

APPENDIX A: Draft Compatibility Determinations

Refuge Name

Long Lake National Wildlife Refuge Complex

Establishing and Acquisition Authority

Long Lake National Wildlife Refuge Complex
Executive Order 5808, February 25, 1932
Migratory Bird Conservation Act 45 Stat 1222

Refuge Purposes

“...as a refuge and breeding ground for migratory birds and other wildlife...” Executive Order 5808, dated February 25, 1932.

“...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” USC 715d (Migratory Bird Conservation Act.)

Refuge Name

Florence Lake National Wildlife Refuge

Establishing and Acquisition Authority

Florence Lake National Wildlife Refuge
Executive Order 8119, May 10, 1939
Migratory Bird Conservation Act 45 Stat 1222

Refuge Purposes

“...as a refuge and breeding ground for migratory birds and other wildlife...” Executive Order 8119, dated May 10, 1939.

“...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” USC 715d (Migratory Bird Conservation Act.)

Refuge Name

Slade National Wildlife Refuge

Establishing and Acquisition Authority

Slade National Wildlife Refuge
Donation, 1940
Migratory Bird Conservation Act 45 Stat 1222

Refuge Purposes

“...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” USC 715d (Migratory Bird Conservation Act)

Refuge Name

Long Lake Wetland Management District

Establishing and Acquisition Authority

Long Lake NWR Complex Draft Comprehensive Conservation Plan and Environmental Assessment

Migratory Bird Hunting Stamp Act 16 U.S.C. 718(c) “...as waterfowl production areas subject to all provisions of the Migratory Bird Conservation Act ...except the inviolate sanctuary provisions...”

Migratory Bird Conservation Act 16 U.S.C. 715d “...for any other management purposes, for migratory birds.”

Consolidated Farm and Rural Development Act 7 U.S.C. 1924 “... for conservation purposes”

Consolidated Farm and Rural Development Act 7 U.S.C. 2002 “...for conservation purposes”

Refuge Purposes

Long Lake WMD was established “...to assure the long-term viability of the breeding waterfowl population and production through the acquisition and management of waterfowl production areas, while considering the needs of other migratory birds, threatened and endangered species and other wildlife.” (The purpose statement was developed for all wetland management districts in region 6 in June 2004)

National Wildlife Refuge System Mission

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

1. Description of Proposed Use:

Farming, Grazing, and Haying

Continue upland management activities such as farming, grazing, and haying that are conducted under cooperative farming or SUP by private individuals. Currently, these economic uses are used as tools to manage habitat for wildlife.

Approximately 1,100 acres of uplands are farmed each year. Farming is conducted for the sole purpose of grassland restoration. The complex targets restoration of natives on 300–400 acres annually by planting native grass on fields that are currently degraded tamegrass and/or farmed fields. Grazing by cattle is used as a grassland and wetland management tool. Grazing was employed on 827 acres in 2005.

Approximately 20–30 percent of the upland acres in the complex could potentially be grazed annually, primarily targeting the early season, April 1–June 15 to reduce invading cool-season exotic species. Occasionally, grazing is also employed as a management treatment outside the seasonal window to address some other management issue. Grazing is also used to open shorelines in certain areas, which, in absence of treatment, are closed stands of dense emergent vegetation. Haying is sporadically used as a grassland management tool. It is utilized to control noxious weeds, prepare areas for upland restoration, treat litter accumulation and/or the ratio of live to dead plants in a stand, and prepare areas for prescribed burns.

The CCP proposes to continue grassland restoration activities throughout the complex. Farming would subsequently be reduced as native-grass seeding activities throughout the complex are completed. Cooperative farming activities are employed only on previously farmed uplands. Farming allows the refuge to establish seedbeds relatively free of noxious plants, maximizing the likelihood that grassland restoration will be successful. Crops that may be used during farming include, but are not limited to, corn, soybeans, grain millet, hay millet, winter wheat, barley, and spring wheat.

The CCP proposes to utilize grazing as a management tool for wetland and upland habitats. Specific acreages have not been identified in the CCP because habitat conditions within wetland and upland areas

can change dramatically on a yearly basis due to precipitation and temperatures. An adaptive approach will be used when prescribing grazing treatments for complex habitats.

Availability of Resources

The resources necessary to administer haying, grazing, and farming programs at existing levels are sufficient at current staffing and budgetary levels. Haying, grazing, and farming programs are generally conducted through SUPs or cooperative farming agreements minimizing staff time and refuge assets to complete work. In order to restore native grass and forbs on degraded tamegrass and farmed fields as outlined in this CCP, the complex will require additional funds to purchase seed annually (until the tame grass and farmed fields are converted).

Anticipated Impacts of the Use

Over a 5-year period, grazing has been conducted on approximately 1,000 acres annually. While annual acreages have not been specified in the CCP, it is expected that future grazing in the complex will increase to address management issues with primary cool-season invasive species (e.g., smooth brome, Kentucky bluegrass). Additionally, habitat requirements of a diverse mix of target bird species requires that habitat be provided in high (> 8 inches), medium (4–8 inches), and low (< 4 inches) visual obstruction categories. In order to provide these grassland habitats, habitat manipulation, through a variety of means including grazing, haying, and stand reestablishment through reseeding is required. Farming acres will likely remain at or near the current level of 1,100 acres farmed annually for 8–10 years. They will then be reduced as previously farmed and tamegrass uplands are converted to native grass. Approximately 300–400 acres of native grass are targeted to be seeded annually. Haying is used sporadically to address specific grass stand issues throughout the complex and this use is not anticipated to change.

Without management, wetland and upland habitat conditions would deteriorate due to long periods of rest. Cool-season invasive species would likely increase and infest additional areas without the use of spring grazing. While all these activities disturb habitat and wildlife in the short-term, long-term habitat and wildlife benefits outweigh these disturbances. Farming causes decreases in wildlife habitat availability; however, habitat conditions will improve following grassland restoration activities.

The anticipated effect on target bird species, and other species which have similar habitat needs, is a positive effect on their habitats and subsequently their populations.

No cultural resources would be impacted. No impact to endangered species should occur.

Determination

The use of haying, grazing, and farming as habitat management tools is compatible.

Stipulations Necessary to Ensure Compatibility

- Monitor vegetation and wildlife to assess the effects of the management tools.
- Require general and special conditions for each permit to ensure consistency with management objectives.
- Restrict farming permittees to a list of approved chemicals that are less detrimental to wildlife and the environment.
- Restrict haying to commence after August 1 to avoid disturbance to nesting birds (unless the refuge manager deems it necessary to hay earlier to control invasive plants or restore grasslands).

Justification

To maintain and enhance the habitat for migratory birds and other wildlife, some habitat manipulation needs to occur. Upland and wetland habitat conditions would deteriorate without the use of a full range of management tools. Migratory bird habitat and ecological diversity would decrease as habitat suitability

declines. Habitat would degrade and meet the requirements of fewer migratory bird species on an annual basis as quality and condition deteriorate. Exotic and invasive plant species would increase and habitat diversity would decrease if management practices did not continue throughout the complex.

Mandatory 15-year reevaluation date: 2021

2. Description of Proposed Use:

Environmental Education and Interpretation

Provide opportunities for environmental education and interpretation.

Environmental education consists of activities conducted by refuge staff, volunteers, and teachers. Interpretation occurs in less formal activities with refuge staff, volunteers or through exhibits, educational trunks, signs, programs, and brochures. Currently, environmental education and interpretation activities are conducted at the Long Lake NWR office and occasionally on Slade NWR and select WPAs in the wetland management districts, and at various off-site locations where activities and/or programs are presented.

The recent staff addition of an outdoor recreation planner and proximity to a population of over 100,000 provides potential to expand substantially environmental education and interpretation programs at the complex. The CCP proposes to continue with current uses as well as improve environmental education and interpretation for all visitors. The following are facility and program improvements described in the CCP:

- Conduct two theme-related events, one in spring, one in fall to interpret the migration of birds.
- Construct observation tower overlooking the unit II marsh.
- Develop an accessible trail from stone buildings to observation tower.
- Upgrade facilities at Slade NWR and focus on wildlife-oriented activities at Lake Isabel Recreation Area.
- Enhance and upgrade the Small PWA interpretive trail.
- Update and improve refuge signs.
- Update existing brochures to the Service graphic standards.
- Rehabilitate historic stone buildings into an environmental education and interpretation center.
- Develop an on-site shorebird tour/activity as one potential theme and develop others for educators and school groups.
- Continue to conduct teacher workshops with a central theme of wildlife and habitats.
- Increase contact with students, on- and off-site, to develop and enhance an understanding and appreciation of wildlife and their habitats.
- Continue public outreach through various events and compatible wildlife-dependent recreation opportunities.

Availability of Resources

Implementing new facilities outlined in the CCP is closely tied to funding requests in the form of refuge operation needs system (RONS) and maintenance management system (MMS) projects. Existing programs such as current refuge signs and brochures can be updated with available resources.

Anticipated Impacts of Use

Minimal disturbances to wildlife and wildlife habitat would result from these uses at the current and proposed levels. Adverse impacts are minimized through careful timing and placement of activities. Some disturbance to wildlife would occur in areas frequented by visitors. There would be some minor damage to vegetation, littering, and increased maintenance would be necessary. Location and time limitations

placed on environmental education and interpretation activities would ensure that this activity would have only minor impacts on wildlife and would not detract from the primary purposes of the various units of the complex.

No cultural resources would be impacted. No impact to endangered species should occur.

Determination

Environmental education and interpretation are compatible public uses.

Stipulations Necessary to Ensure Compatibility

- Allow environmental education and interpretation only in designated areas or under the guidance of refuge staff, a volunteer, or a trained teacher to ensure minimal disturbance to wildlife, minimal damage to vegetation, and minimal conflicts between groups.
- Annually review environmental education and interpretation activities to ensure these activities are compatible.

Justification

Based on biological impacts described in the EA and the draft CCP, staff determined that environmental education and interpretation within the complex would not materially interfere with, or detract from, the purposes for which this complex was established.

Environmental education and interpretation are priority public uses listed in the Improvement Act. By facilitating environmental education, refuge visitors would gain knowledge and an appreciation of fish, wildlife, and their habitats, which would lead to increased public awareness and stewardship of natural resources. Increased appreciation for natural resources would support and complement the Service's actions in achieving the purposes of the refuge and the mission of the Refuge System.

Mandatory 15-year reevaluation date: 2021

3. Description of Proposed Use: Wildlife Observation and Wildlife Photography

Provide opportunities that support wildlife-dependent recreation

Wildlife observation and wildlife photography are facilitated by an auto tour route, one hiking trail and two wildlife observation pullouts.

The CCP proposes to continue previously stated uses and add the following to improve wildlife observation and wildlife photography:

- Designate and develop auto tour route.
- Identify exceptional wildlife viewing opportunities and improve viewing access through placement of portable blinds.
- Designate and develop an interpretive hiking trail and an observation deck.

Availability of Resources

Implementing new facilities outlined in the CCP is closely tied to funding requests in the form of refuge operation needs system (RONS) and maintenance management system (MMS) projects. Existing programs such as current refuge signs and brochures can be updated with available resources.

Determination

Wildlife observation and wildlife photography are compatible uses.

Stipulations necessary to Ensure Compatibility

- Restrict vehicles to designated roads and trails.
- Monitor use, regulate access, and maintain necessary facilities to prevent habitat degradation and minimize wildlife disturbance.

Justification

Based on the anticipated biological impacts, it is determined that wildlife observation and wildlife photography on the complex would not interfere with the habitat goals and objectives or purposes for which it was established.

Wildlife observation and wildlife photography are priority public uses listed in the Improvement Act. By facilitating these uses, visitors would gain knowledge and an appreciation of fish and wildlife which would lead to increased public stewardship of wildlife and their habitats. Increased public stewardship would support and complement the Service's actions in achieving the purposes of the complex and the mission of the refuge system.

Mandatory 15-year reevaluation date: 2021

4. Description of Use: Recreational Fishing

Continue to provide for recreational fishing at designated fishing areas in accordance with State regulations and expand programs to refuge and WPA areas where fish currently exist.

The primary game fish found in the complex are northern pike, walleye, and perch. Designated fishing areas on Long Lake NWR include Long Lake Creek and shore fishing access sites of unit 1. Boating is allowed only on Long Lake Creek and the period of use is May 1 through September 30. Boats are restricted to 25 horsepower. YMCAWPA and Adams WPA have the same fishery resources as Long Lake NWR because these waterfowl production areas are directly connected to the watershed.

Slade NWR and several waterfowl production areas, located in conjunction with large permanent wetlands, may have fishery resources which are not currently utilized. The CCP calls for an inventory of these areas and establishment of compatible fishery programs where they are found.

Fishing visitation is dependent on success, which is greatly influenced by weather cycles. Generally, fishing is good during wet cycles and poor during extended dry periods due to the marginal nature of the wetlands and lakes involved (shallow depths and harsh winters which subject wetlands of marginal depths to frequent winterkill of fish resources).

Availability of Resources

The current fishing program is administered using available resources. The CCP calls for the establishment of new fishing programs where game fish populations currently exist and where fishing activity can be provided in a manner, which is compatible with other objectives. Sufficient resources are available to maintain the existing recreational fishing program. When fishing programs are expanded to

new areas, the complex will need an increased law enforcement presence through additional law enforcement staffing and/or cooperative agreements for law enforcement coverage through the NDGF.

Anticipated Impacts of Use

Fishing and other human activities cause disturbance to wildlife. Restricting fishing to designated fishing areas minimizes the disturbance to migratory birds and other wildlife. In areas of relatively low use by migratory birds, such as large permanent lakes, fishing programs can provide recreation and have relatively little effect on other complex objectives and programs.

Determination

Recreational fishing is compatible.

Stipulations Necessary to Ensure Compatibility

- Require that fishing follow state and federal regulations.
- Confine fishing to designated fishing areas.
- Phase out the use of lead sinkers and lures over a 5-year period, as these present ingestion dangers for migratory birds.
- Monitor existing use to ensure that facilities are adequate and disturbance to wildlife continues to be minimal.
- Employ a “no wake zone” that includes all waters within 500 feet of the shoreline or emergent marsh areas, and/or restrict horsepower on boats used in confined areas and areas of limited depth, such as Long Lake Creek.

Justification

Based on the biological impacts addressed above and in the EA, it is determined that recreational fishing would not materially interfere with the habitat goals and objectives or purposes for refuge establishment.

Fishing is a priority public use as listed in the Improvement Act.

Mandatory 15-year Reevaluation Date: 2021

5. Description of Use: Recreational Hunting

Continue to provide recreational hunting and expand programs in refuge and waterfowl production areas where programs can be provided in a compatible manner.

Allow continued recreational hunting of deer, ring-necked pheasant, sharp-tailed grouse, Hungarian partridge, on Long Lake NWR.

The CCP calls for staff to evaluate and expand the Long Lake hunting program to include fox and coyote and waterfowl on designated portions of the refuge where compatible and with restrictions necessary to ensure that the activity does not materially interfere with the purposes of the refuge and/or the attainment of other refuge objectives.

Allow continued hunting of deer on Slade NWR.

The CCP calls for staff to evaluate and expand the Slade hunting program to include ring-necked pheasant, sharp-tailed grouse, Hungarian partridge, fox and coyote, where compatible and with restrictions necessary to ensure that the activity does not materially interfere with the purposes of the refuge and/or the attainment of other refuge objectives.

The CCP calls for staff to evaluate and provide deer, ring-necked pheasant, sharp-tailed grouse, Hungarian partridge, fox and coyote hunting at Florence Lake NWR where compatible and with restrictions necessary to ensure that the activity does not materially interfere with the purposes of the refuge and/or the attainment of other refuge objectives.

Continue to provide the hunting programs on waterfowl production areas as prescribed by legislation. The CCP calls for staff to evaluate and provide expanded access for boats in areas where their use augments fishing and hunting programs and can be provided in a compatible manner.

Availability of Resources

Sufficient resources are available to maintain the existing recreational hunting program. When the hunting programs are expanded, the complex will need to pursue additional law enforcement coverage through additional law enforcement staffing and/or cooperative agreements for law enforcement coverage through the NDGF.

Anticipated Impacts of Use

Some wildlife disturbance will occur during recreational hunting activities at the various units of the complex. Less than 5 percent of Long Lake NWR will be evaluated for hunting of migratory birds. This will ensure that adequate area remains undisturbed for the benefit of migratory birds. Approximately 15 percent of Long Lake NWR is closed to all hunting.

All hunting on Long Lake NWR and Slade NWR is seasonally scheduled so that it will not interfere with migratory birds' use of these refuges. This ensures adequate resting areas for migratory species during the fall migration.

Winter hunting for fox and coyote on refuge units (Long Lake NWR, Slade NWR, and Florence Lake NWR) administered by the complex is proposed by the CCP. Fox are primary nest predators and coyote have resulted in depredation complaints from neighboring landowners and resulted in the employment of USDA agents for control during each of the past 5 years. Hunting for these species after the waters have frozen would allow for population reductions at a time in the season when there would be little or no disturbance to most migratory birds. While any population reduction during the winter would be temporary, the opportunity provided by coyote and fox hunting would increase recreational opportunity and holds potential to reduce annual surplus of these species which have presented localized predation and depredation issues associated with these refuges. Hunting of fox and coyote is a recreational opportunity, which was approved by legislation on the 79 waterfowl production areas and one wildlife development area managed by the complex.

Other public use activities will be minimally impacted by the recreational hunting program changes proposed by the CCP.

Restricting vehicle use to designated purposes, times, and established roads, trails, and parking lots protects habitats from damage and minimizes disturbance to wildlife. Closed areas around residences and the headquarters area provide safety zones and reduce conflicts between hunters and visitors. Restrictions on the timing of seasons and areas open to hunting ensure that the proposed hunting activities do not materially interfere with the purposes of the refuge and/or the attainment of Refuge System objectives.

Determination

Recreational hunting is compatible.

Stipulations Necessary to Ensure Compatibility

- Require the use of nontoxic shot, in accordance with current regulations for migratory bird and upland game hunting.
- Limit use of motorized vehicles to designated parking areas, access trails, and public roads.
- Prohibit all-terrain vehicles (ATVs).
- Prohibit camping, overnight use, and fires.
- Require that hunting be conducted in accordance with federal and State regulations.
- Develop hunting programs with appropriate timing and area restrictions to avoid conflicts with other objectives (i.e. late season; upland gamebirds; winter; fox and coyote: upland areas distant from water roosting/loafing areas; waterfowl: etc.).

- Promote sound hunting practices for hunter safety and quality experiences.

Justification

Hunting on national wildlife refuges was identified as a priority public use in the Improvement Act. Hunting is a legitimate wildlife management tool that can be used to manage populations. Hunting harvests a small percentage of the renewable resources, which is in accordance with wildlife objectives and principles.

Based on the biological impacts anticipated above and in the EA, it is determined that recreational hunting at the complex would not materially interfere with or detract from the purposes for which this complex was established or the goals and objectives of the Refuge System.

Mandatory 15-year Reevaluation Date: 2021

6. Description of Use: Recreational Trapping and Predator Management

Provide for recreational trapping on complex lands along with spring predator trapping to improve upland nesting bird success in the complex

Recreational trapping on refuges administered by the complex is authorized through issuance of SUPs to trappers who are interested in removing surplus and problem animals as agents of management. The wetland management district's waterfowl production areas are legally open to trapping according to State regulations as per their establishing legislation and the federal code of regulations. In addition, the complex plans to pursue partnerships to affect predator control on select areas (waterfowl production areas and surrounding private lands where permission is obtained) where nesting success rates of waterfowl are suppressed due to high predation rates as described in the CCP.

Availability of Resources:

Currently there is sufficient funding and staffing to manage the recreational trapping and spring predator trapping in the complex at existing levels. When the trapping programs are expanded as is called for in this CCP, the complex will need to pursue additional law enforcement coverage through additional law enforcement staffing and/or cooperative agreements for law enforcement coverage through the NDGF. In addition, to administer a spring predator trapping program, additional biological science staff for monitoring of predator populations and upland bird production will be required. These needs are listed in the station's RONS list in appendix H. Staff will pursue partnerships to provide labor and funding assistance from various public and private organizations to manage predator populations in order to achieve acceptable nest success rates for waterfowl and other ground nesting migratory birds in select areas.

Anticipated Impacts of the Use:

Trapping removes individual animals from wildlife populations, which temporarily reduces predator populations up to and during the nesting season. Spring predator trapping increases the nesting success

of upland nesting birds. There would be direct mortality of target animals, some vegetation trampling by personnel, and some minor increase in general wildlife disturbance in trapping areas due to human and vehicular traffic. There is the possibility of injury to nontarget wildlife that are caught in traps such as an occasional rabbit, domestic dogs and feral cats. The complex staff anticipates that the combination of recreational trapping and predator management, which targets specific areas of high densities of waterfowl and low recruitment, caused primarily by high nest predation rates, will result in higher, more acceptable recruitment rates for waterfowl and other upland nesting birds. Recreational trapping and predator management activities are anticipated to yield less damage to complex infrastructure (i.e., roads, dikes, WCSs) and fewer domestic livestock depredation complaints from neighbors of the three refuges.

Determination:

Recreational trapping and predator management is compatible.

Stipulations Necessary to Ensure Compatibility:

- Trapping will be conducted in a manner that will remove only targeted species or species removed for public health and safety concerns.
- Recreational trapping will occur within regular State seasons and will not conflict with other public uses.
- Trapping for predators outside of regular season will be coordinated with the NDGF.
- Detailed trapping records will be maintained for refuge and staff trappers.
- No trapping will take place in areas of high public use areas unless done for health and safety reasons.
- No exposed bait will be placed near traps that might attract eagles or other raptors.
- Traps must be monitored at a minimum of every 24 hours.
- Nest Success will be monitored in areas targeted for predator removal to determine the program's effectiveness and the need for the following year's trapping (trapping will be conducted only when nest success falls below 30 percent).

Justification:

Recreational trapping removes excess individuals from targeted wildlife populations, provides recreational opportunity, and offers economic and wise use of surplus and renewable wildlife resources. Predator management will benefit upland nesting birds, including many species of waterfowl when predator populations are reduced during the nesting season. Combined recreational trapping and predator management activities reduce populations of specific species that depredate livestock, damage infrastructure, and/or suppress nest success of waterfowl and ground nesting birds. These management activities augment the complex's ability to efficiently and effectively accomplish primary resource objectives. Long-term negative effects to these predator populations will not occur as trapping activities cannot feasibly remove enough animals to permanently impact these populations.

Mandatory 15-year Re-evaluation Date: 2021**7. Description of Use: Research****Continue to provide opportunities for research**

The complex receives periodic requests to conduct scientific research. Some requests are specific to Service lands administered by the complex, and others are part of a larger landscape-level project that requires authorization from multiple refuge field stations. In addition, the complex often partners with other agencies and/or private partners to conduct field research and/or studies that advance the attainment of primary refuge goals and objectives.

Recently, as more and more health threats arise (e.g., West Nile virus, CWD, avian influenza) research may be essential to prevent, or at least manage, disease outbreaks. Access to researchers and/or partners may be mandated in order to monitor and assess the prevalence, transmission, control, and specific characteristics of these and other potential threats to human health. In some cases, complex staff may become involved in the research and/or monitoring. In other cases, government personnel from another agency may take the lead in developing and following standard operating procedures, reducing the role of refuge staff. Coordination, however, will remain paramount to assure that any operation minimizes the impact to trust resources and their habitats to the extent possible.

In general, those proposals that involve multiple refuge field stations are coordinated by the DWG and approval is issued as a letter of authorization. Proposals which are specific to lands administered by the complex are reviewed and either authorized with a letter (if studies are simple, shorter than 1 year, and

only require access) or an SUP (if studies are more complex, will take longer than 1 year, and have potential to disturb, stress, or remove vegetation or individuals of a wildlife population). Those operations essential to maintaining human health and safety will be coordinated through an approved disease contingency plan. These threats are an exception to the normal process of authorizing and approving research on lands in the complex.

Absent those situations which involve emerging threats to human health and safety and which will be addressed in a separate disease contingency plan, priority would be given to research proposals that support the complex purposes, goals, and objectives. This would include, for example, studies that contribute to the enhancement, protection, use, preservation and management of native complex wildlife populations and their habitats, and would include cultural resources. Research applicants would submit a proposal that would outline: 1) objectives of the study; 2) justification for the study; 3) detailed methodology and schedule; 4) potential impacts on complex wildlife and/or habitat, including disturbance (short- and long-term), injury, or mortality; 5) personnel required; 6) costs to the complex, if any; and 7) end products (i.e. reports, publications). Research proposals would be reviewed by complex staff, the regional office branch of refuge biology and others, as appropriate. Evaluation criteria will include, but not be limited to, the following:

- Research that will contribute to priority management activities will have higher priority than other requests.
- Research that will conflict with higher priority research, monitoring, or management programs may not be granted.
- Research projects that can be done off-site, are less likely to be approved.
- Research which causes undue disturbance or is intrusive, will likely not be granted. Level and type of disturbance will be carefully weighed when evaluating a request.
- Research evaluation will determine if any effort has been made to minimize disturbance through study design, including considering adjusting location, timing, scope, number of permittees, study methods, number of study sites, etc.
- The complex staff may deny proposal when it is impossible for the complex to monitor researcher activity.
- The length of the project will be considered and agreed upon before approval. Projects will not be open-ended, and will be reviewed annually (at a minimum).

Availability of Resources:

Direct costs to administer research activities are primarily in the form of staff time and transportation. It is estimated that current staff is adequate to manage small and short-term research projects. Proposals will only be accepted if funding and personnel are available to adequately monitor all research activities.

Anticipated Impacts of Use:

Minimal impact to wildlife and habitats in the complex will be expected with research studies. Some level of disturbance is expected with all research activities since most researchers will be entering areas that are normally closed to the public and may be collecting samples or handling wildlife. SUP conditions will include special conditions to ensure that impact to wildlife and habitats are kept to a minimum.

Determination:

Research is compatible.

Stipulations Necessary to Ensure Compatibility:

- If the proposed research methods would impact or potentially impact complex resources (habitat or wildlife), it must be demonstrated that the research is necessary (i.e. critical to survival of a species, will enhance restoration activities of native species, will help in control of invasive

species or provide valuable information that will guide future complex activities), and the researcher must identify the issues in advance of the impact.

- Highly intrusive or manipulative research is generally not permitted in order to protect native wildlife populations and habitats in which they live.
- Research that does not involve birds will be conducted outside of the breeding season of avian species in all possible circumstances.
- Project leader can suspend/modify conditions/ terminate on-refuge research that is already permitted and in progress, should unacceptable impacts or issues arise or be noted.

Justification:

Research projects will contribute to the enhancement, protection, use, preservation, and management of native complex wildlife populations and their habitats. In view of the potential impacts research activities can have on the Service's ability to achieve complex purposes, sufficient restrictions would be placed on the researcher to ensure that disturbance is kept to a minimum. This program as described is determined to be compatible.

Mandatory 15-year Re-evaluation Date: 2021

Appendix B: Approved Programmatic Compatibility Determinations

1. COMPATIBILITY DETERMINATION for Authorized Curtilage Expansion or Structural Additions on Grassland Easements

Use: Authorized expansion or construction of additional buildings or structures on a grassland or FmHA easement. Examples of proposed uses include additions to farmstead buildings, livestock facilities, storage sheds, or the planting of farmstead windbreaks.

Station Names:

South Dakota Wetland Management Districts:

Lake Andes WMD, SD
Madison WMD, SD
Huron WMD, SD
Waubay WMD, SD
Sand Lake WMD, SD
Lacreek NWR, SD

North Dakota Wetland Management Districts:

Tewaukon WMD, ND
Kulm WMD, ND
Arrowwood WMD, ND
Valley City WMD, ND
Chase Lake WMD, ND
Audubon WMD, ND
Long Lake WMD, ND
J Clark Salyer WMD, ND
Devils Lake WMD, ND
Lostwood WMD, ND
Crosby WMD, ND

Montana Wetland Management Districts:

Northeast Montana WMD, MT
Bowdoin WMD, MT
Benton Lake WMD, MT
Northwest Montana WMD, MT
Charles M. Russell WMD, MT

Establishing and Acquisition Authorities:

Waterfowl Production Areas, Wetland Easements, Grassland Easements - The Migratory Bird Hunting and Conservation Stamp Act, March 16, 1934, (16 USC Sec. 718-718h, 48 Stat. 452) as amended August 1, 1958, (PL 85-585; 72 Stat. 486) for acquisition of Waterfowl Production Areas; the Wetlands Loan Act, October 4, 1961, as amended (16 USC 715k-3 - 715k-5, Stat. 813), funds appropriated under the Wetlands Loan Act are merged with duck stamp receipts in the fund

and appropriated to the Secretary for the acquisition of migratory bird refuges under the provisions of the Migratory Bird Conservation Act, February 18, 1929, (16 USC Sec. 715, 715d - 715r, as amended).

FmHA deed restricted properties - Consolidated Farm and Rural Development Act - (7 USC Para. 2002).

Tall Grass Prairie Tracts - Land and Water Conservation Fund Act of 1965, as amended (16 U.S.C. 460l-4 through 460l-11)

Refuge Purposes:

A...as Waterfowl Production Areas® subject to A...all of the provisions of such Act [Migratory Bird Conservation Act] ...except the inviolate sanctuary provisions...® 16 USC 718(c) (Migratory Bird Hunting and Conservation Stamp)

A...for any other management purpose, for migratory birds.® 16 USC 715d (Migratory Bird Conservation Act)

A...for conservation purposes...® 7 USC 2002 (Consolidated Farm and Rural Development Act)

National Wildlife Refuge System Mission:

“The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (National Wildlife Refuge System Administration Act of 1966, as amended) [16 USC 668(dd)-668(ee)].

Description of Use:

A landowner may have need to increase the size of his/her home and increase the size or number of buildings and facilities on the farm or ranch operation in order to more efficiently continue the agricultural operation of the property, or to plant and develop a windbreak planting of trees to protect the farm house or livestock facilities. Such an expansion may be requested on upland areas adjacent to the existing farmstead, the base of operations for the farm/ranch, or on a former building site where buildings are no longer present, on lands that are included within a grassland or FmHA conservation easement. In order to be permitted, such a request must be shown to be consistent with existing agricultural uses or practices on the property, have no other reasonable location or alternative, essential to the farm/ranch operation, not be able to be accommodated by a temporary (less than one year) permit, and be judged not to materially interfere with or detract from the easement or the purpose and mission of the Refuge System.

Availability of Resources:

Financial and staff resources are determined to be sufficient at each field station to administer these requests. Staff time will be needed to evaluate the proposed use, to prepare the site-specific permits, and to insure compliance with the permit authorization and stipulations necessary to insure compatibility.

Anticipated Impacts of the Use:

Authorized use of easement protected grasslands for expanded farmstead, farm or ranch facilities, or a farmstead windbreak, will result in a loss or destruction of the grassland where the facilities are built. The remainder of the easement tract will not be affected. The disturbance caused by the expanded farmstead, additional buildings or facilities, new or expanded windbreak, on an existing building site or a former building site is not expected to be significantly greater than that caused by the previous structures, and will not contribute to the fragmentation of existing habitats.

The impacts associated with this authorized use will be minimal due to the relatively small size or acreage of the proposed facilities. If multiple requests are received from the same landowner or for the same easement by different or subsequent landowners, they will each be evaluated on its own merits. Each grassland easement may be authorized up to a threshold level of 8 acres of total impact, whether it occurs at one time or through different approved requests. Therefore, only up to 8 acres of potential grassland impact may be authorized for each grassland easement for authorized expansion or construction of additional buildings or structures, or a proposed tree planting for farmstead windbreak purposes.

In addition, there will be no secondary impacts allowed within this compatibility determination. Fragmentation of grasslands habitats is minimized by allowing curtilage expansion only on existing or former building sites, or for farm/ranch operations. If the potentially affected grassland provides habitat for wildlife species with management concerns, such as a grouse lek or burrowing owl nesting site, or some unique feature, the use may not be allowed, or it may be permitted only with stipulations that would eliminate the secondary or indirect impact. The region 6 states of South Dakota, North Dakota, and Montana have over 500,000 acres of grasslands protected by Service easements. It is anticipated that between five and ten requests annually may be received to allow curtilage expansion. Under this scenario, a maximum of between 40 and 80 acres annually could be affected. This is an immaterial impact to the acreage included within the grassland easement program.

If multiple requests are received from the same landowner, or on the same easement, each will be evaluated on its own merits. Each quarter-section (160 acres) of grassland easement may be authorized up to one threshold level (8.0 acres) of total impact, whether it occurs at one time or in different requests. Therefore, only 8.0 acres of encumbered grassland per 160 acres of easement may be authorized for curtilage expansion or other allowable uses.

Public Review and Comment:

The period of public review and comment began April 10, 2005 and ended April 17, 2005.

Posted notices were made in public places for each of the field stations listed on this compatibility determination. This method was selected because the proposed activity is considered minor, incidental, infrequent, with only minimal impacts. No comments were received as a result of the posted notices.

Determination:

Compatibility Threshold: In order to be compatible, this use must not exceed the upper threshold limit of 8 acres on grassland. To achieve compatibility, the proposed use must not interfere with nor detract from the mission or the purposed for which the easement areas were established.

_____ Use is Not Compatible

XXX Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Issuance of a permit does not preclude the requirements for obtaining necessary permits and/or approvals from other county, state, or federal agencies and from local landowners.
2. The permit is issued subject to the revocation and appeals procedure contained in Title 50, Part 25 of the Code of Federal Regulations.
3. Storage of building materials or disposal of fill material from the construction project will not be allowed on easement protected grassland areas.
4. Additional stipulations may be added or included to address specific concerns with individual projects or requests or to address any secondary impacts that may occur as a result of the proposed use.

Justification:

The expansion of curtilage or the construction of additional structures for agricultural or farmstead use is expected to be permitted only rarely, perhaps five to ten times per year for ALL the stations listed within this CD.

Data from the Habitat and Population Evaluation Team (HAPET) in the Bismarck Service office can be used to predict the waterfowl response to the permitted upland changes. Evaluating grassland loss from a waterfowl population perspective is not precise, because we are estimating the loss of productivity of a hen that may or may not nest on a grassland site because of a disturbance or a slightly smaller size. HAPET used the Mallard Model to evaluate the change in the productivity of the affected grassland habitat. The land cover composition of a grassland easement (160 acres) and 1990 acres of cropland within a 4-square mile landscape (2,560 acres), was incrementally reduced by the amount of grassland necessary to cause a production decline of two ducks (one pair). This size grassland easement was chosen because it represents the smallest individual tract to be considered for a stand-alone easement purchase, and the impact of grassland loss is proportionally greater on a smaller tract. The loss of two ducks produced equates to a replacement pair of ducks for the following breeding season. The average decrease in native grassland required to achieve a one pair reduction was 10 acres.

In a second modeling analysis, Breeding Bird Survey data were used to estimate the average breeding bird population on 160 acres of native grassland. A modeled loss of 5 acres of 160 acres of grassland showed no discernable change (positive or negative) in the breeding bird population of the 160 acre easement tract.

The working group proposes that the threshold level of grassland impact is 8 acres, in order to build in a margin of safety. The 8-acre figure (80% of the actual determination made by HAPET for nesting ducks) corresponds with the 80% value developed for the wetland threshold. In

Valley City WMD

_____ Gary Williams, Acting Project Leader Audubon WMD	_____ Date
_____ Paul Van Ningen, Project Leader Long Lake WMD	_____ Date
_____ Tedd Gutzke, Project Leader J Clark Salyer WMD	_____ Date
_____ Roger Hollevoet, Project Leader Devils Lake WMD	_____ Date
_____ Fred G. Giese, Project Leader Lostwood WMD Crosby WMD	_____ Date
_____ Michael Rabenberg, Acting Project Leader Northeast Montana WMD	_____ Date
_____ Carmen Luna, Project Leader Bowdoin WMD	_____ Date
_____ David Gillund, Project Leader Benton Lake WMD	_____ Date
_____ Steve Kallan, Project Leader NW Montana WMD	_____ Date
_____ Bill Berg, Acting Project Leader CM Russell WMD	_____ Date

Review:

_____ Lloyd Jones Regional Compatibility Coordinator	_____ Date
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Rod Krey, Refuge Supervisor,
ND, SD

Date

Approval:

Richard A. Coleman, Region 6
Chief of Refuges

Date

2. COMPATIBILITY DETERMINATION for Authorized Health and Safety Requests Associated with Service Wetland Easements Resulting in only Minor Impacts to the Easement Interest

Use: Requests to resolve a health and safety issue which cannot be resolved by temporary authorization, and which results in only a minor impact to the Service-s wetland easement interest. The use, if authorized, will result in non-material impacts to protected wetlands involving partial drainage and/or filling, both of which are acquired interests in the easement wetland.

Station Names:

South Dakota Wetland Management Districts:

Lake Andes WMD, SD
Madison WMD, SD
Huron WMD, SD
Waubay WMD, SD
Sand Lake WMD, SD
LaCreek NWR, SD

North Dakota Wetland Management Districts:

Tewaukon WMD, ND
Kulm WMD, ND
Arrowwood WMD, ND
Valley City WMD, ND
Chase Lake WMD, ND
Audubon WMD, ND
Long Lake WMD, ND
J Clark Salyer WMD, ND
Devils Lake WMD, ND
Lostwood WMD, ND
Crosby WMD, ND

Montana Wetland Management Districts:

Northeast Montana WMD, MT
Bowdoin WMD, MT
Benton Lake WMD, MT
Northwest Montana WMD, MT
Charles M. Russell WMD, MT

Establishing and Acquisition Authorities:

Waterfowl Production Areas, Wetland Easements, Grassland Easements - The Migratory Bird Hunting and Conservation Stamp Act, March 16, 1934, (16 USC Sec. 718-718h, 48 Stat. 452) as amended August 1, 1958, (PL 85-585; 72 Stat. 486) for acquisition of Waterfowl Production Areas; the Wetlands Loan Act, October 4, 1961, as amended (16 USC 715k-3 - 715k-5, Stat. 813), funds appropriated under the Wetlands Loan Act are merged with duck stamp receipts in the fund and appropriated to the Secretary for the acquisition of migratory bird refuges under the provisions of the Migratory Bird Conservation Act, February 18, 1929, (16 USC Sec. 715, 715d - 715r, as amended.

FmHA deed restricted properties - Consolidated Farm and Rural Development Act - (7 USC Para. 2002).

Tall Grass Prairie Tracts - Land and Water Conservation Fund Act of 1965, as amended (16 U.S.C. 460l-4 through 460l-11)

Refuge Purposes:

A...as Waterfowl Production Areas@subject to A...all of the provisions of such Act [Migratory Bird Conservation Act] ...except the inviolate sanctuary provisions...@ 16 USC 718(c) (Migratory Bird Hunting and Conservation Stamp)

A...for any other management purpose, for migratory birds.@ 16 USC 715d (Migratory Bird Conservation Act)

A...for conservation purposes...@ 7 USC 2002 (Consolidated Farm and Rural Development Act)

National Wildlife Refuge System Mission:

“The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (National Wildlife Refuge System Administration Act of 1966, as amended) [16 USC 668(dd)-668(ee)].

Description of Use:

Wetland management districts frequently receive requests for use or modification of wetlands protected by easement which may affect the Service interest acquired in private property. The uses authorized under this CD are related to actions necessary to avert or resolve a health and safety issue involving a Service-protected wetland. Requests may be received by districts primarily from private property owners whom are experiencing difficulties associated with easement-protected wetlands. The Service has wetland easements in every county within the Prairie Pothole Region in the states of ND, SD, and MT.

Examples of the kinds of requests anticipated under this category include: the possible need to establish a sill elevation on a wetland to lower it slightly to avoid flooding a domestic sanitary system, building, basement, or existing private road; or the need to place fill material in a protected wetland to widen a driveway or farm approach to more safely transport equipment and/or loaded grain trucks, or to protect a foundation or footing for existing building or grain bins.

Lowering a wetland or adding fill to a wetland to remove water from cropland or hayland is not included in this CD.

All requested uses under this category will be evaluated using the right side of the Easement Permit Flowchart (Health and Safety) to evaluate the requested activity. If the proposal passes through the flowchart as a legitimate health and safety issue, then it becomes a request that the Service will try to honor as a necessary resolution to a hardship, which may be caused by the easement wetland.

At times, the requested use may impact Service easement interests. Managers will always try to resolve the issue or situation with temporary measures, meaning that the impact to Service interests will be only a temporary disturbance. If temporary relief measures will not resolve the issue, then a more permanent impact to Service lands or interests will likely result.

Region 6 has defined a “threshold” level of impact which may occur as a result of permitting the requested use, but will not materially interfere with, nor detract from, the purposes for which the easement interest was acquired. These levels of impact are defined more fully in the Justification section of this CD, and are based on years of scientific evaluation of prairie pothole-type habitat and how habitat impacts affect migratory bird populations. These threshold levels of potential impact for protected wetlands have been established at 0.4 acres of wetland, not to exceed 25% of the wetland basin. These levels have been established based on biological models developed by the Habitat and Population Evaluation Team (HAPET) in Bismarck, ND.

Threshold levels are NOT used in conjunction with highway improvement projects or any other activity evaluated by the left side of the flowchart (Public Service, Government or Corporate), so impacts which may result from this category of request will not be evaluated under this CD.

In order for this compatibility determination to be used, the use must: (1) be an action necessary to avert a threat to human health and safety or a major threat to public or private property not related to a public service or government-type request, and (2) result in an impact which is at or below the established threshold levels for protected wetlands habitats (see discussion in Anticipated Impacts and Justification sections below).

Availability of Resources:

Financial and staff resources are sufficient at each field station to administer these requests. Staff time will be needed to evaluate the proposed use, to prepare the site-specific permits, and to insure compliance with the permit authorization and stipulations, as well as checking for satisfactory restoration of any disturbed sites as necessary.

No specialized equipment will be necessary, as the work requirement associated with these projects is monitoring and compliance checking only. Actual work, including restoration needs if applicable, will be completed by the applicant.

Anticipated Impacts of the Use:

Most of the impacts will result from filling or partially draining parts of protected wetlands, the right to “fill” wetland areas protected by the easement being one of the acquired rights. Partial drainage, another acquired right, may also be authorized to resolve certain health and safety issues, if they cannot be resolved by temporary means.

If the only way to resolve the Health and Safety issue is to permit a portion of the wetland to be either filled or by lowering the wetland elevation by establishing an overflow sill, then there will be a long term impact to the wetland. However, the impact would be determined to be below a “material” impact or interference with the purposes of the unit or the mission of the Refuge System as described in the justification. These impacts are considered minor with respect to the entire scope of the small wetlands program within the Prairie Pothole Region of region 6.

Within this compatibility determination, there are no secondary impacts, or at least none that cannot be resolved with stipulations. No complete wetlands are drained or filled (the 25 percent condition), so although potentially reduced in size by 25 percent, or by up to 0.4 acres, the wetland still exists as the same type wetland that originally existed. If the potentially affected wetland contains a colonial bird nesting site or some unique feature, the use may not be allowed, or it may be allowed with stipulations that would eliminate the secondary or indirect impact.

The region 6 states of North Dakota, South Dakota and Montana have over 15,000 wetland easement contracts comprising over 1.2 million acres of wetlands. It is anticipated that between five and ten requests annually may be received to allow partial drainage or filling of protected wetlands. Cumulative impacts under this scenario may include up to 4.0 acres of impact annually out of 1.2 million acres of protected wetlands.

If multiple requests are received from the same landowner, each request will be evaluated on its own merit. Each easement contract may be authorized up to one threshold level of impact in total, whether it occurs all at one time, or in different authorizations. Therefore, only up to 0.4 acre of potential wetland impact may be authorized for each easement contract for resolution of legitimate health and safety issues, or for other authorized uses.

Public Review and Comment:

The period of public review and comment began _____ and ended _____.

Posted notices were made in public places for each of the field stations listed on this compatibility determination.

Determination:

Compatibility Threshold: Material Interference or Detraction from the Purposes and/or Mission of the Refuge System.

_____ Use is Not Compatible

XXX Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Issuance of a permit does not preclude the requirements for obtaining necessary permits and/or approvals from other county, state, or federal agencies and from local landowners.
2. The permit is issued subject to the revocation and appeals procedure contained in Title 50, Part 25 of the Code of Federal Regulations.
3. Regardless of the authorized threshold level, the permit will require the least amount of impact to the Service easement interest as is necessary to resolve the health and safety issue.
4. If the requested use passes the flowchart and is authorized, and results in minor impacts that are more than temporary, then the use will be subject to the terms and conditions of the easement permit.

5. If past authorizations for any reason have been granted for this easement, then the manager cannot authorize any use that will exceed the aggregate total authorization of 0.4 acres of wetland impact, including the past authorizations.
6. Site-specific stipulations may be added to the permit to address resolution of any potential secondary impacts.

Justification:

The administration of the Service's easement program in region 6 requires managers to make decisions regarding requested uses of private lands encumbered by Service easement interests. Managers will use the Easement Permit Request Flowchart to determine if the requested use should be authorized. If the requested use is authorized, then this compatibility determination will be used for the requests which have passed through the evaluation process and that fall within the established levels of impact authorized for easement wetlands to approve means to resolve legitimate health and safety issues. It is anticipated that no more than 5-10 authorizations will be granted each year for the entire PPR portion of region 6 (ND-SD-MT) which would require the use of this CD. Once again, the CD will only be used if temporary means cannot be used to resolve the issue.

Data provided by the Habitat and Population Evaluation Team (HAPET) have been used to predict the effect to waterfowl resources resulting from impacts to wetlands. When these habitat impacts occur on lands protected by Service easements, then a determination must be made as to whether these impacts represent a material interference or detraction from the purposes for which the easement area was established or from the mission of the Refuge System.

With the HAPET information about how waterfowl populations respond to habitat changes within the Prairie Pothole Region, managers may now use applied science and compelling data to quantify impacts resulting from wetland-altering activities, whereas before, they were using only a judgment. The level of wetland impact that corresponds with a "non-material" impact (as portrayed under compatibility standards) is defined as one pair of ducks, the lowest whole unit and functional common denominator.

The impacts of wetland loss on breeding duck pairs (i.e., mallard, northern pintail, gadwall, blue-winged teal, and northern shoveler comprising approximately 90% of the breeding ducks in North Dakota and South Dakota) were evaluated using models developed with data collected by the Service during the annual Four Square Mile Breeding Waterfowl Population (FSM) Survey. HAPET applied the models to all wetlands mapped by the National Wetland Inventory to predict the average number of breeding duck pairs attracted to each wetland for 13 years (1987-99) of the FSM Survey. Summary of the model results indicate that temporary and seasonal wetlands, on average, attract about 1 duck pair per acre; while semipermanent wetlands attract about 1 pair for every 1.5 wetland acres. While the average breeding pair densities are as identified above, the highest density occurring on a single wetland district for a single class of wetlands was 1.98 pairs/acre or one pair for 0.5 acres (Sand LakeBtemporary wetlands). These estimates can be used as a foundation for identifying non-material levels of impact to wetlands. Wetland impacts which result in affecting less than one pair of breeding ducks is below a "material" impact relative to compatibility.

Even though the overall average for all classes of wetlands for all districts is approximately one pair of ducks for each wetland acre, and the highest density encountered is 1 pair per 0.5 acres, this proposal is to insure that any authorized use resulting in a wetland impact will not result in

the loss of one whole pair of ducks on the landscape, regardless of where it is within the region 6 PPR, and which class of wetland is affected. Therefore, the proposal to use 0.4 acre as the upper limit of impact to achieve compatibility inherently builds in an additional 20% margin of safety.

In addition, it is further determined that impacts must be less than 25% of the affected basin to be within these threshold criteria. This recommendation, combined with the wetland and duck pair relationship information provided by HAPET and outlined above, suggests that a wetland impact of 0.4 acre or less, and not including more than 25% of the wetland basin, will not materially interfere with nor detract from the purposes for which the wetland easement was acquired, nor will it detract from the mission of the Refuge System.

The not-to-exceed threshold levels of impact to easement-protected wetlands that are necessary to ensure compatibility are 0.4 acres or less, and not over 25% of the wetland basin. These levels were selected because (a) they result in built-in margins of safety (80%) from the actual figures determined by HAPET; (b) the represented levels are based on the best available science, the pair-wetland relationship model developed by HAPET and the Mallard Model, as well as many years of collected data from nearly the entire Prairie Pothole Region within Region 6; (c) the threshold levels of impact represent a biologically meaningful measure (i.e., one pair of ducks); (d) the levels establish a consistent, science-based method for managers to use when evaluating compatibility of proposed uses for less than fee-title land interests.

Mandatory 10-Year Reevaluation Date: 10 years from the date of APPROVAL signature

Enter Reevaluation Date: _____

Signatures:

Submitted:

Michael Bryant, Project Leader
Lake Andes WMD

Date

Tom Tornow, Project Leader
Madison WMD

Date

Harris Hoistad, Project Leader
Huron WMD

Date

Larry Martin, Project Leader
Waubay WMD

Date

Gene Williams, Project Leader
Sand Lake WMD

Date

Tom Koerner, Project Leader

Date

Lacreek NWR

_____ Jack Lalor, Acting Project Leader Tewaukon WMD	_____ Date
_____ Dave Azure, Acting Project Leader Kulm WMD	_____ Date
_____ Kim D. Hanson, Project Leader Arrowwood WMD Chase Lake WMD Valley City WMD	_____ Date
_____ Gary Williams, Acting Project Leader Audubon WMD	_____ Date
_____ Paul Van Ningen, Project Leader Long Lake WMD	_____ Date
_____ Tedd Gutzke, Project Leader J Clark Salyer WMD	_____ Date
_____ Roger Hollevoet, Project Leader Devils Lake WMD	_____ Date
_____ Fred G. Giese, Project Leader Lostwood WMD Crosby WMD	_____ Date
_____ Michael Rabenberg, Acting Project Leader NE Montana WMD	_____ Date
_____ Carmen Luna, Project Leader Bowdoin WMD	_____ Date
_____ David Gilland, Project Leader Benton Lake WMD	_____ Date

Steve Kallan, Project Leader
NW Montana WMD

Date

Bill Berg, Acting Project Leader
C. M. Russell WMD

Date

Review:

Lloyd Jones
Regional Compatibility Coordinator

Date

Rod Krey
Refuge Supervisor, ND-SD

Date

Approval:

Ronald D. Shupe, Region 6
Acting Chief of Refuges

Date

3. COMPATIBILITY DETERMINATION for Authorized Early Haying of Grassland Easements for Management Purposes

Use: Authorized Early Haying of Grassland Easements and FmHA Easements.

Station Names:

South Dakota Wetland Management Districts:

Lake Andes WMD, SD
Madison WMD, SD
Huron WMD, SD
Waubay WMD, SD
Sand Lake WMD, SD
Lacreek NWR, SD

North Dakota Wetland Management Districts:

Tewaukon WMD, ND
Kulm WMD, ND
Arrowwood WMD, ND
Valley City WMD, ND
Chase Lake WMD, ND
Audubon WMD, ND
Long Lake WMD, ND
J Clark Salyer WMD, ND
Devils Lake WMD, ND
Lostwood WMD, ND
Crosby WMD, ND

Montana Wetland Management Districts:

Northeast Montana WMD, MT
Bowdoin WMD, MT
Benton Lake WMD, MT
Northwest Montana WMD, MT
Charles M. Russell WMD, MT

Establishing and Acquisition Authorities:

Waterfowl Production Areas, Wetland Easements, Grassland Easements - The Migratory Bird Hunting and Conservation Stamp Act, March 16, 1934, (16 USC Sec. 718-718h, 48 Stat. 452) as amended August 1, 1958, (PL 85-585; 72 Stat. 486) for acquisition of (Waterfowl Production Areas(; the Wetlands Loan Act, October 4, 1961, as amended (16 USC 715k-3 - 715k-5, Stat. 813), funds appropriated under the Wetlands Loan Act are merged with duck stamp receipts in the fund and appropriated to the Secretary for the acquisition of migratory bird refuges under the provisions of the Migratory Bird Conservation Act, February 18, 1929, (16 USC Sec. 715, 715d - 715r, as amended.

FmHA deed restricted properties - Consolidated Farm and Rural Development Act - (7 USC Para. 2002).

Tall Grass Prairie Tracts - Land and Water Conservation Fund Act of 1965, as amended (16 U.S.C. 4601-4 through 4601-11)

Refuge Purposes:

“...as Waterfowl Production Areas(subject to (...all of the provisions of such Act [Migratory Bird Conservation Act] ...except the inviolate sanctuary provisions...” (16 USC 718(c) (Migratory Bird Hunting and Conservation Stamp)

“...for any other management purpose, for migratory birds” (16 USC 715d (Migratory Bird Conservation Act)

“...for conservation purposes...” (7 USC 2002 (Consolidated Farm and Rural Development Act)

National Wildlife Refuge System Mission:

“The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (National Wildlife Refuge System Administration Act of 1966, as amended) [16 USC 668(dd)-668(ee)].

Description of Use:

Haying is the cutting and removal, by baling or stacking, and transport to an off-site location, of grass and/or forb species. Haying of grassland easement-protected properties is not restricted after July 15 each year. Landowners may hay their lands every year after this date without compromising the terms of the easement. However, the use described in this compatibility determination is to permit early haying (prior to July 15) of the uplands to accomplish some management purpose on the land. The control of noxious weeds is primarily the target of early haying agreements. The control of noxious weeds is a common purpose of early haying agreements. State law requires landowners to control noxious weeds on their property. Haying can be an effective tool in controlling the seed dispersal of some species, but it must be done before the flowers mature and the seeds become viable. In many years, the thistle plants have matured and dispersed their seeds prior to July 15, and haying after seed dispersal would not be effective as a management tool. Other noxious weed species may also be controlled by periodic early haying of grassland areas.

Periodic early haying may also be authorized to help improve the vigor and health of the grass stand. It is expected that the authorized use of early haying for this purpose will be used very infrequently.

Haying prior to July 15 to increase plant density is also a management tool occasionally used. This is primarily done the first few years after a new seeding to encourage tillering and to accelerate establishment. Haying (rather than just mowing) the plants helps to prevent shading caused by the mowed vegetation left in the field. Haying done just prior to seed head development will stimulate most grass plants to propagate vegetatively by rhizomes rather than by seed production. This generally encourages grass plants to fill in bare soil areas between plants, compete more favorably with invasive species, and shorten the overall establishment period on new grass seedings.

The extent of the area to be hayed will be limited to what is necessary to accomplish the specified management purpose

Availability of Resources:

Financial and staff resources are determined to be sufficient at each field station to administer these requests. Staff time will be needed to evaluate the proposed use, to prepare the site-specific permits, and to insure compliance with the permit authorization and stipulations necessary to insure compatibility.

Anticipated Impacts of the Use:

Authorized early haying of grassland easements may displace some wildlife species during the period the haying operation is being performed. It is possible, also, that some nesting migratory birds may be disturbed, and abandon their nests as a result of the haying operation. The decision to authorize early haying must weigh the potential benefits of legally required weed control, plant density management, and other management gains, against these short-term losses associated with the early haying.

Cutting and removal of standing grasses prior to July 15 will also result in short-term loss of habitat for those species requiring tall grasses for feeding and perching.

The impacts associated with this authorized use will be minimal since the area will likely be hayed after July 15 anyway, which is not prohibited by the easement agreement. Therefore, the impacts of the use are only between the time of authorized early haying, and July 16 in any given year.

There will be no permanent impacts to Service land interests; there will be no secondary or indirect impacts, and there will be no cumulative impacts. The result of the authorized use will contribute to the achievement of Refuge System mission and unit purposes.

Public Review and Comment:

The period of public review and comment began April 10, 2005 and ended April 17, 2005.

Posted notices were made in public places for each of the field stations listed on this compatibility determination. This method was selected because the proposed activity is considered minor, incidental, infrequent, with only short-term disturbance, and/or displacement of wildlife. No comments were received as a result of the posted notices.

Determination:

Compatibility Threshold: As this activity is an economic use, it must meet the compatibility threshold of contributing to the mission and purposes of the Refuge System and the refuge area.

_____ Use is Not Compatible

XXX Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Issuance of a permit does not preclude the requirements for obtaining necessary permits and/or approvals from other county, state, or federal agencies and from local landowners.
2. The permit is issued subject to the revocation and appeals procedure contained in Title 50, Part 25 of the Code of Federal Regulations.
3. Permits for early haying will not be issued in consecutive years for the same land.
4. If a permit is issued for weed control on tame grassland, a condition of the permit must include a required herbicide treatment of the regrown noxious weeds at the permittee(s) expense when the noxious weeds are deemed to be most susceptible.
5. Bales or stacks must be removed from the area within two weeks after baling.
6. Early haying to encourage tillering on new grass seedings should leave at least 5" of stubble to ensure sufficient leaf area needed for the responding growth.
7. Additional stipulations may be added to address specific concerns with individual projects. Any secondary impacts as a result of the proposal will also be resolved through stipulation.

Justification:

The control of noxious weeds is required of every landowner by state law, even on grassland easement-encumbered property. If infestations are severe, then a measure of weed control can be achieved by haying the lands with the infestation to limit the seed dispersal. Seed dispersal in Canada thistle often happens prior to July 15, so knocking the plants down prior to seed maturation and dispersal can help control the invading plants.

Additionally, more effective weed control can be achieved by removing the overstory of grass, allowing the tap-rooted noxious weeds to regrow, then applying a herbicide treatment. The grass will not regrow as quickly as the forb (weed) species, and the spraying application will be more effective, especially going into the fall season when the thistle plants are storing their root reserves for the winter dormant period.

Early haying to encourage tillering can shorten the establishment period of new grass seedings. Obtaining the best stand of grass in the shortest period possible will increase wildlife use and minimize the need for weed control in subsequent years.

As such, it is concluded that the accrued benefits of more effective weed control and shorter establishment periods more than compensate for the potential short-term loss associated with

authorized weed control and plant density management accomplished by haying the grassland area prior to July 15.

Mandatory 10-Year Reevaluation Date:

10 years from the date of APPROVAL signature Enter date: _____

Signatures:

Submitted:

Michael Bryant, Project Leader _____
Lake Andes WMD Date

Tom Tornow, Project Leader _____
Madison WMD Date

Harris Hoistad, Project Leader _____
Huron WMD Date

Larry Martin, Project Leader _____
Waubay WMD Date

Gene Williams, Project Leader _____
Sand Lake WMD Date

Tom Koerner, Project Leader _____
Lacreek NWR Date

Jack Lalor, Acting Project Leader _____
Tewaukon WMD Date

Dave Azure, Acting Project Leader _____
Kulm WMD Date

Kim D. Hanson, Project Leader _____
Arrowwood WMD Date
Chase Lake WMD

Valley City WMD

Gary Williams, Acting Project Leader Date
Audubon WMD

Paul Van Ningen, Project Leader Date
Long Lake WMD

Tedd Gutzke, Project Leader Date
J Clark Salyer WMD

Roger Hollevoet, Project Leader Date
Devils Lake WMD

Fred G. Giese, Project Leader Date
Lostwood WMD
Crosby WMD

Michael Rabenberg, Acting Project Date
Leader
Northeast Montana WMD

Carmen Luna, Project Leader Date
Bowdoin WMD

David Gilland, Project Leader Date
Benton Lake WMD

Steve Kallan, Project Leader Date
NW Montana WMD

Bill Berg, Acting Project Leader, Date
Charles M. Russell WMD

Review: _____
Lloyd Jones Date
Regional Compatibility Coordinator

Approval: _____

Ronald D. Shupe, Region 6
Acting Chief of Refuges

Date

4. COMPATIBILITY DETERMINATION for Authorized Health and Safety Needs Associated with Service Wetland Easements resulting in NO Permanent Impacts

Use: Approved requests to temporarily pump or drain an easement protected wetland which is causing a health and safety problem or a major threat to personal or public property, such as flooding a road, driveway, resulting in seepage in a basement, surface waters affecting a domestic well or a sanitation system, or surface waters affecting a feed storage area or feedlot. The landowner's right to drain or otherwise alter the natural characteristics of the wetland is one of the rights the Service acquired with the easement. The use authorized under this CD is to permit temporary dewatering of protected wetlands which are posing a health and/or safety threat.

Station Names:

South Dakota Wetland Management Districts:

Lake Andes WMD, SD
Madison WMD, SD
Huron WMD, SD
Waubay WMD, SD
Sand Lake WMD, SD
Lacreek NWR, SD

North Dakota Wetland Management Districts:

Tewaukon WMD, ND
Kulm WMD, ND
Arrowwood WMD, ND
Valley City WMD, ND
Chase Lake WMD, ND
Audubon WMD, ND
Long Lake WMD, ND
J Clark Salyer WMD, ND
Devils Lake WMD, ND
Lostwood WMD, ND
Crosby WMD, ND

Montana Wetland Management Districts:

Northeast Montana WMD, MT
Bowdoin WMD, MT
Benton Lake WMD, MT
Northwest Montana WMD, MT
Charles M. Russell WMD, MT

Establishing and Acquisition Authorities:

Waterfowl Production Areas Wetland Easements, Grassland Easements - The Migratory Bird Hunting and Conservation Stamp Act, March 16, 1934, (16 USC Sec. 718-718h, 48 Stat. 452) as amended August 1, 1958, (PL 85-585; 72 Stat. 486) for acquisition of Waterfowl Production Areas; the Wetlands Loan Act, October 4, 1961, as amended (16 USC 715k-3 - 715k-5, Stat. 813), funds appropriated under the Wetlands Loan Act are merged with duck stamp receipts in the fund and appropriated to the Secretary for the acquisition of migratory bird refuges under the

provisions of the Migratory Bird Conservation Act, February 18, 1929, (16 USC Sec. 715, 715d - 715r, as amended).

FmHA deed restricted properties - Consolidated Farm and Rural Development Act - (7 USC Para. 2002).

Tall Grass Prairie Tracts - Land and Water Conservation Fund Act of 1965, as amended (16 U.S.C. 460l-4 through 460l-11)

Refuge Purposes:

A...as Waterfowl Production Areas@ subject to A...all of the provisions of such Act [Migratory Bird Conservation Act] ...except the inviolate sanctuary provisions...@ 16 USC 718(c) (Migratory Bird Hunting and Conservation Stamp)

A...for any other management purpose, for migratory birds.@ 16 USC 715d (Migratory Bird Conservation Act)

A...for conservation purposes...@ 7 USC 2002 (Consolidated Farm and Rural Development Act)

National Wildlife Refuge System Mission:

“The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (National Wildlife Refuge System Administration Act of 1966, as amended) [16 USC 668(dd)-668(ee)].

Description of Use:

During times of high water cycles or excessive runoff, prairie wetlands can temporarily swell to an oversized condition. The easement agreements provide for this natural fluctuation in wetland hydrology and relief is generally not authorized. However, when the over-full wetland basins result in situations, which involve health, safety, or major threats to public or landowner appurtenances which cannot be resolved without violating the easement and for which no reasonable alternative exists, then the Service is authorized to provide relief to nullify the health and safety threat. The use associated with this category of request results in either pumping or partially draining the problem-causing wetland, lowering its elevation to a point that the problem is resolved. Situations involving health and safety include major threats to buildings, roads, and infrastructure; basement flooding caused by high water in a nearby wetland, barnyard or feedlot flooding, driveway or other road flooding, or threat to domestic water supply or sewer system.

The use results in ONLY a temporary lowering of the wetland. If a drainage ditch was used to lower the wetland, it must be filled to the original contour of the land (at the applicant-s expense) after the wetland has been lowered, and the threat has subsided.

The use could occur in any of the wetland management districts listed within the CD, and would likely occur during or shortly after the spring runoff or after a large rainstorm event. These are the conditions, which sometimes result in the protected wetland basins becoming larger than the historic photo record would indicate.

Any requested use to lower the water levels of protected wetlands will result in ONLY temporary impacts, lasting a year or two.

Availability of Resources:

Financial and staff resources are determined to be sufficient at each field station to administer these requests. Staff time will be needed to evaluate the proposed use, to prepare the site-specific permits, and to insure compliance with the permit authorization and stipulations, as well as checking for satisfactory restoration of any disturbed sites after the wetland areas have returned to more historical elevations.

No specialized equipment will be necessary, as any work associated with these projects involves monitoring and compliance checking only. Actual work, including restoration needs, will be completed by the applicant as specified by the wetlands manager.

Anticipated Impacts of the Use:

Short-term Impacts:

Short-term impacts include the temporary loss of some wetlands habitat because of the authorized lowering of the wetland causing the health and safety problem. Since this is only a temporary authorization, limitations of the amount of lowering needed will not be imposed except to require the least amount necessary to resolve the issue. The length of time will be “until the situation is resolved,” not to exceed 1 year. Permits can be extended if necessary.

After the situation has been resolved, the wetland-s hydrology will be restored, and if drainage was used to reduce the wetland-s volume, then the drainage facilities will be restored to a “pre-work” condition.

Long-term Impacts:

There will be no long-term impacts associated with this authorization to resolve a health and safety issue.

Secondary/Cumulative Impacts:

There will be no secondary or cumulative impacts as a result of possible numerous authorizations because there are no permanent impacts. The authorization will be granted only to resolve the issue at hand.

Public Review and Comment:

The period of public review and comment began April 10, 2005 and ended April 17, 2005.

Posted notices were made in public places for each of the field stations listed on this compatibility determination. This method was selected because the proposed activity is considered minor, incidental, infrequent, with only short-term disturbance, and/or displacement of wildlife. No comments were received as a result of the posted notices.

Determination:

Compatibility Threshold: Material Interference or Detraction from the Purposes and/or Mission of the Refuge System.

_____ Use is Not Compatible

XXX Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Issuance of a permit does not preclude the requirements for obtaining necessary permits and/or approvals from other county, state, or federal agencies and from local landowners.
2. The permit is issued subject to the revocation and appeals procedure contained in Title 50, Part 25 of the Code of Federal Regulations.
3. When the health and safety threat has subsided, the wetland will be allowed to function under natural hydrological cycles. Any drainage facilities that were installed to lower the wetland will be restored, compacted, and rendered non-functional.
4. If the area is also protected with a Service grassland easement, then the backfilled ditch will also be reseeded to the specifications of the wetland manager.
5. Additional stipulations may be added to address specific concerns with individual projects. Any potential secondary impacts as a result of the proposal will also be resolved through stipulation.

Justification:

The proposed activity will result in only temporary disturbance to the wetland and possible grassland resources protected by the Service-s easement by this activity. The use will not detract from or materially interfere with the mission or purpose of the Refuge System. The uses covered by this CD are considered NOT to be an economic use under the guidelines found in 50CFR29.1.

Where possible, and without compromising any preservation program goal or objective, and without affecting (in the long term) any land interest held by the Service, it is critically important that field stations be able to accommodate these requested uses which are designed to avert a human health and/or safety issue or a major threat to personal or public property.

Mandatory 10-Year Reevaluation Date:

10 years from the date of APPROVAL signature. Enter Reevaluation Date: _____

Signatures:

Submitted:

Michael Bryant, Project Leader
Lake Andes WMD

Date

Tom Tornow, Project Leader

Date

Madison WMD

Harris Hoistad, Project Leader
Huron WMD

Date

Larry Martin, Project Leader
Waubay WMD

Date

Gene Williams, Project Leader
Sand Lake WMD

Date

Tom Koerner, Project Leader
Lacreek NWR

Date

Jack Lalor, Acting Project Leader
Tewaukon WMD

Date

Dave Azure, Acting Project Leader
Kulm WMD

Date

Kim D. Hanson, Project Leader
Arrowwood WMD
Chase Lake WMD
Valley City WMD

Date

Gary Williams, Acting Project Leader
Audubon WMD

Date

Paul Van Ningen, Project Leader
Long Lake WMD

Date

Tedd Gutzke, Project Leader
J Clark Salyer WMD

Date

Roger Hollevoet, Project Leader
Devils Lake WMD

Date

Fred G. Giese, Project Leader
Lostwood WMD
Crosby WMD

Date

Michael Rabenberg, Acting Project
Leader
Northeast Montana WMD

Date

Carmen Luna, Project Leader
Bowdoin WMD

Date

David Gilland, Project Leader
Benton Lake WMD

Date

Steve Kallan, Project Leader
NW Montana WMD

Date

Bill Berg, Acting Project Leader
Charles M. Russell WMD

Date

Review:

Lloyd Jones
Regional Compatibility Coordinator

Date

Approval:

Ronald D. Shupe, Region 6
Acting Chief of Refuges

Date

5. COMPATIBILITY DETERMINATION for Public and Private Buried Utility Lines Occurring on Service Easement Properties or Fee-Owned WPAs

Use: Projects associated with buried utility lines and/or cables where impacts to Service lands and interests are only temporary and minor. Requests from utility companies, rural water systems, and minor impacts associated with some highway improvement projects, and certain requests from private landowners. The use covered by this compatibility determination is in conjunction with the Region 6 Policy Memorandum of April 5, 2002, entitled "Rights-of Way and Permits for Minor Disturbance Projects." See Exhibit XII-7 for a copy of the policy memorandum. Because oil and gas pipelines require a formal ROW to cross Service properties, this CD will not apply to the installation of oil and gas pipelines.

Station Names:

South Dakota Wetland Management Districts:

Lake Andes WMD, SD
Madison WMD, SD
Huron WMD, SD
Waubay WMD, SD
Sand Lake WMD, SD
Lacreek NWR, SD

North Dakota Wetland Management Districts:

Tewaukon WMD, ND
Kulm WMD, ND
Arrowwood WMD, ND
Valley City WMD, ND
Chase Lake WMD, ND
Audubon WMD, ND
Long Lake WMD, ND
J Clark Salyer WMD, ND
Devils Lake WMD, ND
Lostwood WMD, ND
Crosby WMD, ND

Montana Wetland Management Districts:

Northeast Montana WMD, MT
Bowdoin WMD, MT
Benton Lake WMD, MT
Northwest Montana WMD, MT
Charles M. Russell WMD, MT

Establishing and Acquisition Authorities:

Waterfowl Production Areas Wetland Easements, Grassland Easements - The Migratory Bird Hunting and Conservation Stamp Act, March 16, 1934, (16 USC Sec. 718-718h, 48 Stat. 452) as amended August 1, 1958, (PL 85-585; 72 Stat. 486) for acquisition of Waterfowl Production Areas; the Wetlands Loan Act, October 4, 1961, as amended (16 USC 715k-3 - 715k-5, Stat. 813), funds appropriated under the Wetlands Loan Act are merged with duck stamp receipts in the

fund and appropriated to the Secretary for the acquisition of migratory bird refuges under the provisions of the Migratory Bird Conservation Act, February 18, 1929, (16 USC Sec. 715, 715d - 715r, as amended).

FmHA deed restricted properties - Consolidated Farm and Rural Development Act - (7 USC Para. 2002).

Tall Grass Prairie Tracts - Land and Water Conservation Fund Act of 1965, as amended (16 U.S.C. 460l-4 through 460l-11)

Refuge Purposes:

A...as Waterfowl Production Areas@subject to A...all of the provisions of such Act [Migratory Bird Conservation Act] ...except the inviolate sanctuary provisions...@ 16 USC 718(c) (Migratory Bird Hunting and Conservation Stamp)

A...for any other management purpose, for migratory birds.@ 16 USC 715d (Migratory Bird Conservation Act)

A...for conservation purposes...@ 7 USC 2002 (Consolidated Farm and Rural Development Act)

National Wildlife Refuge System Mission:

“The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (National Wildlife Refuge System Administration Act of 1966, as amended) [16 USC 668(dd)-668(ee)].

Description of Use:

Wetland management districts receive frequent requests from utility companies to cross fee and easement properties with buried pipelines, electric cables, communications lines, natural gas lines, and/or rural or potable water lines or systems. These requests are generally part of an overall area-wide project to provide better services to the people residing in the area. When these types of projects are proposed in the Prairie Pothole Region, it may not be possible to avoid all Service land interests (fee and easement), and therefore, some Service property interests may be temporarily impacted during the construction period. This use includes requests for projects on wetland, grassland, FmHA easements, or fee-owned waterfowl production areas. Construction methods may include cable-plowing, utilizing a vibrating cable-plow, or narrow trenching equipment. In each case, the surface disturbance is minimal, and the temporary cable or trenching scar will grow over with grass or marsh vegetation within a year or two.

A second area covered by this compatibility determination is requests received to temporarily alter upland sites in conjunction with highway maintenance projects to improve highway safety. These activities may be outside the existing highway right-of-way, but a formal ROW expansion is not needed because of the only temporary impacts to Service interests. An example of this type of request is for back-sloping a hill adjacent to the ROW to remove a snow catch area. Construction methods here include stripping away the vegetation and topsoil, removing enough of the hill to satisfy the sloping requirements, re-spreading the topsoil, and reseeding the vegetation to the manager-s specifications.

It is expected that the use will be conducted as a one time event in the summer season when frost no longer exists and conditions have dried sufficiently to minimize grass disturbance. There is little to no future maintenance.

Availability of Resources:

Financial and staff resources are determined to be sufficient at each field station to administer these requests. Staff time will be needed to evaluate the proposed use, to prepare the site-specific permits, and to ensure compliance with the permit authorization and stipulations, as well as checking for satisfactory restoration of any disturbed sites after the reseeded areas have had a chance to grow in.

No specialized equipment will be necessary, as the work requirement associated with these projects is monitoring and compliance checking only. Actual work, including restoration needs, will be completed by the applicant as specified by the wetlands manager.

Anticipated Impacts of the Use:

The uses authorized under this compatibility determination must result in impacts that are only very minor and temporary in nature. In other words, there will be NO long-term negative impacts to Service land or water interests.

Examples of work authorized under this compatibility determination include:

- \$ trenched and backfilled areas to accommodate buried pipelines and cables
- \$ buried utility lines or PVC water lines using a cable plow
- \$ excavated trenches using a backhoe equipped with a Atrenching® bucket (approximately 8-12 inches wide).
- \$ use of crawler-type equipment to shave hills and back-sloping associated with highway safety projects which may extend beyond the existing ROW.

Anticipated impacts are as follows:

- \$ temporary disturbance to the grassland area during and for a period of time following the backfilled trench
- \$ some wildlife may be temporarily displaced during the actual construction
- \$ water quality may be temporarily and slightly reduced due to possible silt deposition if a rainstorm washes the exposed areas for a short period of time after backfilling the trenches or washing of the exposed back-sloped areas.

There will be no long-term impacts nor will there be any secondary or indirect impacts, and there will be no cumulative impacts to Service lands or interests.

Public Review and Comment:

The period of public review and comment began April 10, 2005 and ended April 17, 2005.

Posted notices were made in public places for each of the field stations listed on this compatibility determination. This method was selected because the proposed activity is considered minor, incidental, infrequent, with only short-term disturbance, and/or displacement of wildlife. No comments were received as a result of the posted notices.

Determination:

Compatibility Threshold: Material Interference of Detraction from the Purposes and/or Mission of the Refuge System.

_____ Use is Not Compatible

XXX Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Issuance of a permit does not preclude the requirements for obtaining necessary permits and/or approvals from other county, state, or federal agencies and from local landowners.
2. The permit is issued subject to the revocation and appeals procedure contained in Title 50, Part 25 of the Code of Federal Regulations.
3. The proposed activity will result in no permanent impacts to wetlands protected by Service easements or on waterfowl production areas. No wetlands or any part thereof will be filled with any material, leveled by any equipment, drained by any means including pumping or by diverting water, or burned.
4. Any work within protected wetland basins will be backfilled and compacted to the normal contour of the wetland bottom. No excess, non-compacted fill will be permitted.
5. Upland impacts to areas protected by Service grassland easements or on waterfowl production areas will be only temporary. Any disturbed areas will be leveled, seeded, and restored to pre-work condition as specified by the refuge manager.
6. Additional stipulations may be added to address specific concerns with individual projects. Any potential secondary impacts as a result of the proposal will also be resolved through stipulation.
7. The authorization under the permit issued in accordance with this determination is for the initial construction only; any future maintenance or repairs will require additional consultation with the wetland management district office, and will require a supplemental permit issued prior to the initiation of any remedial work.

Justification:

There will be minimal and temporary disturbance to the wetland and grassland resources protected by the Service's fee or easement by this activity. The use will not detract from or materially interfere with the mission or purpose of the Refuge System. The uses covered by this CD are considered NOT to be an economic use under the guidelines found in 50CFR29.1.

Prior to issuing any permit, the manager will have worked with the applicant to avoid as many impacts as possible, and then to minimize any impacts to Service interests. The impacts are deemed to be minor and only temporary, and complete site restoration will occur, usually with the next growing season.

Where possible, and without compromising any preservation program goal or objective, and without affecting (in the long term) any land interest held by the Service, it is critically important that field stations be able to accommodate these requested uses which are designed to improve highway safety or the quality of life in rural America.

Mandatory 10-Year Reevaluation Date:

10 years from the date of APPROVAL signature.

Enter Reevaluation Date: _____

Signatures:

Submitted:

_____ Michael Bryant, Project Leader Lake Andes WMD	_____ Date
_____ Tom Tornow, Project Leader Madison WMD	_____ Date
_____ Harris Hoistad, Project Leader Huron WMD	_____ Date
_____ Larry Martin, Project Leader Waubay WMD	_____ Date
_____ Gene Williams, Project Leader Sand Lake WMD	_____ Date
_____ Tom Koerner, Project Leader Lacreek NWR	_____ Date
_____	_____

Jack Lalor, Acting Project Leader Tewaukon WMD	Date
Dave Azure, Acting Project Leader Kulm WMD	Date
Kim D. Hanson, Project Leader Arrowwood WMD Chase Lake WMD Valley City WMD	Date
Gary Williams, Acting Project Leader Audubon WMD	Date
Paul Van Ningen, Project Leader Long Lake WMD	Date
Tedd Gutzke, Project Leader J Clark Salyer WMD	Date
Roger Hollevoet, Project Leader Devils Lake WMD	Date
Fred G. Giese, Project Leader Lostwood WMD Crosby WMD	Date
Michael Rabenberg, Acting Project Leader Northeast Montana WMD	Date
Carmen Luna, Project Leader Bowdoin WMD	Date
David Gilland, Project Leader Benton Lake WMD	Date
Steve Kallan, Project Leader	Date

NW Montana WMD

Bill Berg, Acting Project Leader,
Charles M. Russell WMD

Date

Review:

Lloyd Jones
Regional Compatibility Coordinator

Date

Approval:

Ronald D. Shupe, Region 6
Acting Chief of Refuges

Date

6. COMPATIBILITY DETERMINATION

Use: waterlines on grassland easements to provide livestock watering

Station Names:

Arrowwood Wetland Management District
Audubon Wetland Management District
Chase Lake Wetland Management District
Crosby Wetland Management District
Devils Lake Wetland Management District
Huron Wetland Management District
J. Clark Salyer Wetland Management District
Kulm Wetland Management District
Lake Andes Wetland Management District
Long Lake Wetland Management District
Lostwood Wetland Management District
Madison Wetland Management District
Sand Lake Wetland Management District
Tewaukon Wetland Management District
Valley City Wetland Management District
Waubay Wetland Management District

County: all counties within the districts

Establishing and Acquisition Authorities:

Consolidated Farm and Rural Development Act, Migratory Bird Conservation Act, Migratory Bird Hunting and Conservation Stamp Tax, North American Wetlands Conservation Act, Emergency Wetlands Resources Act

Refuge Purposes:

A...as Waterfowl Production Areas® subject to® ...all of the provisions of such Act [Migratory Bird Conservation Act] ...except the inviolate sanctuary provisions...® 16 U.S.C. 718(c) (Migratory Bird Hunting and Conservation Stamp)

A...for any other management purpose, for migratory birds.® 16 U.S.C. ' 715d (Migratory Bird Conservation Act)

A...for conservation purposes ... A7 U.S.C. ' 2002 (Consolidated Farm and Rural Development Act)

National Wildlife Refuge System Mission:

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

Description of Use:

What is the use? Is the use a wildlife-dependent public use?

The activity requested involves burying waterlines to provide for livestock watering on areas encumbered by Service grassland easements in North and South Dakota. The buried waterline is a new use of the grassland easement because of the surface grass disturbance, which would be considered an economic use. There are approximately 2,500 individual grassland contract holders in the two states. It is estimated that no more than 10% or 250 will ever make a request for a buried waterline. In those cases where additional water supplies are provided there is a better distribution of grazing on the easement tract and overall health and sustainability of the grass is improved. The waterlines are installed by either a chisel plow or narrow trenching (not exceeding 2 feet) equipment to a depth of 6-8 feet. Minor and very temporary disturbance to the grass is confined to an area no greater than 10 feet on either side of the pipe location. The waterlines are polyethylene pipe of approximately 2 inches in diameter. The disturbance to grass is minimal (generally not exceeding 1 acre of disturbance) in relation to the acreage involved in the easement tract (average 600 acres). The disturbance caused by the trench is immediately restored and with residual and seeded grasses, the activity disturbance is temporary within 1-2 years little to no evidence remains of the activity. The activity will be permitted with a special use permit and stipulations provided to ensure special and limiting conditions are adhered to and restoration is complete. The waterline will deliver water to a holding tank and gravel pad causing permanent disturbance to grass on an area of approximately 60 feet by 60 feet, representing less than one-tenth of one acre or less than 0.00001 percent of the average grassland easement tract.

Where would the use be conducted?

The use will be conducted on grassland easements in all the Wetland Management Districts listed including both North Dakota and South Dakota. Generally the grassland easement tracts are native grassland areas that are used predominately for cattle grazing. There will be minimal or non detected disturbance to wildlife as a result of the activity and what does occur will be very temporary. The disturbance to the average grassland easement tract will represent less than 0.002 percent of the average easement tract.

When would the use be conducted?

The use will be conducted as a one time event in the summer season when frost no longer exists and conditions have dried sufficiently to minimize grass disturbance. There is little to no future maintenance. How would the use be conducted?

The activity will be conducted with either trenching equipment such as a back hoe or a chisel plow. Disturbance will not exceed 2 feet in width or be less if the chisel plow is used.

Why is this use being proposed?

It will be the grassland easement holder requesting the use. The request will be to provide better water availability for improved grass utilization due to more equal grazing distribution. Buried waterlines for livestock watering is a cost effective and reliable alternative to traditional stock watering dams, especially in times of drought or low precipitation conditions.

Availability of Resources:

Resource involved in the administration and management of the use:

No additional management or administrative costs will be associated with this activity.

Special equipment, facilities, or improvements necessary to support the use: None

Maintenance costs: None

Monitoring costs: None

Offsetting revenues: None

Anticipated Impacts of the Use:

Short-term impacts:

There will be only temporary disturbance to the grass from the construction activities so all impacts will be short-term. In 1-2 years little to no evidence exists of the activity. There will be no indirect impacts associated with this activity.

Long-term impacts:

There will be no long term impacts associated with this activity.

Cumulative impacts:

The only cumulative direct impact will be the loss of grassland from the installation of water holding facilities, estimated to be approximately 360 square feet, representing 0.008 of an acre or 0.00001 percent of the average grassland easement (600 acres). There are no indirect impacts from the proposed activity.

Public Review and Comment:

The period of public review and comment began 8/9/2004 and ended 8/13/2004.

The following methods were used to solicit public review and comment:

Posted notices in public places.

Why was this level of public review and comment selected?

The proposed activity is considered minor, incidental, one-time with minimal temporary disturbance.

Summarize comments received and any actions taken or not taken because of comments received.

No comments were received.

Determination:

Use is compatible with the following stipulations.

Stipulations Necessary to Ensure Compatibility:

1. Soil, if removed through trenching, will be replaced in the same soil profile as it was removed. Topsoil will be replaced and all soils compacted.
2. Activity will occur during the time when soils are dry and equipment activity will have reduced impact to grasses and soils.
3. Any areas that are disturbed will be reseeded to the appropriate grass mixture if determined necessary for reestablishment by the refuge manager.

Justification:

There will be minimal and temporary disturbance to the grassland resources protected by the Service's easement by this activity. The use will not detract from or materially interfere with the mission or purpose of the Refuge System. It is an economic use and as such the activity will benefit the Service mission and purpose through better management of the grassland community by providing improved grazing distribution.

If the proposed use were an economic use of refuge natural resources, how would it contribute to the purposes of the refuge or the mission of the National Wildlife Refuge System?

The activity of providing water for livestock grazing will contribute to the mission by providing improved grazing distribution and better range management of the grassland resources protected by the Service's easement.

Text of Public Notice:

The U.S. Fish and Wildlife Service (Service) is soliciting public comments on whether to allow buried waterlines to provide for livestock watering on Service Grassland Easements in North and South Dakota. The activity will cause minor and temporary disturbance to the grassland area. Restoration will be ensured through stipulations defined in a Special Use Permit agreed to by the landowner. Through better distribution of livestock grazing the health and sustainability to the grasslands will be better ensured. People wishing to provide comments can do so by August 13th by submitting them to the Wetland Habitat Office, 3425 Miriam Avenue, Bismarck, ND 58501. For more information, contact Lloyd Jones at (701) 355-8529.

Larry Martin, Waubay Wetland Management District

Date

Review: Regional Compatibility Coordinator _____
Lloyd Jones

Date

Review: Zone Supervisor _____
Rod Krey

Date

Concurrence: Regional Chief _____
Rick Coleman

Date

Mandatory 10- or 15- year Re-Evaluation Date: 2019

Appendix C: Planning Team and Contributors

This document is the result of extensive, collaborative, and enthusiastic efforts by members of the planning team.

<i>Team Member</i>	<i>Position</i>	<i>Work Unit</i>
Natoma Buskness	<i>former</i> deputy project leader	Chase Lake National Wildlife Refuge, Woodworth, ND
Bernardo Garza	fish and wildlife biologist, planning team leader	USFWS, Region 6, Division of Planning, Lakewood, CO
Cheryl Jacobs	biological science technician	Long Lake National Wildlife Refuge Complex, Moffit, ND
Gregg Knutsen	refuge biologist	Long Lake National Wildlife Refuge Complex, Moffit, ND
Lynda Knutsen	outdoor recreation planner	Long Lake National Wildlife Refuge Complex, Moffit, ND
Randy Kreil	wildlife division chief	North Dakota Game and Fish Department, Bismarek, ND
Rachel Laubhan	wildlife biologist	USFWS, Northern Prairie Wildlife Research Center, Jamestown, ND
Murray Laubhan	research wildlife biologist	USGS, Northern Prairie Wildlife Research Center, Jamestown, ND
Adam Misztal	fish and wildlife biologist, <i>former</i> planning team leader	USFWS, Region 6, Colorado Field Office, Lakewood, CO
Richard Schroeder	ecologist	USGS – Biological Resources Division, Fort Collins, CO
Cindy Souders	outdoor recreation planner	USFWS, Region 6, Division of Education and Visitor Services Lakewood, CO
Meg Van Ness	regional archaeologist	USFWS, Region 6, Lakewood, CO
Paul Van Ningen	project leader	Long Lake National Wildlife Refuge Complex, Moffit, ND

Valuable support to the planning team was also provided by the individuals listed below.

<i>Name</i>	<i>Position</i>	<i>Work Unit</i>
Ned Euliss, Jr	research wildlife biologist	USGS, Northern Prairie Wildlife Research Center, Jamestown, ND
Robert Gleason	research wildlife biologist	USGS, Northern Prairie Wildlife Research Center, Jamestown, ND
Chuck Loesch	wildlife biologist	USFWS, HAPET Office, Bismarck, ND
Linda Kelly	chief, branch of comprehensive conservation planning	USFWS, Region 6, Division of Planning, Lakewood, CO
Neal Neimuth	wildlife biologist	USFWS, HAPET Office, Bismarck, ND
Ron Reynolds	project leader	USFWS, HAPET Office, Bismarck, ND

Additionally, the following Service staff from region 6 provided valuable input on earlier drafts of this document.

<i>Name</i>	<i>Position</i>
Bob Barrett	deputy refuge supervisor, ND/SD
Rick Coleman	assistant regional director
	fire management officer
Jeff Dion	fire management officer/ Arrowwood NWR Complex
John Esperance	chief of land protection planning branch
	chief of education and visitor services
Pete Finley	ROS/pilot
Galen Green	fire ecologist
	refuge planner
Todd King	maintenance worker
Laura King	refuge planner
Wayne King	biologist

	refuge supervisor, ND/SD
Tyrell Lauckner	maintenance worker
Michael Spratt	chief, division of refuge planning
Jason Wagner	supervisory range technician
Wendy Wollmuth	administrative officer
Harvey Wittmier	chief, division of realty

Appendix D: Key Legislation and Policies

This appendix briefly describes the guidance for the National Wildlife Refuge System and other policies and key legislation that guide the management of Long Lake National Wildlife Refuge Complex.

National Wildlife Refuge System

The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (National Wildlife Refuge System Improvement Act of 1997).

Goals

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

Guiding Principles

There are four guiding principles for management and public use of the Refuge System established by Executive Order 12996 (1996):

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

Legal and Policy Guidance

Management actions on national wildlife refuges are circumscribed by many mandates including laws and executive orders, the latest of which is the Volunteer and Community Partnership Enhancement Act of 1998. Regulations that affect refuge management the most are listed below.

American Indian Religious Freedom Act (1978)—Directs agencies to consult with native traditional religious leaders to determine appropriate policy changes necessary to protect and preserve Native American religious cultural rights and practices.

Americans with Disabilities Act (1992)—Prohibits discrimination in public accommodations and services.

Antiquities Act (1906)—Authorizes the scientific investigation of antiquities on federal land and provides penalties for unauthorized removal of objects taken or collected without a permit.

Archaeological and Historic Preservation Act (1974)—Directs the preservation of historic and archaeological data in federal construction projects.

Archaeological Resources Protection Act (1979), as amended—Protects materials of archaeological interest from unauthorized removal or destruction and requires federal managers to develop plans and schedules to locate archaeological resources.

Architectural Barriers Act (1968)—Requires federally owned, leased, or funded buildings and facilities to be accessible to persons with disabilities.

Clean Water Act (1977)—Requires consultation with the U.S. Army Corps of Engineers (404 permits) for major wetland modifications.

Endangered Species Act (1973)—Requires all federal agencies to carry out programs for the conservation of endangered and threatened species.

Executive Order 7169 (1935)—Establishes Sand Lake National Wildlife Refuge “... as a refuge and breeding ground for migratory birds and other wild life... to effectuate further the purposes of the Migratory Bird Conservation Act....”

Executive Order 11988 (1977)—Requires federal agencies to provide leadership and take action to reduce the risk of flood loss, minimize the impact of floods on human safety, and preserve the natural and beneficial values served by the flood plains.

Executive Order 12996, Management and General Public Use of the National Wildlife Refuge System (1996)—Defines the mission, purpose, and priority public uses of the National Wildlife Refuge System. It also presents four principles to guide management of the Refuge System.

Executive Order 13007, Indian Sacred Sites (1996)—Directs federal land management agencies to accommodate access to and ceremonial uses of Indian sacred sites by Indian religious practitioners, avoid adversely affecting the physical integrity of such sacred sites, and where appropriate, maintain the confidentiality of sacred sites.

Federal Noxious Weed Act (1990)—Requires the use of integrated management systems to control or contain undesirable plant species and an

interdisciplinary approach with the cooperation of other federal and state agencies.

Federal Records Act (1950)—Requires the preservation of evidence of the government’s organization, functions, policies, decisions, operations, and activities, as well as basic historical and other information.

Fish and Wildlife Coordination Act (1958)—Allows the U.S. Fish and Wildlife Service to enter into agreements with private landowners for wildlife management purposes.

Migratory Bird Conservation Act (1929)—Establishes procedures for acquisition by purchase, rental, or gifts of areas approved by the Migratory Bird Conservation Commission.

Migratory Bird Hunting and Conservation Stamp Act (1934)—Authorizes the opening of part of a refuge to waterfowl hunting.

Migratory Bird Treaty Act (1918)—Designates the protection of migratory birds as a federal responsibility; and enables the setting of seasons and other regulations, including the closing of areas, federal or non-federal, to the hunting of migratory birds.

National Environmental Policy Act (1969)—Requires all agencies, including the Service, to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate this Act with other planning requirements, and prepare appropriate documents to facilitate better environmental decision making. [From the Code of Federal Regulations (CFR), 40 CFR 1500]

National Historic Preservation Act (1966), as amended—Establishes as policy that the Federal Government is to provide leadership in the preservation of the Nation’s prehistoric and historical resources.

National Wildlife Refuge System Administration Act (1966)—Defines the National Wildlife Refuge System and authorizes the Secretary of the Interior to permit any use of a refuge, provided such use is compatible with the major purposes for which the refuge was established.

National Wildlife Refuge System Improvement Act of 1997—Sets the mission and administrative policy for all refuges in the National Wildlife Refuge System; mandates comprehensive

conservation planning for all units of the Refuge System.

Native American Graves Protection and Repatriation Act (1990)—Requires federal agencies and museums to inventory, determine ownership of, and repatriate cultural items under their control or possession.

Refuge Recreation Act (1962)—Allows the use of refuges for recreation when such uses are compatible with the refuge’s primary purposes and when sufficient funds are available to manage the uses.

Rehabilitation Act (1973)—Requires programmatic accessibility in addition to physical accessibility for all facilities and programs funded by the Federal Government to ensure that any person can participate in any program.

Rivers and Harbors Act (1899)—Section 10 of this Act requires the authorization of U.S. Army Corps of Engineers prior to any work in, on, over, or under navigable waters of the United States.

Volunteer and Community Partnership Enhancement Act (1998)—Encourages the use of volunteers to assist in the management of refuges within the Refuge System; facilitates partnerships between the Refuge System and non-federal entities to promote public awareness of the resources of the Refuge System and public participation in the conservation of the resources; and encourages donations and other contributions.

Appendix E: Public Involvement

Public Involvement

The Service began the pre-planning process in November 2003. In January 2004, the Service contacted State and Tribal representatives to invite them to participate in the planning process for the Comprehensive Conservation Plan for the Long Lake National Wildlife Refuge Complex. A planning team comprised of Service personnel from the complex and the regional office, as well as of NDGF personnel (appendix B), was developed during the kickoff meeting in February 2004.

A Notice of Intent was published in the Federal Register on May 21, 2004. Five public open house meetings were held from 7:00 to 9:00 p.m. during consecutive nights from March 29 through April 2, 2004 at Steele (Community Center), Tappen (City Hall), Hazelton (Public School Cafeteria), Wing (Senior Center), and Bismarck (North Dakota Game and Fish Department Headquarters), respectively. Notification of dates and times of the public open houses was distributed through media press releases.

Attendance at these public meetings was sparse, with no more than 10 persons attending them all together. Those who attended provided both written and oral comments. They were informed that comprehensive planning was an open process and they could submit their comments at any time and by any means (i.e. letter, telephone, and internet) up until the time the CCP was final. Additional written comments were received by the planning team via mail.

Over the course of pre-planning and scoping, the planning team collected available information about the resources of the complex and the surrounding areas. This information is summarized under Chapter 4. Affected Environment.

Many of the public comments from the open houses and issue workbooks were general comments for all units of the complex being managed as part of the Refuge System.

Draft issues and qualities lists were developed during a workshop held in the U.S. Fish & Wildlife Service Bismarck office in late September 2004.

Mailing List

A mailing list was developed for this CCP. It includes the following:

- Federal Officials
- Federal Agencies
- State Officials
- State Agencies
- Local Agencies
- Media
- Organizations, Businesses and Civic Groups
- Universities and Colleges
- Individuals

Appendix F: Long Lake NWR Complex— Fee-Title Tract Prioritization

Criteria for HIGH Priority Tracts

- H1.) ≥80 breeding duck pairs per square mile (mean density for entire tract) and a minimum of 40 upland acres
- H2.) ≥320ac in total size, with ≥100 upland acres
- H3.) ≥80ac native prairie
- H4.) Resource of concern designation (e.g., Piping Plover Critical Habitat, suitable Dakota skipper habitat).

Criteria for MODERATE Priority Tracts

- M1.) Between 20 and 79 breeding duck pairs per square mile (mean density for entire tract) and a minimum of 40 upland ac.
- M2.) Between 160 and 319ac in total size, with ≥50 upland ac.
- M3.) Between 25 and 79ac native prairie
- M4.) Tract lies entirely within a Type I Grassland Bird Conservation Area (core) and has ≥40 upland ac.

Criteria for LOW Priority Tracts

- L1.) All remaining tracts.

HIGH PRIORITY¹

<u>NWR or WPA</u>	<u>County</u>	<u>Qualifying Criteria</u>
Rath/Wonnenburg	Burleigh	H1, H2, H3, H4
Long Lake NWR	Burleigh/Kidder	H2, H3, H4
Schiermeister	Emmons	H2, H3, H4
Sisco-Fallgatter	Emmons	H1, H2, H3
Almer	Kidder	H1, H3
Behold	Kidder	H2, H3
Braun	Kidder	H1, H3
Crimmins	Burleigh	H2, H3
East Lost Lake	Burleigh	H2, H3
Florence Lake NWR	Burleigh	H2, H3
Goldsmith	Kidder	H2, H3
Monroe	Burleigh	H2, H3
Rachel/Hoff	Burleigh	H1, H4
Ryberg/Wonnenburg	Burleigh	H1, H3

<u>NWR or WPA</u>	<u>County</u>	<u>Qualifying Criteria</u>
Slade NWR	Kidder	H2, H3
Victor	Burleigh	H1, H2
Whitman	Kidder	H2, H3
Adams	Burleigh	H3
Albright	Kidder	H2
Basaraba	Burleigh	H2
BLM #1e3	Burleigh	H4
BLM #1f	Burleigh	H4
BLM #1g	Burleigh	H4
BLM #1h	Burleigh	H4
BLM #1i	Burleigh	H4
BLM #5	Kidder	H4
BLM #6	Kidder	H4
BLM #7	Kidder	H4
Clizbe	Burleigh	H1
Kleppe Lang	Kidder	H4
Kurtz	Emmons	H3
McKenzie	Burleigh	H1
N. Crimmins	Burleigh	H1
Oswald	Burleigh	H3
PDL/Trusty	Burleigh	H1
Rohrich/Walther/Weiszhaar	Emmons	H2
Thorstad	Burleigh	H1
Vogel	Kidder	H2
Wahl	Kidder	H3

MODERATE PRIORITY¹

<u>NWR or WPA</u>	<u>County</u>	<u>Qualifying Criteria</u>
Bernhardt	Burleigh	M2, M3, M4
Personius	Kidder	M1, M2, M4
Bertsch Morrison	Kidder	M2, M4
Kleppe East	Kidder	M3, M4
Martin	Kidder	M3, M4
Nelson	Kidder	M2, M4
Nuestal Whitman	Kidder	M2, M4
Rohrback	Burleigh	M3, M4
Schatz	Emmons	M1, M3
Schauer	Burleigh	M2, M4
Thacker	Kidder	M3, M4
Uhde	Burleigh	M3, M4
Berg Gellner	Burleigh	M3
Foell	Emmons	M3
Guthmiller	Kidder	M2
Morrison	Kidder	M3
PDL 1c	Kidder	M3
Seventh Day Adventist	Burleigh	M2
Small	Burleigh	M2
YMCA	Burleigh	M2

LOW PRIORITY

<u>NWR or WPA</u>	<u>County</u>
BLM #1	Burleigh
BLM #3	Kidder
BLM #4	Kidder
Bryan/Mohler	Burleigh
Delzer	Emmons
Gaub Hoots	Kidder
Goose Lake	Emmons
Haak	Emmons
Haid	Burleigh
Kleppe West	Kidder
Leno	Burleigh
Mattern	Emmons
Mayer	Kidder
North Dakota	Burleigh
PDL 1	Kidder
PDL 1a	Kidder
PDL 1b	Burleigh
PDL 1d	Kidder
Pleiness	Kidder
Schmidt	Kidder
Silvernagel	Emmons
Slovarp	Burleigh
Stark	Kidder

¹*Application of any single criteria can qualify a tract as HIGH or MODERATE priority.*

Appendix G: Species List

Below is a list of resident and migrant wildlife species found on or adjacent to Long Lake NWR, as well as a list of plant species mentioned in this document.

This list includes all mammals, fish, and herpetofauna expected to occur on Long Lake NWR based on Refuge files, unpublished systematic survey data, and other relevant literature and data that pertain to south-central North Dakota. Bird species listed in this appendix are based on the Long Lake NWR Bird List (May 2002), as well as additional information from Refuge files (June 2002–May 2006).

Taxonomic order follows Banks et al. (1987; mammals, fish, amphibians, reptiles) and the Check-list of North American Birds (7th ed., 46th supplement; American Ornithologists' Union 2005).

Wildlife

Class Amphibia

Order Caudata

Tiger salamander (*Ambystoma tigrinum*)

Order Anura

Great Plains toad (*Bufo cognatus*)

Canadian toad (*Bufo hemiophrys*)

Woodhouse's toad (*Bufo woodhousei*)

Chorus frog (*Pseudacris triseriata*)

Northern leopard frog (*Rana pipiens*)

Plains spadefoot toad (*Scaphiopus bombifrons*)

Wood frog (*Rana sylvatica*)

Class Reptilia

Order Testudines

Common snapping turtle (*Chelydra serpentina*)

Western painted turtle (*Chrysemys picta*)

Order Squamata

Northern red-bellied snake (*Storeria occipitomaculata*)

Plains garter snake (*Thamnophis radix*)

Smooth green snake (*Opheodrys vernalis*)

Bullsnake (*Pituophis catenifer*)

Western hognose snake (*Heterodon nasicus*)

Common garter snake (*Thamnophis sirtalis*)

Class Aves

Order Anseriformes

Greater white-fronted goose (*Anser albifrons*)

Snow goose (*Chen caerulescens*)

Ross's goose (*Chen rossii*)

Cackling goose (*Branta hutchinsii*)

Canada goose (*Branta canadensis*) – **B**

Brant (*Branta bernicla*) – **A**

Trumpeter swan (*Cygnus buccinator*)

Tundra swan (*Cygnus columbianus*)

Wood duck (*Aix sponsa*) – **B**

Gadwall (*Anas strepera*) – **B**

Eurasian Wigeon (*Anas penelope*) – **A**

American Wigeon (*Anas americana*) – **B**

American black duck (*Anas rubripes*)

Mallard (*Anas platyrhynchos*) – **B**

Blue-winged teal (*Anas discors*) – **B**

Cinnamon teal (*Anas cyanoptera*)

Northern shoveler (*Anas clypeata*) – **B**

Northern pintail (*Anas acuta*) – **B**

Gargany (*Anas querquedula*) – **A**

Green-winged teal (*Anas crecca*) – **B**

Canvasback (*Aythya valisineria*) – **B**

Redhead (*Aythya Americana*) – **B**

Ring-necked duck (*Aythya collaris*) – **B**

Greater scaup (*Aythya marila*)

Lesser scaup (*Aythya affinis*) – **B**

Common eider (*Somateria mollissima*) – **A**

Harlequin duck (*Histrionicus histrionicus*) – **A**

Surf scoter (*Melanitta perspicillata*) – **A**

White-winged scoter (*Melanitta fusca*)

Black scoter (*Melanitta nigra*) – **A**

Long-tailed duck (*Clangula hyemalis*) – **A**

Bufflehead (*Bucephala albeola*) – **B**

Common goldeneye (*Bucephala clangula*)

Barrow's goldeneye (*Bucephala islandica*) – **A**

Hooded merganser (*Lophodytes cucullatus*) – **B**

Common merganser (*Mergus merganser*)

Red-breasted merganser (*Mergus serrator*)

Ruddy duck (*Oxyura jamaicensis*) – **B**

Order Galliformes

Gray partridge (*Perdix perdix*) – **I, B**

Ring-necked pheasant (*Phasianus colchicus*) – **I, B**

Sharp-tailed grouse (*Tympanuchus phasianellus*) – **B**
Greater-prairie chicken (*Tympanuchus cupido*)
Wild turkey (*Meleagris gallopavo*) – **I, B**

Order Gaviiformes

Common loon (*Gavia immer*)

Order Podicipediformes

Pied-billed grebe (*Podilymbus podiceps*) – **B**
Horned grebe (*Podiceps auritus*) – **B**
Red-necked grebe (*Podiceps grisegena*) – **B**
Eared grebe (*Podiceps nigricollis*) – **B**
Western grebe (*Aechmophorus occidentalis*) – **B**
Clark's grebe (*Aechmophorus clarkii*) – **B**

Order Pelicaniformes

American white pelican (*Pelecanus erythrocephalus*)
Double-crested cormorant (*Phalacrocorax auritus*) – **B**
Anhinga (*Anhinga anhinga*) – **A**

Order Ciconiiformes

American bittern (*Botaurus lentiginosus*) – **B**
Least bittern (*Ixobrychus exilis*)
Great blue heron (*Ardea Herodias*)
Great egret (*Ardea alba*) – **B**
Snowy egret (*Egretta caerulea*) – **B**
Little blue heron (*Egretta caerulea*)
Tri-colored heron (***Egretta tricolor***) – **A, B**
Cattle egret (*Bubulcus ibis*) – **B**
Green heron (*Butorides striatus*)
Black-crowned night-heron (*Nycticorax nycticorax*) – **B**
Yellow-crowned night-heron (*Nyctanassa violaceus*)
White ibis (*Eudocimus albus*) – **A**
White-faced ibis (*Plegadis chihi*) – **B**
Turkey vulture (*Cathartes aura*)

Order Falconiformes

Osprey (*Pandion haliaetus*)
Bald eagle (*Haliaeetus leucocephalus*) – **T**
Northern harrier (*Circus cyaneus*) – **B**
Sharp-shinned hawk (*Accipiter striatus*)
Cooper's hawk (*Accipiter cooperii*) – **B**
Northern goshawk (*Accipiter gentilis*)
Red-shouldered hawk (*Buteo lineatus*) – **A**
Broad-winged hawk (*Buteo platypterus*)
Swainson's hawk (*Buteo swainsoni*) – **B**

Red-tailed hawk (*Buteo jamaicensis*) – **B**
Ferruginous hawk (*Buteo regalis*) – **B**
Rough-legged hawk (*Buteo lagopus*)
Golden eagle (*Aquila chrysaetos*)
American kestrel (*Falco sparverius*) – **B**
Merlin (*Falco columbarius*)
Gyr Falcon (*Falco rusticolus*)
Peregrine falcon (*Falco peregrinus*)
Prairie falcon (*Falco mexicanus*)

Order Gruiformes

Yellow rail (*Coturnicops noveboracensis*) – **B**
Virginia rail (*Rallus limicola*) – **B**
Sora (*Porzana carolina*) – **B**
American coot (*Fulica Americana*) – **B**
Sandhill crane (*Grus canadensis*)
Whooping crane (*Grus americana*) – **E**

Order Charadriiformes

Black-bellied plover (*Pluvialis squatarola*)
American golden-plover (*Pluvialis dominica*)
Snowy plover (*Charadrius alexandrius*) – **A**
Semipalmated plover (*Charadrius semipalmatus*)
Piping plover (*Charadrius melodus*) – **T, B**
Killdeer (*Charadrius vociferous*) – **B**
Black-necked stilt (*Himantopus mexicanus*) – **A, B**
American avocet (*Recurvirostra americana*) – **B**
Greater yellowlegs (*Tringa melanoleuca*)
Lesser yellowlegs (*Tringa flavipes*)
Solitary sandpiper (*Tringa solitaria*)
Willet (*Catoptrophorus semipalmatus*) – **B**
Spotted sandpiper (*Actitis macularia*) – **B**
Upland sandpiper (*Bartamia longicauda*) – **B**
Whimbrel (*Numenius phaeopus*) – **A**
Long-billed curlew (*Numenius americanus*)
Hudsonian godwit (*Limosa haemastica*)
Marbled godwit (*Limosa fedoa*) – **B**
Ruddy turnstone (*Arenaria interpres*)
Red knot (*Calidris canutus*)
Sanderling (*Calidris alba*)
Semipalmated sandpiper (*Calidris pusilla*)
Western sandpiper (*Calidris mauri*)
Least sandpiper (*Calidris minutilla*)
White-rumped sandpiper (*Calidris fuscicollis*)
Baird's sandpiper (*Calidris bairdii*)
Pectoral sandpiper (*Calidris melanotos*)
Dunlin (*Calidris alpina*)
Stilt sandpiper (*Calidris himantopus*)
Buff-breasted sandpiper (*Tryngites subruficollis*)

Short-billed dowitcher (*Limnodromus griseus*)
Long-billed dowitcher (*Limnodromus scolopaceus*)
Wilson's snipe (*Gallinago delicata*) – **B**
American woodcock (*Scolopax minor*)
Wilson's phalarope (*Phalaropus tricolor*) – **B**
Red-necked phalarope (*Phalaropus lobatus*)
Red phalarope (*Phalaropus fulicaria*) – **A**
Parasitic jaeger (*Stercorarius parasiticus*) – **A**
Long-tailed jaeger (*Stercorarius longicaudus*) – **A**

Franklin's gull (*Larus pipixcan*) – **B**
Bonaparte's gull (*Larus philadelphia*)
Mew gull (*Larus canus*) – **A**
Ring-billed gull (*Larus delawarensis*) – **B**
California gull (*Larus californicus*) – **B**
Herring gull (*Larus argentatus*)
Thayer's gull (*Larus thayeri*) – **A**
Lesser black-backed gull (*Larus fuscus*)
Glaucous-winged gull (*Larus glaucescens*) – **A**
Glaucous gull (*Larus hyperboreus*) – **A**
Great black-backed gull (*Larus marinus*) – **A**
Sabine's gull (*Xema sabini*) – **A**
Black-legged kittiwake (*Rissa tridactyla*) – **A**
Caspian tern (*Sterna caspia*)
Common tern (*Sterna hirundo*) – **B**
Arctic tern (*Sterna paradisaea*) – **A**
Forster's tern (*Sterna forsteri*) – **B**
Least tern (*Sterna antillarum*) – **E**
Black tern (*Sterna niger*) – **B**

Order Columbiformes

Rock pigeon (*Columba livia*) – **I, B**
Eurasian collared-dove (*Streptopelia decaocto*) – **I**
Mourning dove (*Zenaida macroura*) – **B**

Order Cuculiformes

Black-billed cuckoo (*Coccyzus erythrophthalmus*) – **B**
Yellow-billed cuckoo (*Coccyzus americanus*)

Order Strigiformes

Barn owl (*Tyto alba*) – **A**
Eastern screech owl (*Otus asio*)
Great horned owl (*Bubo virginianus*) – **B**
Snowy owl (*Nyctea scandiaca*)
Northern hawk-owl (*Surnia ulula*) – **A**
Burrowing owl (*Athene cunicularia*)
Long-eared owl (*Asio otus*)
Short-eared owl (*Asio flammeus*) – **B**
Northern saw-whet owl (*Aegolius acadicus*)

Order Caprimulgiformes

Common nighthawk (*Chordeiles minor*) – **B**
Whip-poor-will (*Caprimulgus vociferous*)

Order Apodiformes

Chimney swift (*Chaetura pelagica*)
Ruby-throated hummingbird (*Archilochus colubris*)

Order Coraciiformes

Belted kingfisher (*Ceryle alcyon*)

Order Piciformes

Lewis' woodpecker (*Melanerpes lewis*) – **A**
Red-headed woodpecker (*Melanerpes erythrocephalus*) – **B**
Red-bellied woodpecker (*Melanerpes carolinus*)
Yellow-bellied sapsucker (*Sphyrapicus varius*)
Downy woodpecker (*Picoides pubescens*) – **B**
Hairy woodpecker (*Picoides villosus*) – **B**
Northern flicker (*Colaptes auratus*) – **B**

Order Passeriformes

Olive-sided flycatcher (*Contopus cooperi*)
Eastern wood-pewee (*Contopus virens*)
Yellow-bellied flycatcher (*Empidonax flaviventris*)
Alder flycatcher (*Empidonax alnorum*)
Willow flycatcher (*Empidonax traillii*) – **B**
Least flycatcher (*Empidonax minimus*) – **B**
Eastern phoebe (*Saynoris phoebe*) – **B**
Say's phoebe (*Saynoris saya*) – **B**
Great crested flycatcher (*Myiarchus crinitus*)
Western kingbird (*Tyrannus verticalis*) – **B**
Eastern kingbird (*Tyrannus forficatus*) – **B**
Loggerhead shrike (*Lanius ludovicianus*) – **B**
Northern shrike (*Lanius excubitor*)
Yellow-throated vireo (*Vireo flavifrons*)
Blue-headed vireo (*Vireo solitarius*)
Warbling vireo (*Vireo gilvus*) – **B**
Philadelphia vireo (*Vireo philadelphicus*)
Red-eyed vireo (*Vireo olivaceus*)
Blue jay (*Cyanocitta cristata*)
Black-billed magpie (*Pica hudsonia*) – **B**
American crow (*Corvus brachyrhynchos*) – **B**
Common raven (*Corvus corax*)
Horned lark (*Eremophila alpestris*) – **B**
Purple martin (*Progne subis*) – **B**
Tree swallow (*Tachycineta bicolor*) – **B**
Violet-green swallow (*Tachycineta thalassina*) – **A**

Northern rough-winged swallow (*Stelgidopteryx serripennis*) – **B**
 Bank swallow (*Riparia riparia*) – **B**
 Cliff swallow (*Petrochelidon pyrrhonota*) – **B**
 Barn swallow (*Hirundo rustica*) – **B**
 Black-capped chickadee (*Poecile atricapilla*) – **B**
 Red-breasted nuthatch (*Sitta canadensis*)
 White-breasted nuthatch (*Sitta carolinensis*) – **B**
 Brown creeper (*Certhia americana*)
 House wren (*Troglodytes aedon*) – **B**
 Winter wren (*Troglodytes troglodytes*)
 Sedge wren (*Cistothorus platensis*) – **B**
 Marsh wren (*Cistothorus palustris*) – **B**
 Golden-crowned kinglet (*Regulus satrapa*)
 Ruby-crowned kinglet (*Regulus calendula*)
 Eastern bluebird (*Sialia sialis*)
 Mountain bluebird (*Sialia currucoides*)
 Townsend's solitaire (*Myadestes townsendi*)
 Veery (*Catharus fuscescens*)
 Gray-cheeked thrush (*Catharus minimus*)
 Swainson's thrush (*Catharus ustulatus*)
 Hermit thrush (*Catharus guttatus*)
 American robin (*Turdus migratorius*) – **B**
 Gray catbird (*Dumetella carolinensis*) – **B**
 Northern mockingbird (*Mimus polyglottos*)
 Brown thrasher (*Toostoma rufum*) – **B**
 European starling (*Sturnus vulgaris*) – **I, B**
 American pipit (*Anthus rubescens*)
 Sprague's pipit (*Anthus spragueii*) – **B**
 Bohemian waxwing (*Bombycilla garrulous*)
 Cedar waxwing (*Bombycilla cedrorum*) – **B**
 Tennessee warbler (*Vermivora peregrina*)
 Orange-crowned warbler (*Vermivora celata*)
 Nashville warbler (*Vermivora ruficapilla*)
 Yellow warbler (*Dendroica petechia*) – **B**
 Chestnut-sided warbler (*Dendroica pensylvanica*)
 Magnolia warbler (*Dendroica magnolia*)
 Cape may warbler (*Dendroica tigrina*)
 Yellow-rumped warbler (*Dendroica coronata*)
 Black-throated green warbler (*Dendroica virens*)
 Blackburnian warbler (*Dendroica fusca*)
 Prairie warbler (*Dendroica discolor*) – **A**
 Palm warbler (*Dendroica palmarum*)
 Bay-breasted warbler (*Dendroica castanea*)
 Blackpoll warbler (*Dendroica striata*)
 Black-and-white warbler (*Mniotilta varia*)
 American redstart (*Setophaga ruticilla*)
 Prothonotary warbler (*Protonotaria citrea*) – **A**

Ovenbird (*Seiurus aurocapillus*)
 Northern waterthrush (*Seiurus noveboracensis*)
 Connecticut warbler (*Oporornis agilis*)
 Mourning warbler (*Oporornis philadelphia*)
 MacGillivray's warbler (*Oporornis tolmiei*)
 Common yellowthroat (*Geothlypis trichas*) – **B**
 Wilson's warbler (*Wilsonia pusilla*)
 Canada warbler (*Wilsonia Canadensis*)
 Yellow-breasted chat (*Icteria virens*)
 Scarlet tanager (*Piranga olivacea*)
 Spotted towhee (*Pipilo maculatus*)
 Eastern towhee (*Pipilo erythrophthalmus*)
 American tree sparrow (*Spizella arborea*)
 Chipping sparrow (*Spizella passerina*) – **B**
 Clay-colored sparrow (*Spizella pallida*) – **B**
 Field sparrow (*Spizella pusilla*)
 Vesper sparrow (*Pooecetes gramineus*) – **B**
 Lark sparrow (*Chondestes grammacus*) – **B**
 Lark bunting (*Calamospiza melanocorys*) – **B**
 Savannah sparrow (*Passerculus sandwichensis*) – **B**
 Grasshopper sparrow (*Ammodramus savannarum*) – **B**
 Baird's sparrow (*Ammodramus bairdii*) – **B**
 Henslow's sparrow (*Ammodramus henslowii*) – **B**
 Le Conte's sparrow (*Ammodramus leconteii*) – **B**
 Nelson's sharp-tailed sparrow (*Ammodramus nelsoni*) – **B**
 Fox sparrow (*Passerelia iliaca*)
 Song sparrow (*Melospiza melodia*) – **B**
 Lincoln sparrow (*Melospiza lincolni*)
 Swamp sparrow (*Melospiza georgiana*)
 White-throated sparrow (*Zonotrichia albicollis*)
 Harris' sparrow (*Zonotrichia querula*)
 White-crowned sparrow (*Zonotrichia leucophrys*)
 Dark-eyed junco (*Junco hyemalis*)
 McCown's longspur (*Calcarius mccownii*)
 Lapland longspur (*Calcarius lapponicus*)
 Smith's longspur (*Calcarius pictus*)
 Chestnut-collared longspur (*Calcarius ornatus*) – **B**
 Snow bunting (*Plectrophenax nivalis*)
 Northern cardinal (*Cardinalis cardinalis*) – **A**
 Rose-breasted grosbeak (*Pheucticus ludovicianus*)
 Black-headed grosbeak (*Pheucticus melanocephalus*)
 Blue grosbeak (*Guiraca caerulea*)

Lazuli bunting (*Passerina amoena*)
 Indigo bunting (*Passerina ciris*)
 Dickcissel (*Spiza Americana*) – **B**
 Bobolink (*Dolichonyx oryzivorus*) – **B**
 Red-winged blackbird (*Agelaius phoeniceus*) – **B**
 Eastern meadowlark (*Sturnella magna*) – **A**
 Western meadowlark (*Sturnella neglecta*) – **B**
 Yellow-headed blackbird (*Xanthocephalus xanthocephalus*) – **B**
 Rusty blackbird (*Euphagus carolinus*)
 Brewer's blackbird (*Euphagus cyanocephalus*) – **B**
 Common grackle (*Quiscalus quiscula*) – **B**
 Great-tailed grackle (*Quiscalus mexicanus*) – **A**
 Brown-headed cowbird (*Molothrus ater*) – **B**
 Orchard oriole (*Icterus spurius*) – **B**
 Bullock's oriole (*Icterus bullockii*)
 Baltimore oriole (*Icterus galbula*) – **B**
 Pine grosbeak (*Pinicola enucleator*)
 Purple finch (*Carpodacus purpureus*)
 House finch (*Carpodacus mexicanus*)
 Red crossbill (*Loxia curvirostra*)
 White-winged crossbill (*Loxia leucoptera*)
 Common redpoll (*Carduelis flammea*)
 Hoary redpoll (*Carduelis hornemanni*)
 Pine siskin (*Carduelis pinus*)
 American goldfinch (*Carduelis tristis*) – **B**
 Evening grosbeak (*Coccothraustes vespertinus*)
 House sparrow (*Passer domesticus*) – **I, B**

Class Mammalia

Order Insectivora

Northern short-tailed shrew (*Blarina brevicauda*)
 Masked shrew (*Sorex cinereus*)
 Arctic shrew (*Sorex arcticus*)

Order Chiroptera

Little brown bat (*Myotis lucifugus*)

Order Carnivora

Coyote (*Canis latrans*)
 Red fox (*Vulpes vulpes*)
 Raccoon (*Procyon lotor*)
 Long-tailed weasel (*Mustela frenata*)
 Least weasel (*Mustela nivalis*)
 Mink (*Mustela vison*)
 Badger (*Taxidea taxus*)
 Striped skunk (*Mephitis mephitis*)

Order Artiodactyla

White-tailed deer (*Odocoileus virginianus*)
 Mule deer (*Odocoileus hemionus*)
 Pronghorn (*Antilocapra americana*)

Order Rodentia

Fox squirrel (*Sciurus niger*)
 Franklin's ground squirrel (*Spermophilus franklinii*)
 Richardson's ground squirrel (*Spermophilus richardsonii*)
 Thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*)
 Northern pocket gopher (*Thomomys talpoides*)
 Beaver (*Castor canadensis*)
 Northern grasshopper mouse (*Onychomys leucogaster*)
 White-footed mouse (*Peromyscus leucopus*)
 Deer mouse (*Peromyscus maniculatus*)
 Western harvest mouse (*Reithrodontomys megalotis*)
 Meadow vole (*Microtus pennsylvanicus*)
 Muskrat (*Ondatra zibethicus*)
 House mouse (*Mus musculus*)
 Norway rat (*Rattus norvegicus*)
 Meadow jumping mouse (*Zapus hudsonius*)
 Porcupine (*Erethizon dorsatum*)

Order Lagomorpha

Eastern cottontail (*Sylvilagus floridanus*)
 Nuttall's cottontail (*Sylvilagus nuttallii*)
 White-tailed jackrabbit (*Lepus townsendii*)

Class Osteichthyes

Order Salmoniformes

Northern pike (*Esox lucius*)

Order Cypriniformes

Common carp (*Cyprinus carpio*)
 Fathead minnow (*Pimephales promelas*)
 White sucker (*Catostomus commersoni*)

Order Siluriformes

Black bullhead (*Ameiurus melas*)

Order Perciformes

Yellow perch (*Perca flavescens*)
 Walleye (*Stizostedion vitreum*)

B = denotes a strong evidence of nesting for a bird species

A = a bird species that has been seen once or only a few times and the Refuge is outside of its normal range

I = bird or plant species not native to North America

T = a bird species classified as federally threatened

E = a bird species classified as federally endangered

Plants¹

Absinth Wormwood (*Artemisia absinthium*)

Alfalfa (*Medicago* spp.)

American Plum (*Prunus Americana*)

Aspen spp. (*Populus* spp.)

Barley (*Hordeum vulgare*)

Beans -

Beggarticks spp. (*Bidens* spp.)

Big Bluestem (*Andropogon gerardii*)

Blacksamson Echinacea (*Echinacea angustifolia*)

Blanket Flower (*Gaillardia aristata*)

Blazing Star (*Liatris punctata*)

Blue Grama (*Bouteloua gracilis*)

Bouteloua (genus) (*Bouteloua* spp.)

Breadroot Scurfpea (*Psoralea esculenta*)

Buffaloberry (*Shepherdia argentea*)

Bulrush spp. (*Schoenoplectus* spp.)

Burreed (*Sparganium* spp.)

Canada Thistle (*Cirsium arvense*)

Caragana (*Caragana arborescens*)

Carex (genus) (*Carex* spp.)

Cattails spp. (*Typha* spp.)

Chokecherry (*Prunus virginiana*)

Clubmoss (*Lycopodium* spp.)

Common Bladderwort (*Utricularia vulgaris*)

Common Reed (*Phragmites australis*)

Common Spikerush (*Eleocharis palustris*)

Common Yarrow (*Achillea millefolium*)

Coontail (*Ceratophyllum demersum*)

Corn (*Zea mays*)

Cosmopolitan Bulrush (*Schoenoplectus maritimus*)

Cottonwood (*Populus deltoides*)

Crested Wheatgrass (*Agropyron cristatum*)

Curlyleaf Pondweed (*Potamogeton crispus*)

Dotted Blazingstar (*Liatris punctata*)

Durum Wheat -

Duckweed (*Lemna* spp.)

Durum Wheat (*Triticum durum*)

Eurasian Watermilfoil (*Myriophyllum spicatum*)

Fendler Threeawn (*Aristida purpurea*)

Field Pennycress (*Thlaspi arvense*)

Flatspine Stickseed (*Lappula occidentalis*)

Flax (*Linum* spp.)

Foxtail Barley (*Hordeum jubatum*)

Goldenrod spp. (*Solidago* spp.)

Green Ash (*Fraxinus pennsylvanica*)

Green Foxtail (*Setaria viridis*)

Green Needlegrass (*Nassella viridula*)

Groundplum Milkvetch (*Astragalus crassicarpus*)

Hoary Puccoon (*Lithospermum canescens*)

Inland Saltgrass (*Distichlis spicata*)

Intermediate Wheatgrass (*Thinopyrum intermedium*)

Juneberry (*Amelanchier arborea*)

Kentucky Bluegrass (*Poa pratensis*)

Lead Plant (*Amorpha canescens*)

Leafy Spurge (*Euphorbia esula*)

Lichens spp. (*Lycopodium* spp.)

Little Bluestem (*Schizachyrium scoparium*)

Lotus Milkvetch (*Astragalus lotiflorus*)

Narrowleaf Goosefoot (*Chenopodium leptophyllum*)

Needle and Thread (*Stipa comata*)

Needleleaf Sedge (*Carex duriuscula*)

Nuttall's Alkaligrass (*Puccinellia nuttalliana*)

Oats -

Pasture Sage (*Artemisia ludoviciana*)

Pinto Beans -

Porcupine Grass (*Stipa spartea*)

Potatoes -

Prairie Coneflower (*Ratibida columnifera*)

Prairie Cordgrass (*Spartina pectinata*)

Prairie Junegrass (*Koeleria macrantha*)

Prairie Sagewort (*Artemisia frigida*)

Prairie Sandreed (*Calamovilfa longifolia*)

Prairie Smoke (*Geum triflorum*)

Prairie Wild Rose (*Rosa setigera*)

Purple Coneflower (*Echinacea angustifolia*)

Purple Loosestrife (*Lythrum salicaria*)

Reed Canary Grass (*Phalaris arundinacea*)

Rush spp. (*Juncus* spp.)

Russian Olive (*Elaeagnus angustifolia*)

Sago Pondweed (*Stuckenia pectinata*)

Salt Cedar (*Tamariax ramosissima*)

Sandberg Bluegrass (*Poa secunda*)

Scarlet Beeblossom (*Gaura coccinea*)

Seaside Arrowgrass (*Triglochin maritima*)

Sedge spp. (*Carex* spp.)

Siberian Elm (*Ulmus pumila*)
Sideoats Grama (*Bouteloua curtipendula*)
Silverberry (*Elaeagnus commutata*)
Silverleaf Scurfpea (*Psoralea argophylla*)
Slender Wheatgrass (*Elymus trachycaulus*)
Sloughgrass (*Beckmannia syzigachne*)
Smartweed spp. (*Polygonum* spp.)
Smooth Brome (*Bromus inermis*)
Softstem Bulrush (*Schoenoplectus
tabernaemontani*)
Spiny Phlox (*Phlox hoodii*)
Spring Wheat -
Stiffstem Flax (*Linum rigidum*)
Stipa (genus) (*Stipa* spp.)
Sugar Beets-
Sunflowers -
Sun Sedge (*Carex inops*)
Sweet Clover (*Melilotus* spp.)

Switchgrass (*Panicum virgatum*)
Tall Wheatgrass (*Thinopyrum ponticum*)
Tarragon (*Artemisia dracunculus*)
Threadleaf Sedge (*Carex filifolia*)
Three-square Bulrush (*Schoenoplectus
americanus*)
Tule Bulrush (*Schoenoplectus lacustris*)
Western Snowberry (*Symphoricarpos
occidentalis*)
Western Wheatgrass (*Pascopyrum smithii*)
White Milkwort (*Polygala alba*)
White Prairie Clover (*Dalea candida*)
White Sagebrush (*Artemisia ludoviciana*)
Woolly Plantain (*Plantago patagonica*)

¹Scientific names are not listed for domestic agricultural species.

Appendix H: Long Lake NWR Complex Upland Plant Associations

- Based on ≥50% canopy cover dominance, unless otherwise specified
- Modified from Grant et al. 2004

SHRUB and TREE TYPES

low shrub (generally <1.5m tall)

- 11 snowberry dense (other low shrub species total 0-25%); *other plants few or none*
- 12 snowberry (and other low shrub spp.); remainder mostly NATIVE grass-forb types
- 13 snowberry (and other low shrub spp.); remainder mostly Kentucky bluegrass
- 14 snowberry (and other low shrub spp.); remainder mostly smooth brome (or quackgrass)
- 15 silverberry; add modifier 15[2] = NATIVE grass-forb, 15[3] = KY bluegrass, 15[4] = brome (or quack)
- 18 meadowsweet; add modifier as above 18[2], 18[3], or 18[4]

tall shrub/tree (generally ≥1.5m tall)

- 21 chokecherry, buffaloberry, hawthorn, willow
- 23 exotic shrub: caraganna, Russian olive, Siberian elm
- 33 shade-tolerant woodland tree: green ash, box elder, elm

NATIVE GRASS-FORB and FORB TYPES (>95% dominance by native herbaceous plants, including forbs)^{a, b}

- 41 dry cool season (sedges, green needlegrass, needle-and-thread, wheatgrass spp., prairie junegrass, forbs)
- 42 dry warm season (little bluestem, prairie sandreed, blue gramma, frobs)
- 43 mesic cool-warm mix (big bluestem, switchgrass, porcupine grass, prairie dropseed, forbs)
- 47 cactus
- 48 clubmoss

EXOTIC and INVADED NATIVE GRASS-FORB TYPES^{a, b}

- 51 Kentucky bluegrass >95% (or >50% if mixed with other non-natives)
- 52 Kentucky bluegrass and NATIVE grass-forbs, *KY bluegrass 50-95%*
- 53 NATIVE grass-forbs and Kentucky bluegrass, *KY bluegrass 5-50%*
- 61 smooth brome (or quackgrass) >95% (or >50% if mixed with other non-natives)
- 62 smooth brome (or quackgrass) and NATIVE grass-forbs, *brome 50-95%*
- 63 NATIVE grass-forbs and smooth brome (or quackgrass), *brome 5-50%*
- 71 crested wheatgrass >95% (or >50% if mixed with other non-natives)
- 72 crested wheatgrass and NATIVE grass-forbs, *crested wheatgrass 50-95%*
- 73 NATIVE grass-forbs and crested wheatgrass, *crested wheatgrass 5-50%*
- 78 tall, intermediate, or pubescent wheatgrass
- 98 tall exotic legume: sweet clover of alfalfa

NOXIOUS WEED TYPES

- 81 leafy spruce
- 85 Canada thistle
- 87 wormwood
- 88 other noxious weeds (user-defined)

OTHER

- 99 other – user defined
- 91 barren/unvegetated (e.g., rock, anthill, bare soil); dead, horizontal/flattened litter layer only
- 00 wetland vegetation (e.g., wet-meadow or shallow marsh plants)

*Prairie rose is considered a native forb with respect to these categories.

^bFor any of the below categories, if the native forb composition is >50%, add a “9” as a modifier (e.g., 41 = 419)

in the event of an apparent 50:50 mix of KY bluegrass and smooth brome – consider as code **61

Appendix I: Tier II Dakota Skipper Habitat Suitability Criteria (Murphy 2005)

Definition of a Tier II Tract:

Service tract with ≥ 80 acres of native prairie and that does not meet Tier I criteria (i.e., *Service tract where a Dakota skipper has been documented, or a Service tract having native prairie that covers ≥ 10 contiguous acres and that is < 1 mile from where the Dakota skipper has been documented*), except that a given tract is exempted if floristic surveys suggest the habitat is unsuitable for the Dakota skipper (see below regarding minimum floristics criteria for Tier II).

Floristic Surveys:

Vegetation composition on native prairie areas should be quantitatively examined, at least on a coarse level, to assess suitability of a tract for Dakota skippers. Such assessments need not be intensive, species-level botanical investigations. Frequency methods such as belt transects (Grant et al. 2004) or canopy cover methods (Daubenmire 1959) that focus simply on plant species groups of management concern for Dakota skipper are efficient and sufficient. Ideally, a general floristic assessment will serve multiple inventory or monitoring purposes. The following are minimum criteria for Dakota skipper habitat in dry-mesic mixed-grass prairie types where they potentially occur.

DRY-MESIC MIXED-GRASS PRAIRIE (e.g., rolling to hilly moraine and outwash sites; applies to most potential skipper habitat in North Dakota):

The following could be particularly negative for the skipper if dominant or co-dominant throughout an area: broad-leaved introduced grasses (e.g., smooth brome, quackgrass); low shrubs (e.g., western snowberry, silverberry); noxious weeds (e.g., leafy spurge). Below are conservative criteria for determining whether a northern mixed-grass prairie might be suitable for the Dakota skipper, based on an expert Lepidopterist-s subjective view of possibly suitable versus clearly unsuitable prairie management units at Lostwood NWR in North Dakota. These criteria assume that herbaceous (grass-forb) vegetation dominated by native species includes native forbs important to Dakota skipper as nectar sources (e.g., purple coneflower, harebell, and purple prairie clover), as well as abundant larval food plants (e.g., little bluestem). These broad criteria should be refined as species-habitat data become available from across the Dakota skipper-s range.

Criteria for characterizing dry-mesic mixed-grass prairie as *possibly suitable* for the Dakota skipper:

- 1) average $> 50\%$ occurrence by native herbaceous plant groups (types 41, 42, and 43 in Grant et al. [2004]; or by native herbaceous plants mixed with lesser amounts of Kentucky bluegrass; type 53); and
- 2) average $< 20\%$ occurrence by smooth brome-dominated and noxious weed-dominated types (types 61, 62, and 80s, collectively); and
- 3) average $< 30\%$ occurrence by low shrub-dominated types (types 11-18).

Other Habitat Suitability Criteria

A possible alternative for initially assessing and classifying tracts is to use habitat classification mapping data collected on the ground for use with RLGIS (version 3.0, Habitat and Population Evaluation Team [HAPET], Bismarck, ND). For dry-mesic mixed-grass prairie, for example, the following RLGIS habitat subclasses might characterize dry-mesic mixed-grass prairie as possibly suitable for Dakota skipper:

- 1) average >50% occurrence comprised by two grass-forb subclasses: A >95% native grasses/forbs, and A native/non-native mix with natives dominant (>50%).
- 2) average <20% occurrence by smooth brome-dominated and noxious weed-dominated types: A smooth brome monotype [>95%] plus any noxious weed subclass.
- 3) average <30% occurrence by two low shrub-dominated types: A snowberry [>25%] and A silverberry [>25%].

Appendix J: North Dakota Species of Conservation Priority

Below is a list of the wildlife species (e.g., birds, mammals, reptiles, amphibians, fish) which are listed as North Dakota Species of Conservation Priority (Hagen et al. 2005) that are known or expected to occur on Service lands within Long Lake NWR Complex. North Dakota “Species of Conservation Concern” are separated into three different categories (levels 1, 2, and 3), giving priority to species that need conservation the most.

Level 1 (*24 of 29 species*)

Horned grebe
American white pelican
American bittern
Swainson’s hawk
Ferruginous hawk
Yellow rail
Willet
Upland sandpiper
Long-billed curlew¹
Marbled godwit
Wilson’s phalarope
Franklin’s gull
Black tern
Black-billed cuckoo
Sprague’s pipit
Grasshopper sparrow
Baird’s sparrow
Nelson’s sharp-tailed sparrow
Lark bunting
Chestnut-colored longspur
Canadian toad
Plains spadefoot toad
Smooth green snake
Western hognose snake

Level 2 (*23 of 41 species*)

Northern pintail
Canvasback
Redhead

Northern harrier
Golden eagle
Bald eagle
Prairie falcon
Sharp-tailed grouse
Greater-prairie chicken¹
Piping plover
American avocet
Least tern
Short-eared owl
Burrowing owl¹
Red-headed woodpecker
Loggerhead shrike
Sedge wren
Dickcissel
Le Conte’s sparrow
Bobolink
Common snapping turtle
Northern red-bellied snake
Richardson’s ground squirrel

Level 3 (*4 of 30 species*)

Whooping crane
Peregrine falcon
McCown’s longspur¹
Arctic shrew

¹The historical range of these species included parts of Long Lake NWR Complex and they have been documented on Service lands within the complex, but it is not likely that they presently occur on Service lands within the complex.

Appendix K: Secondary (Target) Species

In addition to the 22 bird species designated as primary “target” species for the complex, these secondary “target” species also stand to benefit from some or all habitat management outlined in this CCP’s biological objectives. These species presently utilize lands in the complex for either nesting or as migratory stopover areas and are considered either common or uncommon during at least one season (e.g., spring, fall).

SWANS, DUCKS, and GEESE

Greater white-fronted goose (DW, UW)¹
Snow goose (DW, UW)
Ross' goose (DW, UW)
Canada goose² (DW, UW)
Cackling goose (DW, UW)
Tundra swan (DW, UW)
Gadwall (DW, UW)
Wood duck (UW)
American wigeon (DW, UW)
Blue-winged teal (DW, UW, NP, OC)
Northern shoveler (DW, UW, NP, OC)
Northern pintail (DW, UW, NP, OC)
Green-winged teal (DW, UW)
Canvasback (DW, UW)
Ring-necked duck (DW, UW)
Lesser scaup (DW, UW, NP, OC)
Bufflehead (DW, UW)
Common goldeneye (DW, UW)
Hooded merganser (DW, UW)
Common merganser (DW, UW)
Ruddy duck (DW, UW)

GALLINACEOUS BIRDS

Ring-necked pheasant (DW, UW, NP, OC, WV)

GREBES

Pied-billed grebe (DW, UW)
Horned grebe (DW, UW)
Red-necked grebe (UW)
Eared grebe (DW, UW)
Clark's grebe (DW, UW)

PELICANS

American white pelican (DW, UW)

CORMORANTS

Double-crested cormorant (DW, UW)

HERONS, and EGRETS

Great blue heron (DW, UW)
Great egret (DW, UW)
Snowy egret (DW, UW)
Cattle egret (DW, UW)

Black-crowned night-heron (DW, UW)

IBISES

White-faced ibis (DW, UW)

HAWKS and EAGLES

Bald eagle (DW, UW)
Swainson's hawk (NP, OC, WV)
Red-tailed hawk (NP, OC, WV)
Ferruginous hawk (NP, OC, WV)
Rough-legged hawk (NP, OC, WV)
Golden eagle (NP, OC, WV)

FALCONS

American kestrel (NP, OC, WV)
Merlin (NP, OC, WV)
Peregrine falcon (DW, UW, NP, OC, WV)
Prairie falcon (NP, OC, WV)

RAILS

Virginia rail (DW, UW)
Sora (DW, UW)
American coot (DW, UW)

CRANES

Whooping crane (DW, UW)

PLOVERS

Semipalmated plover (DW, UW)
Killdeer (DW, UW)

SANDPIPERS and PHALAROPES

Greater yellowlegs (DW, UW)
Lesser yellowlegs (DW, UW)
Willet (DW, UW)
Spotted sandpiper (DW, UW)
Sanderling (DW, UW)
Semipalmated sandpiper (DW, UW)
Least sandpiper (DW, UW)
White-rumped sandpiper (DW, UW)
Pectoral sandpiper (DW, UW)
Stilt sandpiper (DW, UW)
Short-billed dowitcher (DW, UW)
Long-billed dowitcher (DW, UW)

Wilson's snipe (DW, UW)
Red-necked phalarope (DW, UW)

GULLS and TERNS

Ring-billed gull (DW, UW)
California gull (DW, UW)
Herring gull (DW, UW)
Common tern (DW, UW)
Forster's tern (DW, UW)

DOVES

Mourning dove (NP, OC, WV)

TYPICAL OWLS

Snowy owl (NP, OC, WV)
Short-eared owl (NP, OC, WV)

NIGHTJARS

Common nighthawk (NP, OC, WV)

TYRANT FLYCATCHERS

Say's phoebe (NP, OC, WV)
Western kingbird (NP, OC, WV)
Eastern kingbird (NP, OC, WV)

SHRIKES

Loggerhead shrike (NP, OC, WV)
Northern shrike (NP, OC, WV)

MAGPIES

Black-billed magpie (NP, OC, WV)

LARKS

Horned lark (NP, OC, WV)

SWALLOWS

Tree swallow (DW, UW, NP, OC, WV)
Northern rough-winged swallow (DW, UW)
Bank swallow (DW, UW, NP, OC, WV)
Cliff swallow (NP, OC, WV)
Barn swallow (NP, OC, WV)

WRENS

Sedge wren (DW, UW, NP, OC, WV)
Marsh wren (DW, UW)

THRUSHES

Mountain bluebird (NP, OC, WV)

WAGTAILS and PIPITS

American pipit (DW, UW)
Sprague's pipit (NP, OC, WV)

WOOD WARBLERS

Common yellowthroat (DW, UW, NP, OC, WV)

SPARROWS

American tree sparrow (NP, OC, WV)
Clay-colored sparrow (NP, OC, WV)
Field sparrow (NP, OC, WV)
Vesper sparrow (NP, OC, WV)
Lark bunting (NP, OC, WV)
Savannah sparrow (NP, OC, WV)
Baird's sparrow (NP, OC, WV)
Le Conte's sparrow (DW, UW, NP, OC, WV)
Nelson's sharp-tailed sparrow (DW, UW, NP, OC, WV)
Swamp sparrow (DW, UW)
Lapland longspur (NP, OC, WV)
Snow bunting (NP, OC, WV)

CARDINALS, GROSBEAKS, and ALLIES

Dickcissel (NP, OC, WV)

BLACKBIRDS and ORIOLES

Red-winged blackbird (DW, UW, NP, OC, WV)
Yellow-headed blackbird (DW, UW, NP, OC, WV)
Brewer's blackbird (DW, UW, NP, OC, WV)
Common grackle (DW, UW, NP, OC, WV)

¹Indicates the habitat type(s) that will most often be used by each species on lands in the complex if this CCP's biological objectives are met (DW = developed wetlands; UW = undeveloped wetlands; NP = native prairie; OC = old cropfields; WV = planted and exotic woody vegetation).

²Species names in **bold** indicate those that presently nest on lands in the complex.

Appendix L: Long Lake NWR Complex Habitat Cover Type (Subclass) List

Habitat cover types used when classifying vegetative cover on all Long Lake NWR Complex fee-title lands between 2003 and 2006. All cover types were mapped at ≥ 0.25 acres, except leafy spurge and wetland areas that were mapped at any size.

System¹	Subsystem²	Subclass³	NVCS⁴
Grass	Natural	native grasses/forbs >95%	V HD V A 5 N
Grass	Planted	native grasses/forbs >95%	V HD V A 5 C
Grass	Natural	native/non-native mix, natives >50%	V HD V A 5 N
Grass	Planted	native/non-native mix, natives >50%	V HD V A 5 C
Grass	Natural	non-native/native mix, non-natives >50%	V HD V A 5 N
Grass	Planted	non-native/native mix, non-natives >50%	V HD V A 5 C
Grass	Natural	non-native grasses/forbs >95%	V HD V A 5 N
Grass	Natural	smooth brome monotype	V HD V A 5 N c
Grass	Natural	crested wheatgrass monotype	V HD V A 5 N f
Grass	Planted	introduced cools season grasses and legumes (DNC)	V HD V A 5 C a
Grass	Natural	other weeds or undesirable plants $\geq 50\%$	
Grass	Natural	absinth wormwood $\geq 50\%$	V HD V A 5 N b
Grass	Natural	Canada thistle $\geq 50\%$	V HD V A 5 N b
Grass	Natural	leafy spurge $\geq 50\%$	V HD V B 2 N a
Shrub	Natural	silverberry >25%	V SD III B 2 N a
Shrub	Natural	western snowberry >25%	V SD III B 2 N a
Shrub	Natural	narrow-leaved meadowsweet >25%	
Shrub	Natural	other low deciduous shrubs >25%	
Shrub	Natural	unknown low deciduous shrub(s) >25%	
Shrub	Planted	unknown low deciduous shrub(s) >25%	
Shrub	Natural	buffaloberry >25%	V SD III B 2 N a
Shrub	Natural	chokecherry, juneberry, hawthorn association >25%	V SD III B 2 N a
Shrub	Natural	caragana >25%	V SD III B 2 N a
Shrub	Planted	caragana >25%	V SD III B 2 C
Shrub	Natural	rocky mountain juniper >25%	V SD III A 3 N a
Shrub	Natural	Russian olive >25%	V SD III A 4 N b
Shrub	Planted	Russian olive >25%	V SD III B 2 C
Shrub	Natural	willow >25%	V SD III B 2 N c
Shrub	Planted	other non-native shrubs, lilac, etc >25%	V SD III B 2 C
Shrub	Natural	other tall deciduous shrubs >25%	
Shrub	Planted	other tall deciduous shrubs >25%	
Shrub	Natural	other tall evergreen shrubs >25%	
Shrub	Planted	other tall evergreen shrubs >25%	
Shrub	Natural	unknown tall deciduous shrub(s) >25%	
Shrub	Planted	unknown tall deciduous shrub(s) >25%	
Shrub	Natural	unknown tall evergreen shrub(s) >25%	
Shrub	Planted	unknown tall evergreen shrub(s) >25%	
Woodland	Natural	cottonwood between 25% and 60%	V TD II B 2 N a
Woodland	Planted	cottonwood between 25% and 60%	V TD II B 2 C
Woodland	Natural	deciduous tree(s) between 25% and 60%	V TD II B 2 N a
Woodland	Planted	deciduous tree(s) between 25% and 60%	V TD II B 2 C
Woodland	Natural	dead tree(s) between 25% and 60%	

System¹	Subsystem²	Subclass³	NVCS⁴
Woodland	Planted	dead tree(s) between 25% and 60%	
Woodland	Natural	elm, ash, hackberry association between 25% and 60%	V TD II B 2 N a
Woodland	Planted	elm, ash, hackberry association between 25% and 60%	V TD II B 2 C
Woodland	Natural	evergreen tree(s) between 25% and 60%	
Woodland	Planted	evergreen tree(s) between 25% and 60%	
Woodland	Natural	green ash, box elder, elm association between 25% and 60%	V TD II B 2 N a
Woodland	Planted	green ash, box elder, elm association between 25% and 60%	V TD II B 2 C
Woodland	Planted	mix of trees and tall shrubs between 25% and 60%	
Woodland	Natural	mixed evergreen and deciduous trees between 25% and 60%	V TD II C 3 N a
Woodland	Planted	mixed evergreen and deciduous trees between 25% and 60%	V TD II C 3 C
Woodland	Natural	other deciduous trees between 25% and 60%	
Woodland	Planted	other deciduous trees between 25% and 60%	
Woodland	Natural	other evergreen trees between 25% and 60%	
Woodland	Planted	other evergreen trees between 25% and 60%	
Woodland	Natural	unknown deciduous tree(s) between 25% and 60%	
Woodland	Planted	unknown deciduous tree(s) between 25% and 60%	
Woodland	Natural	unknown evergreen tree(s) between 25% and 60%	
Woodland	Planted	unknown evergreen tree(s) between 25% and 60%	
Forest	Natural	cottonwood >60%	V TD I B 2 N a
Forest	Planted	cottonwood >60%	V TD I B 2 C
Forest	Natural	deciduous tree(s) >60%	V TD I B 2 N a
Forest	Planted	deciduous tree(s) >60%	V TD I B 2 C
Forest	Natural	dead tree(s) >60%	
Forest	Planted	dead tree(s) >60%	
Forest	Natural	elm, ash, hackberry association >60%	V TD I B 2 N a
Forest	Planted	elm, ash, hackberry association >60%	V TD I B 2 C
Forest	Natural	evergreen tree(s) >60%	
Forest	Planted	evergreen tree(s) >60%	
Forest	Natural	green ash, box elder, elm association >60%	V TD I B 2 N a
Forest	Planted	green ash, box elder, elm association >60%	V TD I B 2 C
Forest	Planted	mixed evergreen and deciduous trees >60%	V TD I C 3 C
Forest	Planted	mix of trees and tall shrubs >60%	
Forest	Natural	other deciduous trees >60%	
Forest	Planted	other deciduous trees >60%	
Forest	Natural	other evergreen trees >60%	
Forest	Planted	other evergreen trees >60%	
Forest	Natural	unknown deciduous tree(s) >60%	
Forest	Planted	unknown deciduous tree(s) >60%	
Forest	Natural	unknown evergreen tree(s) >60%	
Forest	Planted	unknown evergreen tree(s) >60%	
Crop	Planted	bare soil crop field	V HD V D 2 C
Crop	Planted	fallow crop field	V HD V D 2 C
Crop	Planted	row crop	V HD V D 2 C
Crop	Planted	small grain crop	V HD V D 2 C
Wetland		lake	
Wetland		riverine	
Wetland		semipermanent	
Wetland		seasonal	

System¹	Subsystem²	Subclass³	NVCS⁴
Wetland		temporary	
Wetland		other wetland area	
Barren		bare soil	
Barren		beach - mud	
Barren		beach - gravel	
Barren		beach/sand bar	
Barren		blow-out	
Barren		headquarters/infrastructure	
Barren		paved road	
Barren		gravel road/trail	
Barren		gravel pit	
Barren		wildfire area	

¹ System – General vegetation type category.

² Subsystem – Natural (naturally occurring vegetation) or planted (vegetation intentionally planted by humans).

³ Subclass – Most habitat cover types can be cross-walked into the National Vegetation Classification System.

⁴ NVCS – National Vegetation Classification System.

Appendix M: Refuge Operating Needs System

Project #	Station	Project Title	Cost Estimate (1000s) First Year Need	Personnel FTE	Recurring Annual Need (1000s)
96011	LNL NWR	Expand Integrated Pest Management to Biologically Address Invasive Species Control Problems	\$128	1.0	\$63
96038	LNL NWR	Provide Station Support Services Addressing Six Priority Public (Outdoor Recreation Planner)	\$140	1.0	\$75
98019	LNL NWR	Provide station data analysis capability through technical support (GIS/ADP Biologist)	\$154	1.0	\$89
96004	LNL NWR	Reduce Resource Losses to Disease by Enhancing Monitoring and Disease Control (Biological Technician)	\$128	1.0	\$63
96043	LNL NWR	Protect Refuge Water Rights by Completing Essential Area Capacity Study/Evaluation	\$164		\$10
96030	LNL NWR	Native prairie restoration through focused prescribed fire application (Fire Management Officer)	\$154	1.0	\$89
98001	LNL WMD	Easement mapping and enforcement assistance to address mandates and resource protection needs (Biologist)	\$128	1.0	\$63
96002	LNL WMD	Initiate essential resource inventory and accelerate adaptive management (Biologist)	\$154	1.0	\$89
99001	LNL WMD	Address Essential Visitor Safety and Resource Protection (Law Enforcement Officer)	\$140	1.0	\$75
98025	LNL WMD	Enhance satellite refuge management capability (Refuge manager)	\$140	1.0	\$75
99002	LNL WMD	Address essential administrative operations and functions (Administrative assistant)	\$123	1.0	\$58
96015	LNL WMD	Develop water resources and wetland habitats across WMD by providing essential heavy equipment	\$159		\$10
98015	SLD NWR	Develop on-site management capability on Slade NWR (Refuge Manager)	\$140	1.0	\$75
00002	SLD NWR	Develop essential refuge maintenance capability for Slade NWR (Maintenance Worker)	\$128	1.0	\$64
00001	SLD NWR	Convert Slade NWR Tame grass to mixed grass prairie	\$65		\$25
98014	SLD NWR	Monitor water supply and contaminant threats to Slade NWR due to adjacent irrigation pivot irrigation	\$71		\$25

Project #	Station	Project Title	Cost Estimate (1000s) First Year Need	Personnel FTE	Recurring Annual Need (1000s)
96023	LNL NWR	Construct Concrete Emergency Spillways for Access and Flood Management	\$505		\$20
04001	LNL NWR	Develop walking trails and auto tour route	\$358		\$8
96018	LNL NWR	Provide Grassland Management Equipment Building to Increase Longevity of Service	\$124		\$7
96037	LNL NWR	Gage and Monitor Refuge Water Inflow and Discharge to Protect Refuge Water Rights	\$112		\$35
98016	LNL NWR	Monitor Critical Refuge Aquatic Resources to Evaluate Habitat Condition and Guide Water Management	\$98		\$10
00014	LNL NWR	Develop Refuge Low Level Water Management Capability by Constructing Outlet Water Control Structure	\$440		\$10
00012	LNL NWR	Develop Water Management Capability by Constructing Unit 3 Pumping Station Facility	\$290		\$15
00013	LNL NWR	Develop Water Management Capability by Constructing Unit 2 Pumping Station Facility	\$290		\$15
98029	LNL NWR	Create Predator Exclusion - Convert Pintail Point to Island	\$105		\$5
98028	LNL NWR	Create Predator Exclusion - Convert East Peninsula to Island	\$126		\$2
00010	LNL NWR	Purchase Aircraft to Conduct Aerial Surveys of Habitats and Populations in North Dakota	\$290		\$20
98018	LNL NWR	Develop Moist-Soil Units to Increase Migratory Bird Support Capability by Constructing New Levees	\$342		\$14
96000	LNL NWR	Develop Dikes and Water Control Structures to Increase Freshwater Wetland Habitat	\$442		\$15
96035	LNL NWR	Enhance Refuge Waterfowl Recruitment by Constructing Secure Long-Term Nesting Islands	\$200		\$20
96040	LNL NWR	Initiate Drinking Water Monitoring Program to Meet Agency and Environmental Mandates and Public Safety	\$23		\$4
00005	LNL NWR	Provide Complex Fire Program Mission Support Identified in Approved Fire Management Plan	\$205		\$30
00006	LNL NWR	Acquire GIS Computer, Software, and Digital Data to Support Station Decisions and Planning	\$88		\$13
96039	LNL NWR	Support Essential Fire Protection and Fire Program Activities by Providing a Hydrant Water Supply	\$26		\$2
96001	LNL NWR	Address Watershed Management Needs by Improving Water Management Facilities	\$320		\$40
96029	LNL NWR	Enhance Seasonal Support of Refuge Mission by Providing Temporary Quarters	\$132		\$7
03000	LNL NWR	Provide Law Enforcement Officer to Achieve Full Deployment Needs of Full Time Officers	\$142		\$71
00008	LNL NWR	Locate All Real Property Developments With Global Position Coordinates for Database Tracking	\$26		\$1

Project #	Station	Project Title	Cost Estimate (1000s) First Year Need	Personnel FTE	Recurring Annual Need (1000s)
96026	LNL WMD	Enhance WMD Visitor Services/Outreach by Developing Essential Promotional/Informational Guides	\$58		\$4
98012	LNL WMD	Conduct Habitat/Wildlife Use Surveys to Guide Management Decisions	\$44		\$10
98007	LNL WMD	Determine Population Status of Emphasis Species by Conducting Systematic WMD Survey	\$75		\$30
98008	LNL WMD	Conduct Annual Survey of Colonial Nesting Bird Colonies in WMD to Develop Population Information	\$37		\$15
96034	LNL WMD	Improve Transport Logistics for Managing WPAs by Purchasing a Transport Truck with Tilt Trailer	\$97		\$5
96020	LNL WMD	Increase Prairie Management Capability by Providing Fencing and Water Development	\$227		\$25
96021	LNL WMD	Enhance Mixed Grass Prairie Management Capability by Providing Essential Real Property Improvements	\$121		\$121
98013	LNL WMD	Conduct Complex-wide Qualitative and Quantitative Floristic Survey/Documentation	\$34		\$7
96033	LNL WMD	Support Easement Enforcement by Obtaining Easement Tract Photos	\$24		\$3
96010	LNL WMD	Support Management and Administration of WPAs and Easements by Acquiring Aerial Photo Coverage	\$68		\$3
96008	LNL WMD	Conduct Cultural Resource Inventories to Assist in Identification and Preservation of Significant Resources	\$59		0
96045	LNL WMD	Provide User Friendly Public Use Facilities and Program Focus Through Enhanced Fabrication Capability	\$106		\$33
98011	LNL WMD	Support Priority Public Uses on Select WPAs by Developing Access Approaches, Lanes and Parking Areas	\$81		\$10
98009	LNL WMD	Strategically Increase Waterfowl Recruitment by Managing WMD Islands, Peninsulas, and Barrier Areas	\$57		\$13
96009	LNL WMD	Address Universal Hunting Access Issues by Providing Accessible Blind	\$76		\$10
98003	LNL WMD	Protect Service Water Rights - Initiate Study on Effects of Pivot Ground Water Withdrawal on Surface Wetlands	\$123		\$10
96042	LNL WMD	Address Enforcement and Management Problems on Identified WPAs Through Benchmark Establishment	\$65		0
96016	LNL WMD	Address Waterfowl Production Limiting Factors by Placing Nesting Culverts on Targeted WPAs	\$103		\$10
96036	LNL WMD	Mitigate Low Waterfowl Recruitment in High Pair Zones by Providing Secure WMD Nesting Islands	\$200		\$20
98002	LNL WMD	Provide Logistical Support for WMD Habitat Development by Purchasing a Semi-Tractor/Trailer	\$162		\$10
98010	LNL WMD	Provide WMD (Remote) Logistical Maintenance Support Capability by Acquiring a Maintenance Vehicle	\$54		\$5

Project #	Station	Project Title	Cost Estimate (1000s) First Year Need	Personnel FTE	Recurring Annual Need (1000s)
98023	LNL WMD	Increase Migratory Bird Resource Support by Developing Levees on Adams WPA	\$140		\$10
98026	LNL WMD	Develop Consistent, Reliable Access to Guthmiller WPA to Aid Management and Public Use	\$24		\$2
98027	LNL WMD	Develop Consistent, Reliable Access To Sisco-Fallgaeter WPA to Aid Management and Public Use	\$35		\$2
98020	LNL WMD	Increase Snow Goose Issue Awareness and Increase Harvest Opportunity	\$22		\$5
98021	LNL WMD	Increase Migratory Bird Resource Support by Developing Impoundment on Schiermeister WPA	\$173		\$10
96031	LNL WMD	Address Disease Control (Avian Botulism) Carcass Disposal Needs by Providing Mobile Incinerator	\$29		\$2
98022	LNL WMD	Increase Migratory Bird Resource Support by Developing Levees on Schauer WPA	\$151		\$10
00011	SLD NWR	Provide Equipment to Address Invasive Species Threat to Refuge Uplands	\$66		\$13
00004	SLD NWR	Provide Slade NWR Basic Daily Operations Equipment	\$381		\$20

*LNL is Long Lake; SLD is Slade

Appendix N: Maintenance Management System

Station	Project Title	Cost Estimate (1000s)	SAMMS Work Order #
LNL WMD	Replace 10 miles of deteriorated WPA fence	\$55	00105967
LNL WMD	Replace 10 miles of deteriorated WPA fence	\$60	00105968
LNL WMD	Replace 10 miles of deteriorated WPA fence	\$60	00105969
SLD NWR	Construct Office/Shop	\$835	00110656
LNL NWR	Replace worn forklift	\$50	00105920
LNL WMD	Replace 10 miles of deteriorated WPA fence	\$60	00105970
LNL WMD	Replace 10 miles of deteriorated WPA fence	\$60	00105971
LNL NWR	Provide Complex Fire Program Mission Support Identified in Approved Fire Mgmt Plan	\$216	00123546
LNL NWR	Rehabilitate well and water lines to Q-14 and old office/temporary Quarters	\$35	00105922
FCL NWR	Replace 5 Miles of Florence Lake NWR Fence	\$35	00105972
FCL NWR	Replace 5 Miles of Florence Lake NWR Fence	\$30	00105973
FCL NWR	Replace 5 Miles of Florence Lake NWR Fence	\$30	00105974
SLD NWR	Replace 5 Miles of Slade NWR Fence	\$35	00105975
SLD NWR	Replace 5 Miles of Slade NWR Fence	\$30	00105976
SLD NWR	Replace 5 Miles of Slade NWR Fence	\$30	00105977
LNL NWR	Develop Water Management Capability by Constructing Unit 3 Pumping Station Facility	\$303	00123562
LNL NWR	Replace 7.5 miles of Long Lake NWR Fence	\$46	00105979
LNL NWR	Develop Water Management Capability by Constructing Unit 2 Pumping Station Facility	\$303	00123565
LNL NWR	Replace 7.5 miles of Long Lake NWR Fence	\$46	00105980
LNL NWR	Replace 7.5 miles of Long Lake NWR Fence	\$46	00105981
LNL NWR	Replace 7.5 miles of Long Lake NWR Fence	\$46	00105982
LNL WMD	Rehab Small WPA Interpretive Foot Trail	\$60	00105984
LNL NWR	Repair Quarters 140	\$50	00105987
LNL WMD	Repair Rath WPA Islands	\$30	01114916
LNL WMD	Repair Sisco-Fallgaeter WPA Island	\$30	01114931
LNL WMD	Repair Thacker WPA Island	\$30	01114940

Station	Project Title	Cost Estimate (1000s)	SAMMS Work Order #
LNL WMD	Repair Almer WPA Island	\$30	01114946
LNL WMD	Repair PDL-1D WPA Island	\$30	01114951
LNL NWR	Repair Schauer WPA Islands	\$30	01114959
LNL WMD	Repair Rath WPA 79 Acre Impoundment	\$70	01114969
LNL NWR	Replace Polaris four wheeler	\$6	01115411
LNL NWR	Replace Bombardier Four Wheeler	\$6	01115481
LNL NWR	Replace 350HP Airboat	\$31	01115493
LNL NWR	Replace 350/400HP Airboat	\$25	01115503
LNL NWR	Replace grass drill	\$16	01115538
LNL NWR	Replace no till grass drill	\$16	01115550
LNL NWR	Replace water control pump	\$30	01115696
LNL NWR	Replace Power Plant Generator	\$15	01115698
LNL NWR	Replace worn road grader	\$190	01115707
LNL NWR	Replace worn Bobcat	\$26	01115710
LNL NWR	Replace worn 1993 Sickle Bar Mower	\$5	01115717
LNL NWR	Replace incinerator	\$10	01115722
LNL NWR	Replace JD Rotary Mower	\$10	01115728
LNL NWR	Replace worn riding lawn mower	\$15	01115745
LNL NWR	Replace worn Garden Tractor	\$13	01115750
LNL NWR	Replace worn 1992 Lawn Tractor	\$15	01115754
LNL NWR	Replace worn 1992 Farm Tractor	\$85	01115755
LNL NWR	Replace Pulvi-Mulcher	\$10	01115833
LNL NWR	Replace outdated worn fire equipment	\$21	01115840
LNL NWR	Replace 52 Pumper Unit	\$21	01115865
LNL NWR	Replace worn Snowmobile	\$6	01115874
LNL NWR	Replace Implement Sprayer	\$8	01115876
LNL NWR	Replace Pickup Sprayer	\$6	01115879
LNL NWR	Replace Cat Dozer	\$95	01115883

Station	Project Title	Cost Estimate (1000s)	SAMMS Work Order #
LNL NWR	Replace worn JD Tractor	\$25	01115887
LNL NWR	Replace JD Tractor with Loader (7710)	\$96	01115892
LNL NWR	Replace worn trailer	\$11	01115897
LNL NWR	Replace worn trailer	\$37	01115901
LNL NWR	Replace worn heavy equipment trailer	\$37	01115903
LNL NWR	Replace worn wetliner	0	01116088
LNL NWR	Replace worn Ford pickup	\$31	01116093
LNL NWR	Replace worn Dodge 4X4 pickup	\$31	01116095
LNL NWR	Replace worn maintenance truck	\$37	01116098
LNL NWR	Replace Dump truck	\$93	01116114
LNL NWR	Replace Semi-tractor	\$81	01116115
LNL NWR	Replace Dodge Pickup	\$28	01116125
LNL NWR	Replace Dodge Spray truck	\$31	01116129
LNL NWR	Replace Chevy Tahoe	\$31	01116166
LNL NWR	Replace Jeep Wrangler Nest Searching Vehicle	\$26	01116168
LNL NWR	Replace Jeep Wrangler Nest Searching Vehicle	\$26	01116171
LNL NWR	Replace 1993 Chevy Suburban	\$34	01116174
LNL NWR	Replace Polaris Sportsman 500 four wheeler	\$6	01116208
LNL NWR	Replace worn snowblower	\$8	01116230
LNL NWR	Replace outdated and worn implement disc	\$7	01116236
LNL NWR	Replace obsolete cultivator	\$7	01116240
LNL WMD	CN (Rte 103-105, 2.1 Mi, Parking lots 903-910)	\$1100	02120118
LNL WMD	PE (Rte 103-105, 2.1 Mi, Parking lots 903-910)	\$104	02120156
LNL WMD	CN (Rte 100-102, 2.3Mi, Parking lots 900-902, 904)	\$1100	02120163
LNL NWR	PE 5 roads, 5 parking areas (Routes 10, 11, 100-103, 900-903, 910; 10.2 mi)	0	02120191
LNL NWR	CN 5 roads, 5 parking areas (Routes 10, 11, 100-103, 900-903, 910; 10.2 mi)	\$365	02120236
LNL WMD	PE (Rte 100-102, 2.3Mi, Parking lots 900-902, 904)	\$104	02120243
LNL WMD	Repair East Lost Lake Dam #2	\$35	02120282

Station	Project Title	Cost Estimate (1000s)	SAMMS Work Order #
LNL NWR	Repair G-19a Dam	\$30	02120290
LNL NWR	Repair G-19 dam	\$28	02120296
LNL NWR	Replace 2002 Dodge Pickup	\$24	02120613
LNL NWR	Repair East Courtyard Rockwork	\$40	03126846
LNL WMD	Construct iosks	\$113	03130765
LNL NWR	Replace unsafe maintenance shop	\$420	03126912
LNL NWR	Construct vehicle cold storage shed	\$144	03126915
LNL NWR	Replace 2003 Chevy pickup	\$22	03127090
LNL NWR	Replace 2003 Chevy pickup	\$22	03127091
LNL NWR	Replace 2003 Ford crew cab	\$35	03127094
LNL NWR	Replace 2002 550 Ford Fire Truck (#275)	\$33	03127102
LNL NWR	Replace 2001 550 Ford Fire pickup	\$33	03127103
LNL NWR	Replace 2002 52 Pumper Unit	\$21	03127104
LNL NWR	Replace Wishek 12' Disk	\$14	03127105
LNL NWR	Replace 2002 Polaris 4x4 Ranger	\$8	03127107
LNL NWR	Replace 2002 Polaris 4X4 Ranger	\$8	03127108
LNL NWR	Replace Storage building	\$256	04133791
LNL NWR	Repair/Rehab Old Refuge Headquarters for use as visitor center	\$275	04133795
LNL NWR	Replace Red Honda ATV	\$5	04133804
LNL NWR	Replace 2003 yellow Honda ATV	\$5	04133806
LNL NWR	Replace Type 4 Model 52 Unit (friegtliner)	\$44	04133815
LNL NWR	Replace 2003 Chevy crew cab	\$24	04133818
LNL NWR	Replace Freightliner truck used for water transport	\$69	04133819
LNL NWR	Replace 2003 Honda ATV Rancher	\$5	04133824
LNL NWR	Replace Zone LEO Chevy Tahoe	0	05139499
LNL NWR	Repair Springwater NWR Dam	\$235	05137382
LNL NWR	Replace Heating System in Headquarter Office	\$28	05138269
LNL NWR	Replace electrical and plumbing Maintenance Shop	\$75	05138271

Station	Project Title	Cost Estimate (1000s)	SAMMS Work Order #
LNL NWR	Repair Sunburst Low hazard Dam	\$26	05138274
LNL NWR	Replace 2004 JD Payloader	\$105	05138304
LNL NWR	Replace Zone LEO Chevy Tahoe	\$34	05139498
LNL NWR	Rehab Unit 2 Marsh dike	\$80	92105949
LNL NWR	Rehabilitate Equipment Storage Freeze Protection System	\$60	93109662
LNL NWR	Rehabilitate public use area	\$60	93105950
LNL NWR	Rehabilitate oil and paint storage building	\$30	93105928
LNL NWR	Repair artesian well	\$30	93105929
LNL NWR	Replace Residence Heating Systems	\$31	94105930
LNL NWR	Rehabilitate the "B" dike spillway	\$35	94105951
LNL NWR	Repair access road to east peninsula	\$150	94105953
LNL NWR	Replace worn transport trailer	\$50	95105934
LNL NWR	Construct "D" Dike	\$1298	96109814
LNL NWR	Provide Grassland Management Equipment Building to Increase Longevity of Service	\$131	96123567
LNL WMD	Enhance WMD Visitor Services/Outreach by Developing Visitor Contact Station	\$61	96123854
LNL NWR	Increase Refuge Mission Support Capability by Expanding Office Space	\$654	96110662
LNL NWR	Enhance Refuge Wildlife-Oriented Rec. Opp. by Developing Refuge Interpretive Trail	\$179	96123851
LNL WMD	Provide Fabrication Shop Facility	\$111	96123547
LNL NWR	Replace flatbed/grain truck	\$86	97105965
LNL NWR	Replace badly worn dump truck	\$77	97105935
LNL NWR	Replace septic system	\$30	97105936
LNL NWR	Repair sewage treatment system for office/HDQ facility	\$35	97105937
LNL NWR	Replace sewer lines	\$30	97105938
LNL NWR	Replace HDQ office/residence exterior sewer lines	\$30	97105939
LNL NWR	Replace interior plumbing in residence #14 and temp quarters #16	\$30	97105940
LNL NWR	Enhance Visitor Services Through Development of Refuge Visitor Contact Station	\$90	98123853
LNL NWR	Replace Large Refuge Recognition Signs	\$38	98105942
LNL NWR	Dev. Moist-Soil Units to Increase Mig. Bird Support Capability by Const. New Levees	\$357	98123564

Station	Project Title	Cost Estimate (1000s)	SAMMS Work Order #
LNL WMD	Increase Migratory Bird Resource Support by Developing Levees on Adams WPA	\$146	98123571
LNL NWR	Outlet/Drawdown for Long Lake - Phase I [p/d]	\$710	98110272
LNL NWR	Outlet/Drawdown for Long Lake - Phase II (c)	\$2088	98110543
LNL WMD	Develop Consistent, Reliable Access to Sisco-Fallgaeter WPA to Aid Mgmt and Pub. Use	\$123	98123569
LNL NWR	Enhance Pub. Use Fac. & Promote Visitation in Conjunction with Lewis & Clark Bicentennial	\$64	99123622

**LNL is Long Lake; SLD is Slade; FCL is Florence Lake*

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