Apply adaptive resource management. Use prescribed fire to restore areas threatened by invasive plants, primarily woody vegetation. Use short-term cropping or farming to prepare soil to reseed high-diversity seed mixes. Seed and "interseed" using seeds from locally harvested genotypes. Apply grazing to mimic high-intensity, short-duration grazing that occurred presettlement. Use haying to remove dense stands of undesirable plant species and to create firebreaks. Rest areas once the preferred vegetation has been attained.	*Same as alternative A, plus the following:* Use partnerships to more efficiently accomplish objectives. Expand use of prescribed fire—from restoration to use for maintenance of healthy upland plant communities. Increase boundary fencing and livestock watering.
HABITAT MANAGEMENT, Uplands—Environmental Consequences	
Highly degraded habitats would receive priority for management. Habitats in good condition would be treated only if resources and time allows—this could cause degradation at WPAs with adequate wildlife habitat.	The use of grazing and fire would improve through adaptive resource management. Expanded partnerships would allow more district lands to be treated to achieve desirable conditions, without allowing others to deteriorate.
WATER AND WETLAND MANAGEMENT, Supplemental Water (Pumping)—Management Actions	
Pump water for availability for the spring migration. Give priority to wetlands with optimal waterfowl habitat; increase the dispersal of waterfowl in the district. Pump water to provide shallow water and large mud flats for shorebird and whooping crane migration.	*Same as alternative A, plus the following:* Build partnerships and local support to increase the water-pumping capabilities during spring and fall migration.
WATER AND WETLAND MANAGEMENT, Supplemental Water (Pumping)—Environmental Consequences	
No changes in the water-pumping situation would mean less habitat available for migratory birds during critical times of migration.	Expanded partnerships would allow more water to be pumped into wetlands in the district to achieve desirable conditions during migration.

Table 3. Comparison of alternatives and environmental consequences.

Alternative A—Current Management (No Action)	*Alternative B—Integrated Partnership Approach (Proposed Action)*
WATER AND WETLAND MANAGEMENT, Water Quality and Quantity—Management Actions	
Restore wetland hydrology. Remove sediment, fill water pits, and clear trees. Work with landowners to improve runoff reaching the WPAs. Monitor runoff from livestock confinement areas only during large inflow events.	*Same as alternative A, plus the following:* Use partnerships to increase monitoring of water entering WPA wetlands; assess effects on plants and wildlife. Use partnerships for research and monitoring to find out the benefits of the basin's wetlands to surface water quality and groundwater recharge.
Water and Wetland Management, Water Quality and Quantity—Environmental Consequences	
No changes in staff levels would mean that only clear violations of water quality laws would be acted upon. Ongoing and future undetected violations would likely affect the quality and quantity of water reaching the WPAs' wetlands.	Expanded partnerships could allow avoidance and rectification of water quality laws, as well as agreements that benefit wildlife habitats as well as resources available landowners neighboring WPAs.
WATER AND WETLAND MANAGEMENT, Water Rights—Management Actions	
Assume that natural surface water runoff to WPA wetlands would not be captured or diverted by non-Service parties.	Work with partners to gain public support for protection of surface water runoff to the basin's wetlands. Obtain and protect water rights. Obtain a comprehensive water rights and hydrology compendium.
WATER AND WETLAND MANAGEMENT, Water Rights—Environmental Consequences	
The Service would have an inadequate handle on water rights held or needed by the district to achieve the vision and goals.	Expanded and diversified partnerships would help improve and protect water quality and quantity reaching WPAs.
INVASIVE PLANT CONTROL—Management Actions	
Control invasive plants with IPM—use reseeding, herbicide, grazing, haying, mowing, and prescribed fire as management strategies. Map, treat, and monitor infested areas. Treat in priority order—(1) noxious weeds, (2) plant species degrading wetlands, and (3) species degrading uplands.	*Same as alternative A, plus the following:* Build partnerships to increase the efficiency of invasive plant control.
INVASIVE PLANT CONTROL—Environmental Consequences	
The district would be able to contain the spread of the most noxious plant species at most of the WPAs, but not eradicate the problem.	Through expanded parterships, the district would be able to contain the spread of the most noxious plant species at most of the WPAs in a more efficient and cost-effective manner, being almost able to eradicate the problem.

Table 3. Comparison of alternatives and environmental consequences.

Alternative A—Current Management (No Action)	*Alternative B—Integrated Partnership Approach (Proposed Action)*
WILDLIFE DISEASE CONTROL—Management Actions	
Monitor and respond to avian cholera and other disease outbreaks.	*Same as alternative A, plus the following:* Use partnerships to increase preparedness for wildlife diseases. Develop a wildlife disease plan.
WILDLIFE DISEASE CONTROL—Environmental Consequences	
The district would be able to contain the spread of known epizootic diseases but might be unable to contain the spread of new wildlife diseases.	Through expanded partnerships, the district would be able to respond quicker to contain the spread of epizootic diseases in a more efficient and cost-effective manner.
SPECIES OF CONCERN—Management Actions	
Manage to mimic natural ecological processes.	*Same as alternative A.*
SPECIES OF CONCERN—Environmental Consequences	
Effects to known species of concern would be neutral or positive.	Proper grazing would maintain prairie dog populations at acceptable levels. There would be an increase in rarer species because of changes in management and coordination with partners.
RESEARCH AND SCIENCE, Habitat and Wildlife—Management Actions	
Assist partners, universities, and scientists to develop projects that focus on district priorities. Find funding, provide technical assistance and review, provide research sites, and develop new methods for research. Use quantitative monitoring techniques to assess wetland management and wildlife populations.	*Same as alternative A, plus the following:* Work with partners to increase the volunteer, internship, and graduate research programs. Provide temporary housing for researchers and volunteers. Expand monitoring to include upland habitats and grassland birds. Increase research on the hydrology of the WPAs' watersheds.
RESEARCH AND SCIENCE, Habitat and Wildlife—Environmental Consequences	
The district would benefit minimally from occasional research performed within the district. Limited monitoring would be performed as district resources allow.	Through expanded partnerships the district would be able to engage in activities and support that lead into research that directly benefits the management activities of the district. Monitoring is likely to increase in areas and at times currently not available.
RESEARCH AND SCIENCE, Socioeconomics—Management Actions	
Conduct no additional analysis of the socioeconomic situation.	Identify and quantify socioeconomic benefits that local communities derive from the district.

Table 3. Comparison of alternatives and environmental consequences.

Alternative A—Current Management (No Action)	*Alternative B—Integrated Partnership Approach (Proposed Action)*
RESEARCH AND SCIENCE, Socioeconomics—Environmental Consequences	
The district would continue to have a lack of knowledge on the current conditions where socioeconomic benefits local communities and municipalities derive from the existence and management of the district.	Through expanded parterships, the district would be able to ascertain the benefits that it provides to local municipalities and to Nebraska. The district would be able to find areas where visitor services could be expanded to provide more benefits to the community. More segments of the population would be reached to gain further support for conservation efforts.
LAND PROTECTION—Management Actions	
Buy land only in fee title from willing sellers. Focus on remaining wetlands having partial district ownership.	Through partnerships, expand land protection with perpetual easements. Coordinate with partners to identify lands that need protection and transfer to appropriate agencies.
LAND PROTECTION—Environmental Consequences	
Only a few of the wildlife-habitat parcels of land remaining in the basin would be protected, leaving other potential tracts of land without protection.	Expanded partnerships would allow for innovative and expanded methods to conserve lands with value to wildlife throughout the basin. Complete ownership of wetlands would allow more effective management.
CULTURAL RESOURCES—Management Actions	
Follow requirements of the National Historic Preservation Act prior to any undertaking.	*Same as alternative A, plus the following:* Work with partners to develop a basin-wide program to identify and evaluate cultural resources. Implement a multi-agency programmatic agreement that would make the process more efficient.
CULTURAL RESOURCES—Environmental Consequences	
Efforts to identify cultural resources would only take place in response to a proposed undertaking.	Expanded partnerships would allow for proactive identification of cultural resources, not just those in the area of a proposed undertaking. This would also help to speed up the process for future habitat management activities.
VISITOR SERVICES, Hunting—Management Actions	
Provide opportunities to hunt and trap. Close some WPAs to hunting during the late-winter, light goose season.	*Same as alternative A, plus the following:* Develop a hunt plan. Work with partners to increase the number of accessible hunting blinds. Work with partners to provide up-to-date wetland conditions to the public.

Table 3. Comparison of alternatives and environmental consequences.

Alternative A—Current Management (No Action)	*Alternative B—Integrated Partnership Approach (Proposed Action)*
VISITOR SERVICES, Hunting—Environmental Consequences	
The district would continue to be a destination for avid hunters. The district would lack the information about the level of use by and satisfaction of hunters.	Through the development of a hunt plan and partnerships, the district would better understand hunter use, hunter satisfaction, and potential areas to improve its infrastructure to meet visitors' needs.
VISITOR SERVICES, Fishing—Management Actions	
Do not manage to develop or sustain a fisheries.	*Same as alternative A.*
VISITOR SERVICES, Fishing—Environmental Consequences	
Fisheries would not be developed.	*Same as alternative A.*
VISITOR SERVICES, Wildlife Observation and Photography—Management Actions	
Provide limited opportunities for wildlife observation and photography.	Develop partnerships and volunteerism to promote and expand wildlife-viewing opportunities. Increase the number of hiking trails and viewing blinds. Work with partners to develop and distribute bird-viewing guides and maps.
VISITOR SERVICES, Wildlife Observation and Photography—Environmental Consequences	
Limited opportunities for these public uses would cause these activities to remain at current levels.	Through the development of partnerships, the district would better understand the level of use by and satisfaction of wildlife observers and photographers. The district would be able to identify potential areas to improve its infrastructure to meet visitor's needs.
VISITOR SERVICES, Environmental Education and Interpretation—Management Actions	
Provide limited environmental education and interpretation. Provide a current webpage.	*Same as alternative A, plus the following:* Establish a formal environmental education and interpretation program and facilities. Emphasize partnerships with local groups and organizations. Build support through volunteers and partnerships.
VISITOR SERVICES, Environmental Education and Interpretation—Environmental Consequences	
The limited opportunities for these public uses would cause these activities to remain at current levels.	Through the development of partnerships, the district would better understand the level of use by and satisfaction of people wanting to learn more about the environment. The district would be able to identify potential areas to improve its infrastructure to meet visitor's needs.

Table 3. Comparison of alternatives and environmental consequences.

Alternative A—Current Management (No Action)	*Alternative B—Integrated Partnership Approach (Proposed Action)*
VISITOR SERVICES, Public Access—Management Actions	
Temporarily close some WPAs when needed to protect species sensitive to human disturbance. Maintain identification and boundary signs at the WPAs.	*Same as alternative A, plus the following:* Increase the number of the Service's WPA signs on district lands. Increase the number of directional signs on main roads and highways.
VISITOR SERVICES, Public Access—Environmental Consequences	
No changes in management would lead to the same level of use as currently occurs as visitors would not always know where the WPAs are located	Expanded and improved signage is likely to lead to better recognition of the Service and the district, as well as possible increase in public visitation
PARTNERSHIPS—Management Actions	
Limit partnerships to those that can help meet habitat goals.	*Same as alternative A, plus the following:* Assure that the partnerships joined or created are mutually beneficial and provide a return on investment.
PARTNERSHIPS—Environmental Consequences	
It is unlikely that the district could meet the vision and goals. Public misunderstanding of management activities and goals would continue, and there would be a lack of public support.	Expanded partnerships would enable the district to make significant progress in meeting the vision and goals. Public awareness would be increased and vandalism decreased because of expanded education and interpretation programs.
SOCIOECONOMICS—Management Actions	
Make no investment in facilities or additional staff.	Improve management and visitor services to increase public use and appreciation of wetland resources.
SOCIOECONOMICS—Environmental Consequences	
Effects would be neutral or minimal, with district expenditures and visitation near current levels.	There would be long-term positive effects on the local economy due to increased visitation because of improvement of habitat and facilities.
OPERATIONS, Staff and Funding—Management Actions	
Retain the current staff level to manage wetlands.	Expand the staff level as budgets allow to address increasing needs.
OPERATIONS, Staff and Funding—Environmental Consequences	
The district would manage habitats in a more reactive than proactive way. This may lead to some degradation of habitats due to invasive plant encroachment and under-management.	The district would be able to improve more lands for migratory and other wildlife species. There would be increased opportunities for compatible public recreation.

Table 3. Comparison of alternatives and environmental consequences.

Alternative A—Current Management (No Action)	*Alternative B—Integrated Partnership Approach (Proposed Action)*
OPERATIONS, Law Enforcement—Management Actions	
Maintain a limited law enforcement program.	Develop a law enforcement plan. Establish a position for one full-time law enforcement officer.
OPERATIONS, Law Enforcement—Environmental Consequences	
Current levels of law enforcement would likely lead to inadequate protection of resources and wildlife.	The Service would be able to conduct year-round patrols to enforce laws and regulations and increase contacts with hunters, neighbors, and visitors. This increased presence would provide more protection of district resources.
OPERATIONS, Facilities and Equipment—Management Actions	
Operate from a substandard rental office and shop. Maintain property and equipment in safe, working condition. Operate and repair antiquated water-pumping facilities; limit pumping to existing facilities.	Construct an office/visitor center, cold-storage building, shop facility, and temporary housing facilities for volunteers, researchers, and fire crews. Maintain property and equipment in safe, working condition. Provide adequate radio and telephone communications. Increase and modernize water-pumping facilities. Construct livestock water structures and boundary fences around most WPAs to facilitate use of grazing as a management tool.
OPERATIONS, Facilities and Equipment—Environmental Consequences	
Continued use of existing facilities would perpetuate the inability of the staff to perform adequately and could also lead to preventable accidents.	Use of modern facilities that meet the Service's safety standards would allow the staff to work without unnecessary risks and be more productive and efficient.