3 Alternatives

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3.1 Introduction

Alternatives are different approaches to management of the refuge designed to resolve issues, achieve the refuge purpose, vision and goals identified in the CCP, while helping to fulfill the mission of the System and comply with current laws, regulations, and policies. NEPA requires an equal and full analysis of all alternatives considered for implementation.

This chapter describes three management alternatives for Lacreek NWR: alternative A, Current Management (No Action); alternative B, Integrated Restoration (Proposed Action); and alternative C, Comprehensive Grassland Restoration. One alternative was considered but eliminated from detailed study (see section 3.3).

3.2 Alternatives Development

In fall 2004, the Service held a meeting with the public to identify the issues and concerns that were associated with the management of Lacreek NWR. The public involvement process is summarized in greater detail in chapter 2. Based on public input, as well as guidelines from NEPA, the Improvement Act, and Service Planning Policy, the planning team selected the substantive issues that will be addressed in the alternatives.

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Substantive issues identified for Lacreek NWR are:

1. Habitat and Wildlife Management
2. Public Use
3. Water Management
4. Little White River Recreation Area
5. Lake Creek Hydrology
6. Species of Management Concern
7. Predators

The planning team discussed alternatives for management that will address the substantive refuge issues and meet the goals of the System. Each alternative described in the following sections addresses the substantive issues somewhat differently.

3.3 Alternatives Considered but Eliminated from Detailed Study

The "Custodial Status alternative" was considered, but rejected. It would have involved placing the refuge in a custodial status with little to no active management occurring. This alternative was rejected because it would result in a significant loss of infrastructure, impacts to recreational opportunities, degradation of habitat, and impacts to adjoining landowners from lack of weed management.

All staff would be transferred to other refuges throughout the region. The refuge's operating

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and maintenance budget would be severely cut, and most on site equipment would be transferred to other refuges. All of the gates on water control structures would be opened and water management would occur passively. The refuge would stand to lose senior water rights through successive years of non-use. Repairs to refuge infrastructure and roads would not be completed as they deteriorated. Public use would be significantly curtailed because elimination of staff would preclude management of a public use program. Recreational facilities on the LWRRA would be eliminated because no staff would be available for trash removal, road repair, lawn care, and general maintenance. Noxious weed control would be conducted primarily through haying and grazing and would be administered by another refuge (designated as custodial manager for Lacreek NWR). Neighboring landowners may be impacted by an increase in noxious weeds. New infestations of noxious weeds, such as salt cedar and purple loosestrife would go undetected until well established, further reducing habitat quality. No staff would be available for wildfire control and, therefore, initial fire response would be slower. Periodic law enforcement would be conducted by officers from other refuges. The Bennett County Sheriff's Department would perform necessary law enforcement duties on the refuge. The Little White River Dam would be decommissioned and scheduled for removal.

3.4 Elements Common to all Alternatives

A number of elements are common to all three alternatives listed. The planning team did not believe that a realistic alternative would include only the use of herbicides for noxious weed control or the elimination of noxious weed control altogether. All three alternatives list the use of an aggressive Integrated Pest Management Program. Management through prescribed grazing and prescribed burning are listed in all alternatives, with some variation to what extent each management tool will be used.

Species management emphasizes the importance of trumpeter swans, black-tailed prairie dogs, and American white pelicans at Lacreek NWR in all alternatives.

Partnerships are emphasized throughout, with the continued support for the Partners for Fish and Wildlife Program in all alternatives. This highly successful program provides significant benefits for all partners involved, and the planning team did not believe a realistic alternative would include removal of support for this program.

Management of easements throughout the Wetland Management District will emphasize monitoring and enforcement for all three alternatives. Protecting all known and newly discovered cultural resources is common to the alternatives.

Maintaining support for hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation are common to all the alternatives.

3.5 Description of Alternatives

The theme and general management direction for each alternative are described below.

Alternative A—Current Management (No Action)

Under alternative A, management activity being conducted by the Service would remain the same. The service would not develop any new management, restoration, or education programs at the refuge. 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. The staff would continue to manage the WMD through monitoring and enforcing easements. See figure 5, public use map, alternative A.

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Prescribed fire crew

Uplands management is focused on restoration with a low diversity native grass mix. Ongoing activities of prescribed grazing, no new tree plantings and the removal of scattered trees on the refuge would remain the same. The activities of prescribed burning, grazing and IPM also would be used in the uplands for grassland management.

Management of the Nebraska Sandhills portion of the refuge would continue to be minimally managed, and gathering baseline data would occur on an as-needed basis. Wet meadows habitat would continue to be managed by prescribed grazing and burning to control exotic species. The treatment of invasive plants and the removal of Russian olive trees would continue to be identified and treated on an as-needed basis when management problems occur.

The hydrology of Lake Creek on the Brown Ranch portion of the refuge would remain unchanged. Several open ditches on the south side of Lake Creek would continue to drain wet meadows and wetlands and no efforts would be made to address the down cutting occurring in the Lake Creek channel. Management of the wetland management district would continue by monitoring and enforcing easements.

Within the developed wetlands, management emphasis would only focus on spring and fall migration and winter habitat for migratory birds. Infrastructure of the dike system would be maintained. Ongoing activities for converting Pool 2 to a wet meadow habitat and considering pelican use of Pool 9 during management activities would continue. Annual burning and grazing of the wetlands for cattail and Canada thistle control would continue to increase plant diversity and to reestablish wet meadow fringe around pools.

Species management of prairie dogs, trumpeter swan, and white pelicans on Pool 9 would remain the same. Refuge staff would maintain a viable population of black-tailed prairie dogs on the refuge and no active management of prairie dogs would be conducted. Staff would continue to monitor the population of the High Plains Flock of trumpeter swans with an emphasis on providing habitat and food resources during the fall and winter. Monitoring the population status and disease of white pelicans on Pool 9 and current water management regime would remain the same. No effort would be made to transplant blowout penstemon into appropriate habitat on the refuge. No active program would be implemented to control predators.

Current public use levels would remain the same. The refuge would continue fishing and hunting programs to manage wildlife and provide compatible priority wildlife-dependent public use.

The hunting program at the LWRRA would not change and would allow hunting for all species currently allowed by State of South Dakota regulations. The hunting program for the remainder of the refuge would be unchanged. No new areas and no new species would be open to hunting.

The fishing program would continue to emphasize the LWRRA and trout ponds for recreational fishing. Although limited fisheries would be available, Pools 3, 4, 7 and 10 would remain open to fishing. Non-wildlife-dependent recreation—boating, camping, and picnicking—would continue to be limited to the LWRRA.

Public access to the existing auto tour route, trails and access points and opportunities for participation in existing interpretive and environmental education programs would be maintained.

Research activities for habitat, wildlife, and public use would remain at current levels. The current levels of operations and maintenance for natural resources, existing public use, infrastructure and facilities would not change. Replacement of equipment would occur on an as-needed basis when funding becomes available.

The LWRRA Phase III Project would be completed according to the final designs completed in 2005. The Project would involve excavation of a secondary emergency spillway, replacement of the primary emergency spillway, replacement of the outlet works, and raising the elevation of the dam by 1 foot.

Cultural resources management would protect known and newly discovered artifacts and sites. The staff would maintain existing partnerships and continue public outreach efforts to improve relations with the immediate surrounding community.

Alternative B—Integrated Restoration (Proposed Action)

Alterative B is the proposed action for the CCP for Lacreek NWR and WMD. Through an integrated restoration approach, the refuge would strive to restore ecological processes where practical and possible. This would allow for habitat conditions that require reduced management over time while recognizing the place of the refuge in the overall landscape. An emphasis on adaptive management, including monitoring the effects of habitat management practices and use of the research results to direct ongoing restoration, would be a priority. Current levels of priority public uses and activity would increase. The staff would continue to manage the WMD through monitoring and

enforcement of easements. Appendix E contains the Prairie Dog Management Plan.

Upland management would be focused on the restoration of and management for a high diversity of native grass and forb species. Uplands that are dominated by exotic plants and had previously been tilled would be farmed long enough to remove exotics and prepare a seedbed for restoration. To reduce conflicts with prescribed burning. New woody plantings would consist of native fire-tolerant shrubs such as chokecherry, American plum, and indigo bush. Weedy trees scattered throughout the refuge would be removed, with the exception of cottonwoods and other native trees located near springs and seeps on the refuge. Most shelterbelts would be maintained, but no new shelterbelts would be planted. As shelterbelts mature and deteriorate, they would be scheduled for removal. The current use of prescribed burning, grazing, and IPM would be used in the uplands for grassland management.

Under alternative B, the Nebraska Sandhills would continue to be minimally managed to maintain habitat. An emphasis would be placed on expanding the record of baseline information and increasing research.

Within wet meadows, the management prescriptions would include prescribed burning and grazing and IPM to control exotic species and favor native species. Many of the wet meadows have been treated with herbicides to control noxious weeds. As the noxious weeds are controlled, the wet meadows would be interseeded with a high diversity of native grass, forb, and sedge species to restore the native plant communities.

The staff would investigate techniques and work with others to research and understand the hydrology of Lake Creek on the Brown Ranch portion of the refuge. Open ditches on the south side of Lake Creek would be filled in an attempt to restore the hydrology of those wetlands.

Within developed wetlands, management emphasis would focus on spring and fall migration and winter habitat for migratory birds. Seasonal drawdowns would be used to promote desirable emergent and submergent vegetation and units would be re-flooded in the fall or spring to maximize food resources available during peak migration periods. Management would also promote summer nesting activity for wetland-dependent species on portions of the managed wetlands by maintaining surface water through nesting and brood rearing periods. Ongoing activities for converting Pool 2 to a wet meadow habitat and considering pelican use of Pool 9 when conducting management activities would continue as in alternative A. Refuge staff would continue to employ current management practices of burning and grazing and IPM for cattail and Canada thistle control, to increase plant diversity, and to reestablish wet meadow fringe around pools.

Under alternative B, species management would emphasize maintaining a viable population of black-tailed prairie dogs on the refuge (see figure 4, prairie dog management map, alternative B). The prairie dog colonies would be allowed to contract and expand within biologically and socially compatible zones. Use of all available controls, including lethal control, would be authorized when towns expand outside these compatible zones. Predators would be managed by initiating a limited trapping program in the developed wetlands for raccoons and skunks and for coyotes in Pool 9. Planning and coordination for transplanting blowout penstemon into the sandhills on the refuge would be initiated.

Trumpeter swan management would be the same as alternative A, with the addition of emphasis on encouraging nesting in historical nesting areas. Seasonally, areas around the trout ponds would be closed to public use when populations of trumpeter swans are concentrated there. The use of lead sinkers for fishing would be eliminated. The staff would work to educate the public on the hazards created by lead for trumpeter swans and other wildlife.

For white pelicans, refuge staff would continue to monitor population status and disease, plus control predators around the islands on Pool 9. Herbaceous vegetation on the islands would be kept at a minimum. Water levels on Pool 9 would only be drawn down after the effects on the pelican nesting colony are evaluated. Predator control activities would be increased around the nesting islands if Pool 9 were drawn down.

For public use (see figure 6, public use map, alternative B), the hunting program would be expanded to improve the quality of the program. Where compatible, additional areas would be opened to youth waterfowl hunting, and the area open to deer hunting would be slightly increased. The staff would work with the state to develop a program for hunting additional species on the refuge, such as cottontail rabbit, turkey, mourning dove, coyote, and partridge in areas currently open to pheasant and sharp-tailed grouse hunting. Closure of selected road ditches to hunting would move hunters from maintained County roads and reduce conflicts with other refuge visitors associated with this activity. Refuge staff would work with the State of South Dakota Game, Fish and Parks to target closure of specific road ditches outside the refuge boundary. Unarmed retrieval of waterfowl from closed portions on the refuge would not be allowed without authorization. The staff would develop a program to accommodate disabled hunters whenever possible on the refuge.

Fishing would be the same as alternative A, existing conditions. The staff would work to eliminate the use of lead sinkers for fishing and educate the public on the hazards created by lead for trumpeter swans and other wildlife. The staff would develop an annual youth fishing activity.

The auto tour route would be expanded and an interpretive kiosk would be placed along Highway 73 in cooperation with the South Dakota Department of Transportation. Additional observation and wildlife photography opportunities would be created by a sandhills hiking trail from the kiosk location on Highway 73 and a wetlands hiking trail would be identified and developed. Both Pelican Islands and Bird Walk trails would be updated with directional signs and new interpretive information. A portion of the Pelican Islands Trail would be made accessible.

The environmental education and interpretive programs would be expanded to foster appreciation and promote awareness of Lacreek NWR, targeting local school groups and other members of the community. This would include making it a priority to improve interpretive materials, expanding public relations, working with partners, and conducting theme-related educational or interpretive events each year.

Non-wildlife-dependent recreational activities would remain the same. Collection of certain native plants would be allowed. Limited gathering of wild foods for ceremonial use would be allowed. The non-wildlife-dependent recreational activities of boating, swimming, camping, and picnicking currently allowed only on the LWRRA would continue to be permitted. Facilities for these uses would be maintained; however, additional developments would not be considered.

Research activities for habitat, wildlife and public use would be expanded to evaluate the effects of management activities on species diversity and habitat conditions. An emphasis would be placed on measuring water quality to evaluate changes. The staff would partner with universities and other governmental entities to conduct specific research to allow for better understanding of the effects of management actions.

For refuge operations, the minimum staffing levels would need to be maintained in order to enhance habitat and wildlife management and other refuge programs, including public use and maintenance. Additional staff would be required to assist in upland habitat restoration and perform maintenance on existing infrastructure. Two existing houses would be replaced to enhance staff recruitment efforts and provide a safer living environment for staff and their families. Partnership opportunities would be increased through the construction of a new bunkhouse.

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Greenwing Day fire safety

For the LWRRA Phase III Project, a re-evaluation of the hazard classification for this site would be completed. Further engineering studies would be requested to reevaluate the feasibility of the project or determine if the dam or the standard operating level modified to reduce the hazard classification. If the hazard classification remains in the "significant category," modifications would be completed according to the 2005 final designs.

Cultural resources management would protect known and newly discovered artifacts and sites. The staff would strengthen existing partnerships and continue public outreach efforts to improve community relations not only with the immediate surrounding community but outlying communities as well.

Alternative C—Comprehensive Restoration

Under alternative C, refuge staff would focus management on restoration of grassland habitat and its associated species. Current levels of priority wildlife-dependent public uses would increase with educational priorities placed on habitat restoration. Research activities would focus on management practices on targeted grassland species. The staff would continue to manage the wetland management district through monitoring and enforcement of easements.

Uplands management under Alternative C would be focused on the restoration of a high diversity of native grass and forb species with a particular emphasis on grassland-dependent birds. Shelterbelts and scattered trees would be removed, and there would be no new tree plantings on the refuge. Prescribed burning, grazing, and IPM practices would be the same as alternative A. Management of the Nebraska Sandhills would follow alternative B, but would include an

experimental prescribed burning and grazing program to improve the habitat for grassland-dependent bird species.

Within wet meadows, the management prescriptions would include prescribed burning and grazing and IPM to control exotic species and favor native species. As the noxious weeds are controlled, the wet meadows will be interseeded with a high diversity of native grass, forb, and sedge species to restore the native plant communities. Open ditches that drain into Lake Creek would be filled in an attempt to restore the hydrology of those wetlands.

In addition to work on the south side of Lake Creek, the refuge would investigate opportunities to flood irrigate the Brown Ranch. Soils and geographic information indicate that Lake Creek historically was a meandering stream within the valley. Flood irrigation would attempt to mimic certain processes that no longer occur within the Lake Creek Valley. Lake Creek has become entrenched due to several factors, mostly human-caused. As a result, the local groundwater table has dropped, reducing subirrigation and the number of small wetlands and wet meadows that occur on the Brown Ranch. Overbank flooding has been virtually eliminated. Artificial irrigation would assist in the establishment of wetland and wet meadow habitat and would raise the water table in the vicinity of the irrigation canals. Care would be taken not to affect neighboring property.

Species management of trumpeter swans and white pelicans would be the same as alternative A, but management of prairie dogs and predators will differ. Throughout the refuge, the use of all available prairie dog controls wherever prairie dog establishment conflicts with grassland restoration or extends outside the socially compatible zones would be a priority. Predators, including skunk, raccoon, mink, and weasel, would be managed by initiating a trapping program during the nesting season in the developed wetlands. A coyote-hunting season and spring trapping around Pelican Islands would also be initiated.

With certain exceptions, public uses for hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation would be the same as alternative B. However, select road ditches would not be closed to hunting and the retrieval of wildlife on the refuge would continue to be permitted. See figure 7, public use map, alternative C.

Environmental education and interpretation would be expanded by sponsoring one theme-related event per year. An emphasis would be placed on providing information through updated brochures and the website. Cultural resources protection would be the same as alternative B.

Regarding refuge operations and maintenance, minimum staffing levels would need to be a priority to enhance habitat and wildlife management, public use, maintenance, and other refuge programs. Additional staff would be required to assist in upland habitat restoration and perform maintenance on existing infrastructure. In addition, a biological technician position would be established to support the intensive grassland restoration efforts. As in alternative B, replacement of two existing houses to enhance recruitment efforts and expand partnership opportunities by the construction of a new bunkhouse would be required.

Regarding the LWRRA Phase III Project, under alternative C the dam would be breached and the area would be managed as a riparian area.

3.6 Comparison of Alternatives

The three alternatives are compared in table 1 following the alternative maps.

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Heavy equipment tracker

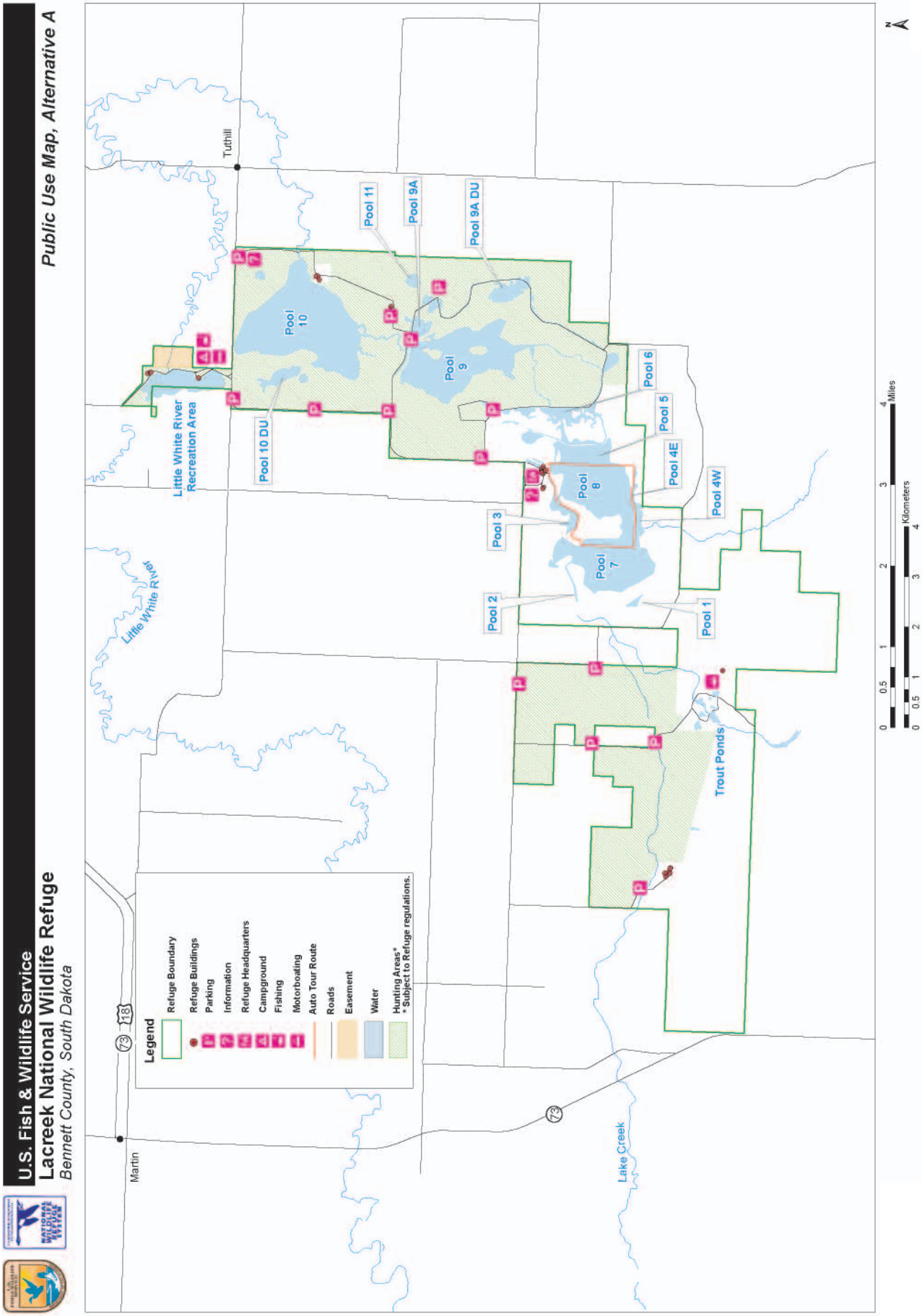

Figure 5. Public use map, alternative A

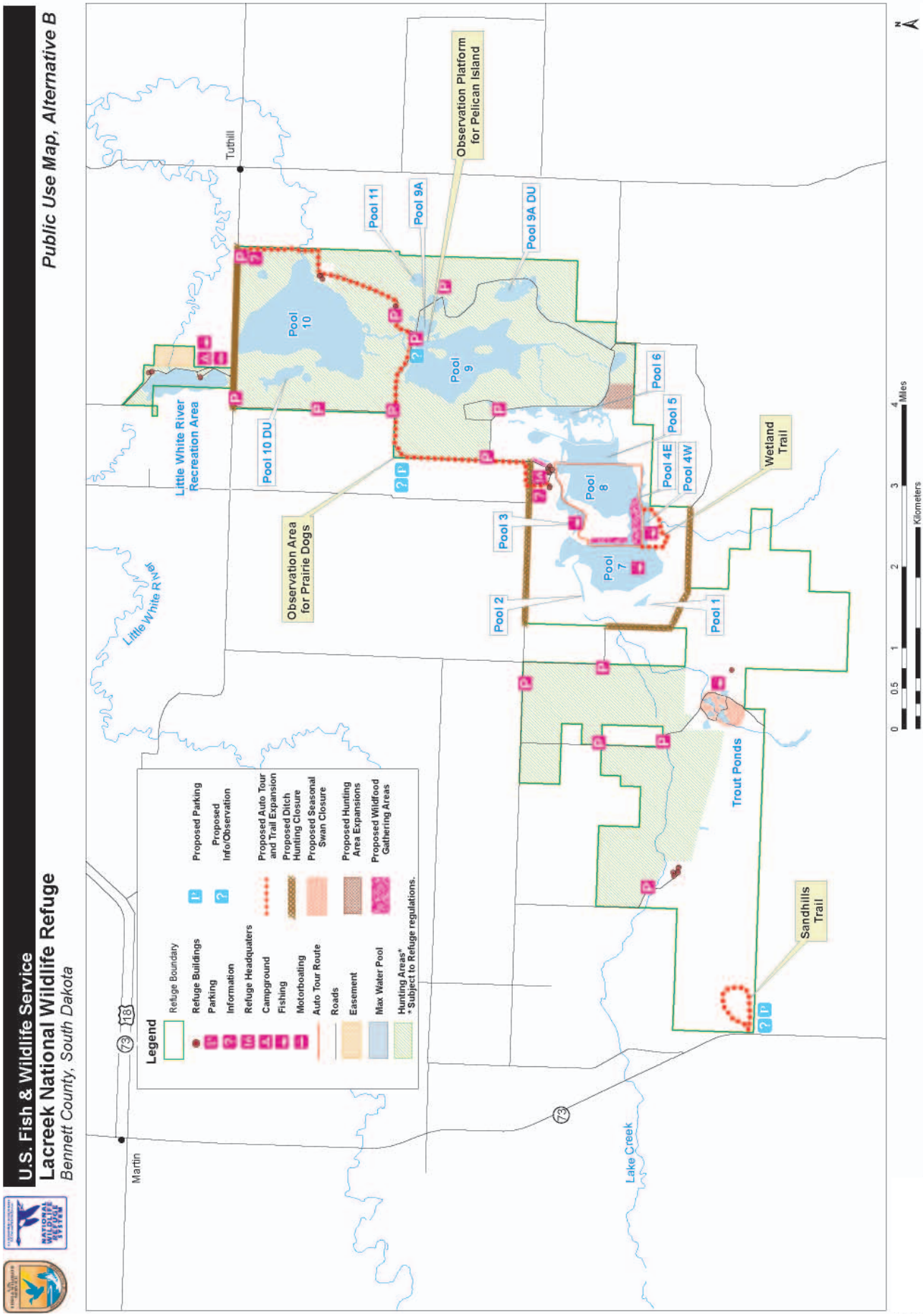

Figure 6. Public use map, alternative B

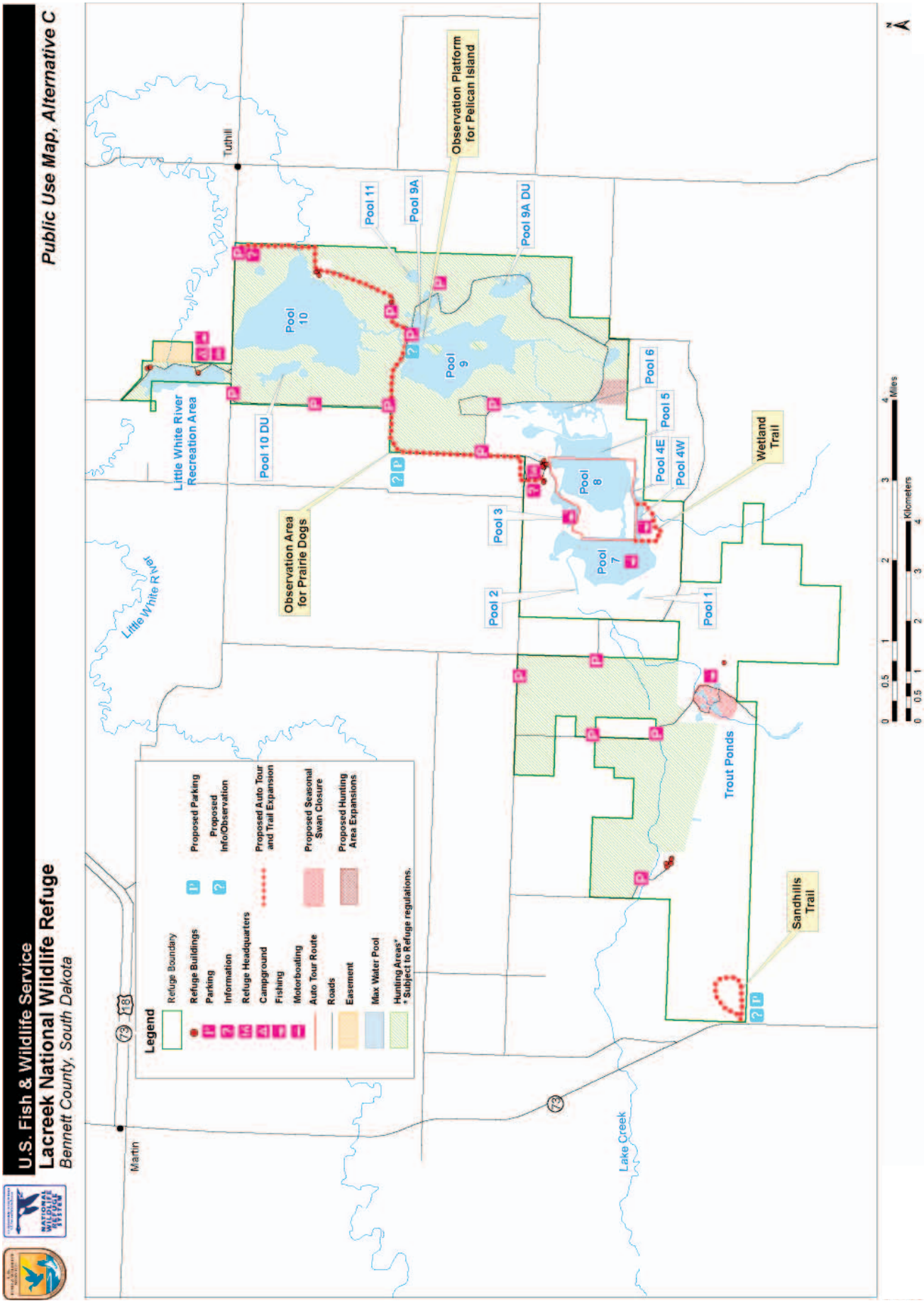

Figure 7. Public use map, alternative C

Focus Area	*Alternative A (Current Management—No Action)*	*Alternative B (Integrated Restoration—Proposed Action)*	*Alternative C (Comprehensive Restoration)*
Summary of Management Approach	• Continue current habitat and wildlife management practices benefiting migratory species and other wildlife. • Continue current level of public uses. • Perform only limited, issue-driven research and only monitor long-term vegetation change.	• Strive to restore ecological processes and achieve habitat conditions that require reduced management over time, while recognizing the place of the refuge in the overall landscape. • Increase current levels of priority wildlife-dependent public uses and actively build community support for the refuge. • Monitor effects of habitat management practices and use research results to direct ongoing restoration.	• Focus management on restoration of grassland habitat and its associated species. • Increase current levels of priority wildlife-dependent public uses, with an emphasis on education about habitat restoration. • Focus research on the effects of management practices on targeted grassland species.
Habitat and Wildlife			
Uplands	• Management is focused on restoration with a low diversity native grass mix. • No new tree plantings on the refuge. Remove scattered weedy trees outside of riparian areas. • Continue use of prescribed grazing, prescribed burning, and IPM practices. • Continue to protect WMD by monitoring and enforcing easements.	• Management is focused on the restoration of a high diversity of native grass and forb species. • New woody plantings will consist of native fire tolerant shrubs such as chokecherry, American plum, and indigo bush. Weedy trees scattered throughout the refuge would be removed with the exception of native trees found adjacent to springs and seeps and some cottonwoods used as eagle roosts. Most shelterbelts would be allowed to persist, however, as they die off they would not be replaced. • Continue to monitor and enforce easements throughout the WMD.	• Management is focused on the restoration of a high diversity of native grass and forb species with a particular emphasis on grassland-dependent birds. • Remove shelterbelts and scattered trees throughout riparian areas. There would be no new tree plantings on the refuge. • Continue use of prescribed grazing, prescribed burning, and IPM practices. • Continue to monitor and enforce easements throughout the WMD.

Focus Area	*Alternative A (Current Management—No Action)*	*Alternative B (Integrated Restoration—Proposed Action)*	*Alternative C (Comprehensive Restoration)*
Nebraska Sandhills	• Continue minimal management—including limited grazing and noxious weed control—to maintain habitat conditions. Continue gathering baseline information on this habitat type.	Same as alternative A, plus: • Expand the record of baseline information on this habitat type and increase research. Use research and knowledge gained from other Nebraska Sandhill refuges.	Same as alternative B, plus: • Initiate an experimental prescribed burning and expand prescribed grazing program to improve the habitat for grassland-dependent bird species.
Wet Meadows	• Continue annual prescribed grazing and prescribed burning to control exotic species, spot treatment of invasive weeds, and removal of Russian olives and willows. • Maintain current hydrology of Lake Creek on the Brown Ranch. • Continue to protect the wetland management district by monitoring and enforcing easements.	• Continue annual prescribed grazing and prescribed burning to control exotic species, spot treatment of invasive weeds, and removal of Russian olive trees and other weedy trees that cause management problems. • Interseed with native grass/forb/sedge mix. • Investigate techniques and work with others to research and understand the hydrology of Lake Creek at the Brown Ranch. Fill open ditches south of Lake Creek to restore the hydrology of those wetlands. • Continue to monitor and enforce easements throughout the wetland management district.	Same as alternative B, except: • Investigate opportunities for flood-irrigating the Brown Ranch to enhance subirrigation of wet meadows and create small wetlands.

Table 1. Comparison of alternatives *(continued)*

Focus Area	*Alternative A (Current Management—No Action)*	*Alternative B (Integrated Restoration—Proposed Action)*	*Alternative C (Comprehensive Restoration)*
Developed Wetlands	Management emphasis is on spring and fall migration and winter habitat. Continue to maintain the infrastructure of the dike system and the conversion of Pool 2 to a wet meadow habitat, employ annual drawdown/reflooding of pools to mimic a natural wet dry cycle with the emphasis of management being on seed, submerged aquatic vegetation, and invertebrate production. Pelicans will be considered in the management of Pool 9. Burn and graze for cattail and Canada thistle control, to increase plant diversity, and to reestablish wet meadow fringe around pools. Continue IPM practices. Remove trees where they interfere with management or infrastructure such as the dike system. Continue to monitor wetland species composition.	Same as alternative A, except: Management is expanded to include summer nesting activity for wetland-dependent species in some units each year, in addition to spring and fall migration and winter habitat. Following the establishment of restored wetland processes, adaptive habitat management will dictate water management.	Same as alternative A, except: Winter water management will focus on trumpeter swans, Canada geese, and other waterfowl by maintaining higher water levels in some pools. Water levels will be maintained to restrict access by mammalian predators in Pool 9.
Prairie Dog	Maintain a viable population of black-tailed prairie dogs on the refuge. Continue monitoring population size and acreage. Allow the contraction and expansion of colonies naturally. Complaints from adjacent landowners would not be addressed.	Maintain a viable population of black-tailed prairie dogs on the refuge. Allow prairie dogs to contract and expand within biologically and socially compatible zones. Consider the use of all available controls, including lethal methods when towns expand outside identified socially compatible zones.	Maintain a viable population of black-tailed prairie dogs on the refuge. Use all available controls, including lethal methods throughout the refuge where prairie dog establishment conflicts with grassland restoration or extends outside socially compatible zones.

Table 1. Comparison of alternatives *(continued)*

Focus Area	*Alternative A (Current Management—No Action)*	*Alternative B (Integrated Restoration—Proposed Action)*	*Alternative C (Comprehensive Restoration)*
Trumpeter Swan	Continue to monitor the population status of the High Plains Flock with an emphasis on providing habitat and food resources during the fall and winter.	Same as alternative A, plus: Encourage nesting where it historically occurred on the refuge if no management conflicts occur. Investigate lead poisoning and reduce lead in the environment. Seasonally close public use of the refuge trout ponds when populations of trumpeter swans are concentrated there.	Same as alternative B, plus: Maintain designated pools at higher levels in fall and winter to increase the amount of open water available.
White Pelican	Continue to monitor population status and disease. Maintain current water level management regime on Pool 9.	Continue to monitor population status and disease, plus: Control predators around islands. Keep herbaceous vegetation on islands to a minimum. Periodically manipulate water levels on Pool 9 to create additional habitat for wetland bird species by increasing submerged aquatic vegetation.	Same as alternative B, plus: Maintain water levels on Pool 9 to benefit other wetland-dependent species preferring more open water habitats.
Predators	No active program to control predators.	Manage coyotes in Pool 9 around the pelican islands through trapping and shooting. Initiate a control program for raccoons and skunks in developed wetlands during nesting season.	Same as alternative B, plus: Include control of mink and weasel.
Threatened and Endangered Species	Monitor and consult with Ecological Services. Close areas as needed to prevent disturbance to threatened and endangered species.	Same as alternative A, plus: Pursue and investigate the potential to introduce blowout penstemon in consultation with field experts and coordination with the State of South Dakota and adjacent landowners.	Same as alternative B.

Table 1. Comparison of alternatives *(continued)*

Focus Area	*Alternative A (Current Management—No Action)*	*Alternative B (Integrated Restoration—Proposed Action)*	*Alternative C (Comprehensive Restoration)*
Visitor Services			
Hunting	Continue hunting program to manage wildlife and provide compatible priority wildlife-dependent public use. The hunting program at the LWRRA will not change.	Expand and improve the safety and quality of the hunting program. Expand youth hunting opportunities in coordination with the state. Where compatible, open additional areas to hunting, including areas for youth waterfowl hunting and a small increase in area for deer hunting. Work with the state to develop a program for hunting additional species on the refuge proper (cottontail rabbit, turkey, mourning dove, and partridge in unit open to pheasant and sharp-tailed grouse and define a unit open to coyote hunting around Pelican Islands). Disabled hunters will be accommodated whenever possible/compatible on the refuge. Close select road ditches to hunting and/or work with the state to target closure of specific road ditches outside refuge boundaries. Discontinue retrieval of waterfowl in closed areas on the refuge.	Same as B, except: Do not close road ditches and continue to permit retrieval of waterfowl in closed areas on the refuge.
Public Access	Temporary closures may be instituted to protect species sensitive to human disturbance.	Same as alternative A.	Same as alternative A.

Table 1. Comparison of alternatives *(continued)*

Focus Area	*Alternative A (Current Management—No Action)*	*Alternative B (Integrated Restoration—Proposed Action)*	*Alternative C (Comprehensive Restoration)*
Fishing	Continue fishing program to provide compatible priority wildlife-dependent public use. Emphasis will be on the trout ponds and LWRRA.	Same as A, plus: Seasonally close public use of the refuge trout ponds during concentration of trumpeter swans. Eliminate the use of lead sinkers. Support/co-sponsor one youth fishing activity annually.	Same as alternative B.
Wildlife Observation and Wildlife Photography	Maintain wildlife observation and wildlife photography programs, existing auto tour route, and existing trails and access points to provide compatible priority wildlife-dependent public use.	Redesign and expand the auto tour route, update the auto-tour brochure. Add an interpretive kiosk along Highway 73. Provide additional wildlife observation/wildlife photography opportunities by creating Sandhills and Wetland Trails. Sign the bird walk (with informational and/or directional signage). Construct accessible boardwalk in view of Pelican Island.	Same as alternative B.

Table 1. Comparison of alternatives *(continued)*

Focus Area	*Alternative A (Current Management—No Action)*	*Alternative B (Integrated Restoration—Proposed Action)*	*Alternative C (Comprehensive Restoration)*
Environmental Education and Interpretation	Continue limited interpretation and environmental education programming.	Expand environmental education and interpretation to foster appreciation and promote awareness for Lacreek NWR among local school groups and other members of the community. Improve interpretive signs throughout the refuge and update refuge brochures and website. Expand public relations to inform the community about refuge operations and resources (e.g., press releases). Work with partners to encourage additional visitation from school groups and non-consumptive wildlife users. Sponsor/conduct a minimum of two theme related educational or interpretive events each year.	Same as alternative B.
Non-wildlife-dependent Recreation	Continue to permit non-wildlife-dependent recreational activities at the LWRRA (e.g., boating, camping, and picnicking).	Same as alternative A plus: Allow limited gathering of wild foods on the refuge (e.g., picking berries or plums). On a special-use permit basis, allow limited gathering of additional plant materials (e.g., cutting chokecherry branches for ceremonial use).	Same as alternative A.

Table 1. Comparison of alternatives *(continued)*

Focus Area	*Alternative A (Current Management—No Action)*	*Alternative B (Integrated Restoration—Proposed Action)*	*Alternative C (Comprehensive Restoration)*
Research and Science			
Habitat and Wildlife	Habitat-related research would be limited to evaluating strategic tools used to enhance native prairie and reduce invasives (e.g., smooth brome, Kentucky bluegrass, and leafy spurge). Inventory and monitor only broad, long-term vegetation succession. Wildlife-related research would include baseline inventories and basic assessments of trust species' response to proposed habitat management. Continue with established annual wildlife inventory plan focusing on trust species populations.	Continue inventorying, monitoring, and restoration of habitat. Evaluate the effects of management practices on species diversity, including and beyond grassland nesting birds. Measure water quality (salinity, turbidity, water table) and evaluate proposed changes to hydrology. Wildlife-related research would include baseline inventories and basic assessments of trust species' response to proposed habitat management. Continue with established annual wildlife inventory plan focusing on trust species populations. Partner with universities and other governmental entities to conduct specific research in order to support management actions.	Evaluate the effects of management practices (e.g., removal of shelterbelts, uplands restoration) on grassland-dependent species. Monitor experimental prescribed burning and prescribed grazing in the sandhills and study its effect on grassland-dependent species. Wildlife-related research would include baseline inventories and basic assessments of trust species' response to proposed habitat management. Continue with established annual wildlife inventory plan focusing on trust species populations. Partner with universities and other governmental entities to conduct specific research in order to support management actions.
Public Use	Perform limited monitoring and infrequent scientific research to evaluate the public use program.	Same as alternative A.	Same as alternative A.
Cultural Resources			
Pre-historic and Historic Resources	Continue to protect known and newly discovered cultural resources.	Same as alternative A, plus: Provide additional interpretation through brochures and add cultural resource information to the auto-tour route to provide more interpretation about the refuge's history.	Same as alternative A.

Table 1. Comparison of alternatives *(continued)*

Focus Area	*Alternative A (Current Management—No Action)*	*Alternative B (Integrated Restoration—Proposed Action)*	*Alternative C (Comprehensive Restoration)*
Refuge Operations			
Staffing	Continue to strive for minimum staffing level.	Ensure that minimum staffing level is filled in order to enhance habitat and wildlife management and other refuge programs, including public use and maintenance.	Same as alternative B, plus: Add 1 WG-5/6 Tractor Operator, 1 WG-6 Maintenance Worker, and 1 GS-5/6 Biological Technician to assist in habitat restoration and perform maintenance on existing infrastructure.
Operations and Maintenance	Continue the current level of operations and maintenance for natural resources, existing public use facilities, and administrative infrastructure. Complete visitor contact station. Maintain equipment for operations and replace as needed.	Same as alternative A plus: Provide adequate housing for staff and enhance recruitment by replacing two aging houses.	Same as alternative B.
Capital Improvements	Complete Little White River Phase III Project according to the 2005 final design. The Phase III Project would involve excavation of a secondary emergency spillway, replacement of the primary emergency spillway, replacement of the outlet works, and raising the elevation of the dam by 1 foot. Once completed, a probable maximum flood event would pass without overtopping the dam. Estimates provided for completion of these modifications have ranged from $5 million to $9 million	Re-evaluate the hazard classification for Little White River Recreation Area Dam. Request further engineering studies to determine if the dam can be modified or the standard operating level modified to reduce the hazard classification. If the hazard classification remains in the significant category, complete modifications according to the final designs completed in 2005. Enhance partnership opportunities by constructing a bunkhouse.	Decommission and breach the dam. Enhance partnership opportunities by constructing a bunkhouse.

Table 1. Comparison of alternatives *(continued)*

Focus Area	*Alternative A (Current Management—No Action)*	*Alternative B (Integrated Restoration—Proposed Action)*	*Alternative C (Comprehensive Restoration)*
Partnerships			
Partnerships	Maintain existing partnerships and continue public outreach efforts to improve community relations. Continue to support Partners for Fish and Wildlife work on private lands.	Same as alternative A plus: Strengthen partnerships with state, tribes, conservation districts, county, organizations, and volunteer fire departments. Develop intra-agency and interagency partnerships to assist with law enforcement, research, and other management. Partner with schools, tribes, and outlying communities on environmental education, interpretation, and refuge events.	Same as alternative B.

Table 1. Comparison of alternatives *(continued)*