Glossary of Terms

accessible—Pertaining to physical access to areas and activities for people of different abilities, especially those with physical impairments.

adaptive resource management—The rigorous application of management, research, and monitoring to gain information and experience necessary to assess and modify management activities; a process that uses feedback from research, monitoring, and evaluation of management actions to support or modify objectives and strategies at all planning levels; a process in which policy decisions are implemented within a framework of scientifically driven experiments to test predictions and assumptions inherent in management plan. Analysis of results helps managers determine whether current management should continue as is or whether it should be modified to achieve desired conditions.

alternative—A reasonable way to solve an identified problem or satisfy the stated need (40 CFR 1500.2); 1 of several different means of accomplishing refuge purposes and goals and contributing to the Refuge System mission (Draft Service Manual 602 FW 1.5).

animal unit month (AUM)—Measure of the quantity of livestock forage. Equivalent to the amount of forage needed to support a 1,000-pound animal (or 1 cow/calf pair) for 1 month.

annual—A plant that flowers and dies within 1 year of germination.

ATV—All-terrain vehicle.

AUM—*See* animal unit months

baseline—A set of critical observations, data, or information used for comparison or a control.

biological control—The use of organisms or viruses to control invasive plants or other pests.

biological diversity, *also* **biodiversity**—The variety of life and its processes, including the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur (Service Manual 052 FW 1.12B). The National Wildlife Refuge System's focus is on indigenous species, biotic communities, and ecological processes.

biotic—Pertaining to life or living organisms; caused, produced by, or comprising living organisms.

CCC—*See* Civilian Conservation Corps.

CCP—*See* comprehensive conservation plan.

CFR—*See* Code of Federal Regulations.

Civilian Conservation Corps (CCC)—Peacetime civilian "army" established by President Franklin D. Roosevelt to perform conservation activities from 1933–42. Activities included erosion control; firefighting; tree planting; habitat protection; stream improvement; and building of fire towers, roads, recreation facilities, and drainage systems.

Code of Federal Regulations (CFR)—The codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government. Each volume of the CFR is updated once each calendar year.

colonial birds—generally birds that nest in the same place and at the same time; coloniality has been a successful evolutionary strategy for many bird species. Colonies take many forms and can vary in size from a few to millions.

compatibility determination—*See* compatible use.

compatible use—A wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the director of the U.S. Fish and Wildlife Service, will not materially interfere with or detract from the fulfillment of the mission of the Refuge System or the purposes of the refuge (Draft Service Manual 603 FW 3.6). A compatibility determination supports the selection of compatible uses and identified stipulations or limits necessary to ensure compatibility.

comprehensive conservation plan (CCP)—A document that describes the desired future conditions of the refuge and provides long-range guidance and management direction for the refuge manager to accomplish the purposes of the refuge, contribute to the mission of the Refuge System, and to meet other relevant mandates (Draft Service Manual 602 FW 1.5).

concern—*See* issue.

cool-season grasses—Grasses that begin growth early in the season and often become dormant in the summer. These grasses will germinate at lower temperatures. Examples of cool-season grasses are western wheatgrass, needle and thread, and green needlegrass.

coteau—A hilly upland including the divide between 2 valleys; a divide; the side of a valley.

cover, *also* **cover type, canopy cover**—Present vegetation of an area.

cultural resources—Sites, buildings, structures, and objects that are the result of human activities and are over 50 years old. They include prehistoric, historic, and architectural sites, artifacts, historic records, and traditional cultural properties that may or may not have material evidence.

dense nesting cover (DNC)—A composition of grasses and forbs that allows for a dense stand of vegetation that protects nesting birds from the view of predators, usually consisting of 1 to 2 species of wheatgrass, alfalfa, and sweetclover.

depredation—Destruction or consumption of eggs, broods, or individual wildlife due to a predatory animal; damage inflicted on agricultural crops or ornamental plants by wildlife.

DNC—*See* dense nesting cover.

drawdown—The act of manipulating water levels in an impoundment to allow for the natural drying-out cycle of a wetland.

ecosystem—A dynamic and interrelating complex of plant and animal communities and their associated nonliving environment; a biological community, together with its environment, functioning as a unit. For administrative purposes, the Service has designated 53 ecosystems covering the United States and its possessions. These ecosystems generally correspond with watershed boundaries and their sizes and ecological complexity vary.

emergent—A plant rooted in shallow water and having most of the vegetative growth above water such as cattail and hardstem bulrush.

endangered species, federal—A plant or animal species listed under the Endangered Species Act of 1973, as amended, that is in danger of extinction throughout all or a significant portion of its range.

endangered species, state—A plant or animal species in danger of becoming extinct or extirpated in a particular state within the near future if factors contributing to its decline continue. Populations of these species are at critically low levels or their habitats have been degraded or depleted to a significant degree.

endemic species—Plants or animals that occur naturally in a certain region and whose distribution is relatively limited to a particular locality

environmental assessment (EA)—A concise public document, prepared in compliance with the National Environmental Policy Act, that briefly discusses the purpose and need for an action and alternatives to such action, and provides sufficient evidence and analysis of impacts to determine whether to prepare an environmental impact statement or a finding of no significant impact (40 CFR 1508.9).

extinction—The complete disappearance of a species from the earth; no longer existing.

extirpation—The extinction of a population; complete eradication of a species within a specified area.

fauna—All the vertebrate and invertebrate animals of an area.

federal trust resource—A trust is something managed by 1 entity for another who holds the ownership. The Service holds in trust many natural resources for the people of the United States of America as a result of federal acts and treaties. Examples are species listed under the Endangered Species Act, migratory birds protected by international treaties, and native plant or wildlife species found on a national wildlife refuge.

federal trust species—All species where the federal government has primary jurisdiction including federally endangered or threatened species, migratory birds, anadromous fish, and certain marine mammals.

flora—All the plant species of an area.

forb—A broad-leaved, herbaceous plant; a seed-producing annual, biennial, or perennial plant that does not develop persistent woody tissue but dies down at the end of the growing season.

fragmentation—The alteration of a large block of habitat that creates isolated patches of the original habitat that are interspersed with a variety of other habitat types; the process of reducing the size and connectivity of habitat patches, making movement of individuals or genetic information between parcels difficult or impossible.

"friends" group—Any formal organization whose mission is to support the goals and purposes of its associated refuge and the National Wildlife Refuge Association overall; "friends" organizations and cooperative and interpretive associations.

FTE—full-time equivalent; one or more job positions with tours of duty that, when combined, equate to one person employed for the standard government work year (261 days).

FWS—*See* U.S. Fish and Wildlife Service.

geographic information system (GIS)—A computer system capable of storing and manipulating spatial data; a set of computer hardware and software

for analyzing and displaying spatially referenced features (such as points, lines, and polygons) with nongeographic attributes such as species and age.

GIS—*See* geographic information system.

GS—general schedule (pay rate schedule for certain federal positions).

habitat—Suite of existing environmental conditions required by an organism for survival and reproduction; the place where an organism typically lives and grows.

habitat disturbance—Significant alteration of habitat structure or composition; may be natural (for example, wildland fire) or human-caused events (for example, timber harvest and disking).

habitat type, *also* **vegetation type, cover type**—A land classification system based on the concept of distinct plant associations.

impoundment—A body of water created by collection and confinement within a series of levees or dikes, creating separate management units although not always independent of 1 another.

indigenous—Originating or occurring naturally in a particular place.

integrated pest management (IPM)—Methods of managing undesirable species such as invasive plants; education, prevention, physical or mechanical methods of control, biological control, responsible chemical use, and cultural methods.

introduced species—A species present in an area due to intentional or unintentional escape, release, dissemination, or placement into an ecosystem as a result of human activity.

invasive plant, *also* **noxious weed**—A species that is nonnative to the ecosystem under consideration and whose introduction causes, or is likely to cause, economic or environmental harm or harm to human health.

inviolate sanctuary—A place of refuge or protection where animals and birds may not be hunted.

IPM—*See* integrated pest management.

issue—Any unsettled matter that requires a management decision; for example, a Service initiative, opportunity, resource management problem, a threat to the resources of the unit, conflict in uses, public concern, or the presence of an undesirable resource condition (Draft Service Manual 602 FW 1.5).

management alternative—*See* alternative.

migration—Regular extensive, seasonal movements of birds between their breeding regions and their wintering regions; to pass usually periodically from 1 region or climate to another for feeding or breeding.

migratory birds—Birds which follow a seasonal movement from their breeding grounds to their wintering grounds. Waterfowl, shorebirds, raptors, and songbirds are all migratory birds.

mission—Succinct statement of purpose and/or reason for being.

mitigation—Measure designed to counteract an environmental impact or to make an impact less severe.

mixed-grass prairie—A transition zone between the tall-grass prairie and the short-grass prairie dominated by grasses of medium height that are approzimately 2-4 feet tall. Soils are not as rich as the tall-grass prairie, and moisture levels are less.

monitoring—The process of collecting information to track changes of selected parameters over time.

national wildlife refuge—A designated area of land, water, or an interest in land or water within the National Wildlife Refuge System, but does not include coordination areas; a complete listing of all units of the Refuge System is in the current "Annual Report of Lands Under Control of the U.S. Fish and Wildlife Service."

National Wildlife Refuge System (Refuge System)—Various categories of areas administered by the Secretary of the Interior for the conservation of fish and wildlife including species threatened with extinction, all lands, waters, and interests therein administered by the Secretary as wildlife refuges, areas for the protection and conservation of fish and wildlife that are threatened with extinction, wildlife ranges, game ranges, wildlife management areas, and waterfowl production areas.

National Wildlife Refuge System Improvement Act of 1997 (Improvement Act)—Sets the mission and the administrative policy for all refuges in the National Wildlife Refuge System; defines a unifying mission for the Refuge System; establishes the legitimacy and appropriateness of the 6 priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation); establishes a formal process for determining appropriateness and compatibility; establish the responsibilities of the Secretary of the Interior for managing and protecting the Refuge System; requires a comprehensive conservation plan for each refuge by the year 2012. This Act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

native species—A species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

neotropical migrant—A bird species that breeds north of the United States and Mexican border and winters primarily south of this border.

nest success—The percentage of nests that successfully hatch 1 or more eggs of the total number of nests initiated in an area.

nongovernmental organization—Any group that is not composed of federal, state, tribal, county, city, town, local, or other governmental entities.

noxious weed, *also* **invasive plant**—Any living stage (including seeds and reproductive parts) of a parasitic or other plant of a kind that is of foreign origin (new to or not widely prevalent in the U.S.) and can directly or indirectly injure crops, other useful plants, livestock, poultry, other interests of agriculture, including irrigation, navigation, fish and wildlife resources, or public health. According to the Federal Noxious Weed Act (PL 93-639), a noxious weed (such as invasive plant) is one that causes disease or has adverse effects on humans or the human environment and, therefore, is detrimental to the agriculture and commerce of the U.S. and to public health.

NWR—national wildlife refuge.

objective—An objective is a concise target statement of what will be achieved, how much will be achieved, when and where it will be achieved, and who is responsible for the work; derived from goals and provide the basis for determining management strategies. Objectives should be attainable and time-specific and should be stated quantitatively to the extent possible. If objectives cannot be stated quantitatively, they may be stated qualitatively (Draft Service Manual 602 FW 1.5).

overwater species—nesting species such as diving ducks and many colonial-nesting birds that build nests within dense stands of water-dependent plants, primarily cattail, or that build floating nests of vegetation that rest on the water.

patch—An area distinct from that around it; an area distinguished from its surroundings by environmental conditions.

perennial—Lasting or active through the year or through many years; a plant species that has a life span of more than 2 years.

plant community—An assemblage of plant species unique in its composition; occurs in particular locations under particular influences; a reflection or integration of the environmental influences on the site such as soil, temperature, elevation, solar radiation, slope, aspect, and rainfall; denotes a general kind of climax plant community, such as ponderosa pine or bunchgrass.

prairie pothole—A glacially derived depression wetland found in the northern Great Plains.

prescribed fire—The skillful application of fire to natural fuels under conditions such as weather, fuel moisture, and soil moisture that allow confinement of the fire to a predetermined area and produces the intensity of heat and rate of spread to accomplish planned benefits to 1 or more objectives of habitat management, wildlife management, or hazard reduction.

priority public use—One of 6 uses authorized by the National Wildlife Refuge System Improvement Act of 1997 to have priority if found to be compatible with a refuge's purposes. This includes hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation.

proposed action—The alternative proposed to best achieve the purpose, vision, and goals of a refuge (contributes to the Refuge System mission, addresses the significant issues, and is consistent with principles of sound fish and wildlife management).

public—Individuals, organizations, and groups; officials of federal, state, and local government agencies; Indian tribes; and foreign nations. It may include anyone outside the core planning team. It includes those who may or may not have indicated an interest in Service issues and those who do or do not realize that Service decisions may affect them.

public involvement—A process that offers affected and interested individuals and organizations an opportunity to become informed about, and to express their opinions on, Service actions and policies. In the process, these views are studied thoroughly, and thoughtful consideration of public views is given in shaping decisions for refuge management.

purpose of the refuge—The purpose of a refuge is specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing authorization or expanding a refuge, refuge unit, or refuge subunit (Draft Service Manual 602 FW 1.5).

raptor—A carnivorous bird such as a hawk, a falcon, or a vulture that feeds wholly or chiefly on meat taken by hunting or on carrion (dead carcasses).

refuge operations needs system (RONS)—A national database that contains the unfunded operational needs of each refuge. Projects included are those

required to implement approved plans and meet goals, objectives, and legal mandates.

refuge purpose—*See* purpose of the refuge.

Refuge System—*See* National Wildlife Refuge System.

refuge use—Any activity on a refuge, except an administrative or law enforcement activity, carried out by or under the direction of an authorized Service employee.

resident species—A species inhabiting a given locality throughout the year; nonmigratory species.

rest—Free from biological, mechanical, or chemical manipulation, in reference to refuge lands.

restoration—Management emphasis designed to move ecosystems to desired conditions and processes, such as healthy upland habitats and aquatic systems.

riparian area *or* **riparian zone**—An area or habitat that is transitional from terrestrial to aquatic ecosystems including streams, lakes, wet areas, and adjacent plant communities and their associated soils that have free water at or near the surface; an area whose components are directly or indirectly attributed to the influence of water; of or relating to a river; specifically applied to ecology, "riparian" describes the land immediately adjoining and directly influenced by streams. For example, riparian vegetation includes all plant life growing on the land adjoining a stream and directly influenced by the stream.

Sandhill blowouts—Found in the sandhills and sand prairie areas, these small active nonvegetated areas can move around (similar to a sand dune). Plants around the sand prairie are often assoiciated with Indian rice grass and scurf pea.

scoping—The process of obtaining information from the public for input into the planning process.

sediment—Material deposited by water, wind, and glaciers.

Service—*See* U.S. Fish and Wildlife Service.

Service Asset Maintenance Management System (SAMMS)—A national database that contains the unfunded maintenance needs of each refuge; projects include those required to maintain existing equipment and buildings, correct safety deficiencies for the implementation of approved plans, and meet goals, objectives, and legal mandates.

shelterbelt—Single to multiple rows of trees and shrubs planted around cropland or buildings to block or slow down the wind.

shorebird—Any of a suborder (*charadrii*) of birds such as a plover or a snipe that frequent the seashore or mud flat areas.

spatial—Relating to, occupying, or having the character of space.

special status species—Plants or animals that have been identified through federal law, state law, or agency policy as requiring special protection or monitoring. Examples include federally listed endangered, threatened, proposed, or candidate species; state-listed endangered, threatened, candidate, or monitor species; Service's species of management concern; species identified by the Partners in Flight program as being of extreme or moderately high conservation concern.

special use permit—A permit for special authorization from the refuge manager required for any refuge service, facility, privilege, or product of the soil provided at refuge expense and not usually available to the general public through authorizations in Title 50 CFR or other public regulations (Refuge Manual 5 RM 17.6).

species of concern—Those plant and animal species, while not falling under the definition of special status species, that are of management interest by virtue of being federal trust species such as migratory birds, important game species, or significant keystone species; species that have documented or apparent populations declines, small or restricted populations, or dependence on restricted or vulnerable habitats.

step-down management plan—A plan that provides the details necessary to implement management strategies identified in the comprehensive conservation plan (Draft Service Manual 602 FW 1.5).

strategy—A specific action, tool, or technique or combination of actions, tools, and techniques used to meet unit objectives (Draft Service Manual 602 FW 1.5).

submergent—A vascular or nonvascular hydrophyte, either rooted or nonrooted, that lies entirely beneath the water surface, except for flowering parts in some species.

tame grass—*See* dense nesting cover.

threatened species, federal—Species listed under the Endangered Species Act of 1973, as amended, that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

threatened species, state—A plant or animal species likely to become endangered in a particular state within the near future if factors contributing to population decline or habitat degradation or loss continue.

TMDL—Total Maximum Daily Load; a calculation of the maximum amount of pollutant that a water body can receive and still meet water-quality standards.

trust resource—*See* federal trust resource.

trust species—*See* federal trust species.

U.S. Fish and Wildlife Service (Service, USFWS, FWS)—The principal federal agency responsible for conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people. The Service manages the 93-million-acre National Wildlife Refuge System, comprising more than 530 national wildlife refuges and thousands of waterfowl production areas. It also operates 65 national fish hatcheries and 78 ecological service field stations. The agency enforces federal wildlife laws, manages migratory bird populations, restores national significant fisheries, conserves and restores wildlife habitat such as wetlands, administers the Endangered Species Act, and helps foreign governments with their conservation efforts. It also oversees the federal aid program that distributes millions of dollars in excise taxes on fishing and hunting equipment to state wildlife agencies.

U.S. Geological Survey (USGS)—A federal agency whose mission is to provide reliable scientific information to describe and understand the earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.

vegetative litter—Residual or accumulation of plant material over time. Without periodic disturbance such as fire and grazing, plant and root growth can stagnate.

vision statement—A concise statement of the desired future condition of the planning unit, based primarily on the Refuge System mission, specific refuge purposes, and other relevant mandates (Draft Service Manual 602 FW 1.5).

wading birds—Birds having long legs that enable them to wade in shallow water including egret, great blue heron, black-crowned night-heron, and bittern.

waterfowl—A category of birds that includes duck, goose, and swan.

watershed—The region draining into a river, a river system, or a body of water.

wetland management district (WMD)—Land that the Refuge System acquires with Federal Duck Stamp funds for restoration and management primarily as prairie wetland habitat critical to waterfowl and other wetland birds.

wildlife-dependent recreational use—Use of a refuge involving hunting, fishing, wildlife observation, wildlife photography, environmental education, or interpretation. The National Wildlife Refuge System Improvement Act of 1997 specifies that these are the 6 priority general public uses of the Refuge System.

WMD—*See* wetland management district.

Appendix A

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 Medicine 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

- 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, interjurisdictional 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 4 guiding principles for management and general 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 a ctivities 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 general 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.

Bald and Golden Eagle Protection Act (1940, amended 1962)—Provides for the protection of the bald eagle and the golden eagle by prohibiting the possession, sale, etc., of any part of a bald or golden eagle.

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 No. 7168 (1935)—Establishes Arrowwood Migratory Waterfowl 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 floodplains.

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 nonfederal, 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 nonfederal 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.

Wilderness Act (1964)— The Wilderness Act of 1964 (Public Law 88-577 [16 U.S. C.1131-1136]) defines wilderness as: "A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

Appendix B

List of Preparers, Consultation, and Coordination

This document is the result of the extensive, collaborative, and enthusiastic efforts by the Medicine Lake NWR Complex planning team, listed below. Many others contributed insight and support.

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Many organizations, agencies, and individuals provided invaluable assistance with the preparation of this CCP. The Service acknowledges the efforts of these individuals and groups towards the completion of this plan. Their diversity, talent, and knowledge dramatically improved the vision and completeness of this document.

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Appendix C

Public Involvement

In 1998, the Service began the planning process for the Medicine Lake National Wildlife Refuge Complex (complex), and a notice of intent (NOI) was published in the Federal Register on August 6, 1998, with a public meeting held at the refuge headquarters on October 17, 1998. In 2001, the process stalled for several years while the service considered a preliminary land acquisition proposal for the comprehensive conservation plan (CCP). There were several staff changes at the refuge, including a new project leader who came on duty in 2005.

In October 2006, the planning process was restarted, and a planning team consisting of Service personnel from the refuge complex, the Division of Refuge Planning, and Montana Fish, Wildlife, and Parks (MFWP) was formed.

In October 2006, the Service invited state and tribal representatives to participate in the planning process for the CCP for the Medicine Lake complex. A planning team comprising Service personnel from the complex and the regional office, and MFWP personnel (appendix B) was developed during the kickoff meeting in October 2006.

The planning team developed a new draft vision and goals, a planning schedule, and a public involvement plan. The team began an internal scoping process by identifying refuge qualities and issues over the course of several meetings and electronic correspondence.

Pre-scoping and scoping began in November 2006. A notice of intent (NOI) was published in the Federal Register on January 9, 2007, announcing the scoping process.

The planning team developed a mailing list of over 120 names that included private citizens, local, regional, and state government representatives, other federal agencies, and nonprofit organizations. In November 2006, a planning update was mailed to the public and posted on the planning website. The planning update provided a summary of the NWRS and the CCP process, along with an invitation to a public meeting, which was held at the Medicine Lake Fire Hall. The meeting was also announced in the local newspapers and flyers were posted at businesses throughout the region. Additionally, announcements were made by refuge staff at a variety of meetings and contact.

More than 20 people attended the meeting, despite minus-zero blustery weather. At the start of the meeting, the CCP planner provided an overview of the process and the project leader gave a brief presentation about the refuge and current management issues during a presentation and question-and-answer period. The overall response was very positive. People who attended were invited to submit additional thoughts or questions orally or in writing and were all given a 2-page comment form to complete. There was additional coverage about the planning process in the local newspaper, and by the end of the response deadline of February 8, 2007, the team recorded over 60 comments.

On August 7, 2007, the Service published a NOA announcing the Draft CCP and EA was available for a 30-day review. Hard copies were mailed to more than 100 federal, state, and local agencies, organizations and citizens, in addition to posting the document on the region 6 website and sending out press releases and planning updates.

Twenty people attended a public meeting held on August 15, 2007 in Medicine Lake, Montana, which included a presentation and an opportunity for people to ask questions and offer comments. Six people (organizations and citizens) provided written comments during this comment period. A summary of the comments and responses can be found at the end of this appendix.

Mailing List

The following mailing list was developed for this CCP:

Federal Agencies

U.S. Representative Denny Rehberg, Washington D.C.

U.S. Senator Max Baucus, Washington D.C.

U.S. Senator Jon Testor, Washington D.C.

Tribes

Tribal Chairman John Morales, Fort Peck Tribes

State Officials

Governor Brian Schweitzer, Helena, Montana

Representative Sam Kitzenberg, Glasgow, Montana

State Agencies

Montana Fish, Wildlife, and Parks

Local Counties and Towns

Daniels County Commissioners

Roosevelt County Commissioners

Sheridan County Commissioners

Wibaux County Commissioners

Tim Hutslar, Mayor of Medicine Lake, Montana

Ronald Aduet, Mayor of Scobey, Montana

John Dale Evans, Mayor of Wibaux, Montana

Matt Golik, Mayor of Wolf Point, Montana

Don Jensen, Mayor of Plentywood, Montana

Theresa Murray, Mayor of Poplar, Montana

Gordon Oelkers, Mayor of Culbertson, Montana

Terry Peterson, Mayor of Froid, Montana

James Weiler, Mayor of Westby, Montana

Connie Wittak, Mayor of Flaxville, Montana

Organizations, Businesses, and Civic Groups

Medicine Lake Chamber of Commerce

Medicine Lake Commercial Club, Chris Ator

Poplar Chamber of Commerce

Sheridan County Chamber of Commerce

American Birding Association

Culbertson Chamber of Commerce

Daniels Chamber of Commerce & Agriculture

Daniels County Pheasants Forever

Ducks Unlimited

Missouri River Country

Montana Audubon Society

Montana Defenders of Wildlife

Montana Fisheries Society

Montana Native Plant Society

National Wildlife Federation

National Wildlife Refuge Association

Natural Heritage Program

Pheasants Forever

The Nature Conservancy

Sierra Club

Wilderness Society

Wilderness Watch

Wildlife Management Institute

Wildlife Society

Wolf Point Chamber of Commerce

USGS–Fort Collins Science Center, Ft. Collins, CO

Comments and Responses on Draft CCP and EA

The following is a summary of the substantive comments received on the Draft CCP and EA and the Service's response to those comments.

Habitat and Wildlife Management

1. Oppose the removal of Russian olive trees (shelterbelts) from the refuge.

Response: Shelterbelts comprised of non-native invasive plants provide habitat for some species of wildlife; however, shelterbelts and other trees and shrubs decrease the size of grassland blocks and result in fragmented habitats. Recent studies have shown that many grassland nesting birds (particularly the species of management concern addressed in the Draft CCP/EA) and upland nesting waterfowl avoid areas adjacent to trees or have lower nest success due to predation. The historical natural veggetation of the area was primarily mixed-grass prairie. Only a few trees were located in riparian areas. Shelterbelts are unnatural in grasslands and provide habitat for both avian and mammalian predators. Tree removal will be carried out only in select areas.

2. Support for feeding (deer and pheasants) on Medicine Lake National Wildlife Refuge (NWR).

Response: National wildlife refuges are managed to achieve the mission and goals of the National Wildlife Refuge System (Refuge System) and the designated purpose of the refuge unit as described in establishing legislation. Medicine Lake NWR was established for the purpose of protecting migratory breeding birds. While wildlife conservation is the

priority on Refuge System lands, we must ensure that the biological integrity, biological diversity, and environmental health of refuge lands are maintained.

Supplemental feeding often leads to unintended consequences. High concentrations of wildlife that are attracted to feed stations can result in unnatural population levels which in turn can negatively affect other native wildlife species and increase the risk for transmission of wildlife diseases. In addition, the State of Montana prohibits people from providing supplemental feed attractants to game animals.

3. Oppose use of prescribed fire on refuge.

Response: Fire is an integral process in the northern mixed-grass prairie and sandhills, as these grasslands evolved with interacting grazing and fire disturbances and climatic variability. Without these disturbances, nutrient cycling is not achieved and not available to growing plants. Grasslands are not as healthy and diverse, and invasive species, such as crested wheatgrass and other noxious weeds, become established. The most efficient and effective way to maintain healthy grasslands is to attempt to mimic the natural processes through prescribed fire, grazing, and rest.

4. What is meant by the statement "prescribed fires would be conducted according to approved vegetation and fire management plans. Depending on timing, prescribed fire can improve plant vigor and help control weeds and maintain desired species composition?"

Response: A CCP is intended to be an umbrella planning document. The details of specific management treatments will be addressed in subsequent step-down habitat management plan (HMP). In general, we use a combination of prescibed rest, fire, and grazing to treat and maintain healthy grasslands. Fire reduces dead plant accumulations, causing slow nutrient cycling to release nutrients otherwise unavailable to growing plants. Grazing, at the proper time, stimulates the fast-nutrient cycle. This combination of periodic treatments is crucial to maintaining native grasslands in their best ecological condition and to provide appropriate habitat diversity for all prairie wildlife. Grazing does not serve as a substitute for fire, and the two processes are complimentary. Both fire and grazing are 'prescribed' in timing and intensity to promote some plant species and hinder growth of others.

5. There is concern that the use of prescibed fire will remove many shrub species including silver sagebrush and rabbit brush. Chokecherry's ability to re-sprout following fire should not be construed to mean that plants need fire to be maintained. Increased browsing by populations of big game on palatable and newly sprouted leaders may be detrimental to specific plants and populations of these plants.

Response: We share the concern for the chokecherry community, especially in the Medicine Lake sandhills—not only because chokecherries provide a basis for deer habitat, but also they represent a unique and valuable native plant resource. Natural processes such as fire and grazing have been withheld from this area for many years, and the plant communities are decadent and unhealthy, with unnatural buildups of litter and proliferations of exotic species. In recent years, chokecherry has become extremely decadent and diseased (black knot), and many stands are stunted and dying. Restoration of the health of this area has been initiated with the re-introduction of the natural processes. Chokecherry is well-documented to regenerate after fire. Concerns that deer may over-browse the resulting chokecherry regeneration reflect not a problem with the use of fire as a habitat management tool but a problem of deer over-utilization—keeping the sandhills (and other prairies) idle because deer will browse the resulting re-growth would be short-sighted. Lack of treatment has been killing the existing native plant communities, including the chokecherry; continued rest is not an option. A cycle of fire, grazing, and rest will restore the nutrient and defoliation cycling and maintain ecological health.

6. When considering restoration efforts, Montana Fish, Wildlife, and Parks recommends that invasive plants, including strands of crested wheatgrass, should be specifically addressed. Existing stands of noninvasive introduced grasses should be prioritized as to their value for ground nesting birds.

Response: We agree that priorities need to be assessed for plan implementation. A HMP would be developed within the first few years of plan implementation to provide more details. Currently, we do not have staff resources available to determine the mix of ideal plant species or prioritize specific locations. The CCP does provide overall direction and guidance for the plan. We believe a number of restoration tools are needed to successfully implement the plan, including the use of prescribed grazing and fire, mowing, and chemical herbicides when needed.

Public Uses

7. Ensure bird watching opportunities as a way for improving economic opportunities for Medicine Lake.

Response: The preferred alternative would improve wildlife opservation opportunities and access for people of all abilities.

8. Wildlife watching outspends all other uses and is the prime reason for refuges and needs first priority.

Response: Wildlife observation is one of the 6 priority wildlife-dependent recreational uses, along with hunting, fishing, photography, environmental education, and interpretation. The preferred alternative would improve access and opportunities for all of the priority wildlife-dependent public uses. Northeast Montana is an area of declining population, and the refuge staff would support community efforts to attract more visitors to the area including the development of a visitor contact station. Further, it should be noted that, based on visitors who stop in at the refuge headquarters and observations from staff, it is estimated that half of the annual visitors to Medicine Lake NWR are hunters.

9. I oppose hunting on the refuge complex and within the Refuge System.

Response: We recognize not everyone supports hunting on national wildlife refuges. Medicine Lake NWR Complex, as well as the entire Refuge System, is guided by laws enacted by Congress and the President as well as policy derived from those laws. The 1997 National Wildlife Refuge System Improvement Act identified hunting as 1 of 6 priority wildlife-dependent recreational uses to be facilitated when compatible with the purposes of a refuge and the mission of the Refuge System.

Hunting is consistent with the purposes of the refuge complex. Those purposes derive from the Migratory Bird Conservation Act which does not preclude hunting. In 1949, Congress amended the Migratory Bird Conservation Act to allow waterfowl hunting on 25 percent of areas acquired under its authority. Congress increased the figure to the present level of 40 percent in 1958. In 1978, Congress added a provision granting the Secretary of Interior discretion to exceed the 40 percent standard by an unlimited extent when it is beneficial to the species.

While national wildlife refuges are managed first and foremost for wildlife, the focus is to perpetuate populations of migratory birds, not individuals. Hunting may adversely affect individual animals, but is allowed when it will not threaten the perpetuation of the population being hunted.

10. Hunting is not compatible with the purposes for which many refuges were created.

Response: Hunting is compatible with the purposes of Medicine Lake National Wildlife Refuge Complex. See comment response #9 above.

11. The FWS has not ensured the availability of sufficient funds before it approved sport hunting initially at the Refuge and must do so now if the FWS intends to continue to authorize/and or expand hunting under the CCP.

Response: There are sufficient funds to continue to allow hunting at the Medicine Lake NWR Complex, and managing this program does not consume the refuge budget. The draft CCP/EA addressed staffing needs for implementation of the CCP, and identified essentially the same number of personnel approved under the region 6 organization chart in 2000. Most of the staff and equipment needs identified in the CCP are to support habitat restoration and other refuge operations including opportunities for other priority public uses. See comment response #12 on the amount of hunting that occurs on the refuge complex.

12. The proposed CCP must take into account not only the effects of hunting on other wildlife species in the refuge, but also the cumulative impacts of hunting on wildlife, migratory birds, and non-hunting visitors to Refuges throughout the Refuge System before permitting hunting to continue.

Response: The draft CCP addressed hunting, including the environmental effects, and found the direct, indirect, and cumulative impacts to be negligible to minor at most. Given the declining population of northeast Montana, we would not agree that there is crisis from increased use resulting in increased damage to biotic and abiotic resources, increased user conflicts or other impacts. On the refuge complex, most hunting occurs in the fall when the young have fledged or are out of the nest and does not result in abandonment of nest sites or result in other adverse impacts to migratory birds or other wildlife. Hunting for sandhill cranes

and swans is prohibited in some areas to protect the endangered whooping crane which infrequently uses the area, and this would continue under the preferred alternative (see response #19). Other areas are also closed to hunting to allow for nonhunting visitors to enjoy the refuge resources. At most, there are a handful of waterfowl hunters and a few dozen deer hunters who hunt on the refuge complex annually. Pheasant hunters make up the largest percentage of hunters on the refuge, and they make up a small percentage (perhaps 10 percent) of the total number of pheasant hunters who hunt within Sheridan County, Montana. Pheasants are a nonnative species that are abundant in northeast Montana as a result of local agricultural practices and support for those populations by hunters and communities alike.

Pheasants are often associated with tall nonnative planted grass such as Conservation Reserve Program (CRP) lands. The primary action in preferred alternative identified in the Draft CCP/EA would restore and increase native prairie species, primarily for the benefit of wildlife populations as a whole, and we would not specifically manage habitat for the benefit of pheasants or other huntable wildlife species, although we support hunting as a compatible priority public use on the refuge. As discussed in comment #9 and #10, under the preferred alternative we would improve opportunities for all priority public uses.

13. Concerned about provisions to expand hunting of deer and upland game on the refuge and concerned that the refuge is managed for these species to provide hunting opportunities.

Response: The refuge is not managed to increase populations of deer, pheasant, or partridge to provide hunting opportunities for these and other wildlife species. The primary purpose of the refuge is to provide a refuge and breeding ground for migratory birds and other wildlife. The primary focus of the preferred alternative is for native prairie restoration.

Deer and pheasant numbers are high as a result of habitat alterations, introductions, habitat modifications, and the abundance of agricultural crops surrounding the refuge. Hunting helps keep populations from increasing further. Hunting is supported by Montana Fish, Wildlife, and Parks, which has responsibility for managing resident state wildlife populations, and we work closely and cooperatively with our state agency partners. It is also supported by the local community and many citizens. See response #9.

14. The Service should also consider the beneficial impacts of nonconsumptive visitors to the refuge. Even though hunting and hunters are declining, the Service has continued to focus on hunters and not on nonconsumptive users.

Response: We agree that there are many beneficial impacts of nonconsumptive uses. In general, the Service has greatly expanded opportunities for nonconsumptive uses on many national wildlife refuges. Although hunter numbers may be declining nationwide, hunting, particularly pheasant hunting, is a popular activity in northeast Montana, and it exceeds all other public uses and that will not likely change in the near future. The refuge supports working with the community to improve nonconsumptive opportunities for birding and other wildlife-dependent activities for persons of all abilities. As stated previously, while we support wildlife-dependent public uses, the primary focus of the preferred alternative would be to restore native prairie habitat for migratory birds and other wildlife populations.

15. An environmental impact statement should be prepared because of sport-hunting and overall refuge recreation programs.

Response: The preferred alternative (CCP) was not a major federal action that would significantly affect the quality of the human environment within the meaning of Section 102(2)C of the National Environmental Policy Act of 1969. Accordingly, the preparation of an environmental impact statement was not required. While enhancing the hunting experience along with other wildlife-dependent recreational activities was addressed in the CCP, greatly expanded opportunities for hunting would not occur. Any new waterfowl production areas that are acquired would be open to hunting (50 CFR 26.41) and Fish and Wildlife Service Manual (603 FW2). The environmental effects of hunting were disclosed in the Draft CCP and EA. Refer to comment #12 regarding the amount of hunting that occurs within the refuge complex.

16. A full range of alternatives has not been considered, particularly nonconsumptive uses.

Response: Based on the purposes of the refuge complex, the requirements in the Improvement Act, and other applicable laws, regulations, and policies, a full range of reasonable alternatives was considered. The planning team conducted several workshops involving staff and other professionals,

mailed out planning updates, posted information on our website, held a public meeting, listened to public comment, and analyzed the biological, visitor use, and socioeconomic data before determining the options for future management.

17. Reopen swan and sandhill crane hunting on the refuge because very few, if any, whooping crane sightings occur.

Response: We agree that few whooping crane and swan sightings occur within the refuge complex, but we believe that maintaining the existing hunting closure on Medicine Lake NWR enables us to meet our responsibility for protecting whooping crane under the Endangered Species Act. We do provide sandhill crane and swan hunting opportunities elsewhere within the complex, including the WPAs. In the past, the refuge has been important for whooping crane during periods of severe drought, and inevitably we will see those conditions again.

Additionally, the refuge supports and encourages wildlife-dependent recreational uses such as wildlife observation and photography, and we believe it is important to provide these opportunities for non-hunting visitors.

18. Support the connection of Big Muddy Creek corridor between MDL and Homestead under Alternative C.

Response: We understand the support for the connection of Big Muddy Creek corridor between the Medicine Lake NWR and Homestead Units. It would unite the refuge into 1 unit while protecting the river floodplain and native mixed-grass prairie from development. It would increase the amount of protected habitat within the refuge boundary and improve protection of habitat. Although more acreage would be acquired (about 4 times more than under alternative B), land within the floodplain likely would be at less risk for development, regardless of whether it were acquired or not. At the same time, concerns were expressed within the community regarding the loss of tax revenue, including for the Medicine Lake School District, if all the land identified in alternative C were acquired, and this was raised as an issue during the scoping process. The highest priority lands for habitat and wildlife values would be protected under both alternatives B and C. We believe alternative B provides a reasonable balance for protecting lands in the future, and any land acquisition would only occur on a willing seller basis.

19. The U.S. Fish and Wildlife Service (USFWS) must prepare a Section 7 evaluation.

Response: We agree. It is included in the final CCP.

Appendix E

Divestiture Consideration for Lamesteer National Wildlife Refuge

During the CCP process, Lamesteer National Wildlife Refuge was identified as a candidate for divestiture from the National Wildlife Refuge System (NWRS). The refuge was analyzed by the planning team, regional office, and the refuge manager to determine whether it warranted continued status as a national wildlife refuge. On the basis of the analysis, the Service decided to propose divestiture of Lamesteer NWR from the Refuge System.

This document uses the region 6 divestiture model to document why Lamesteer NWR was recommended for divestiture. The divestiture model represents a set of criteria for measuring the value of a refuge. Designed as a pre planning tool, the model allows planners and refuge managers to determine whether a refuge or easement refuge should be considered for divestiture. If the model indicates that a refuge should be considered for divestiture, the process and consequences of divestiture will be studied further during the CCP process. In the case of Lamesteer NWR, the model proved that the refuge is a candidate for divestiture.

The Divestiture Model – Criteria and Rules

The region 6 divestiture model was developed during a 2-day workshop held December 14-15, 2004, at the regional office in Denver. The purpose of the workshop was to standardize policy in region 6 for identifying which refuges to consider for divestiture. The model is still being tested and has not been finalized. The model consists of a set of 8 questions that must be addressed when considering a refuge for divestiture. The questions were prioritized as primary and secondary criteria for evaluation.

Primary Criteria

1. Does the refuge achieve 1 or more of the goals?

Explanation: Look beyond the purpose to see if the refuge is meeting Refuge System goals. Refuge purpose is forever, but it could become obsolete over time (such as the recovery of threatened and endangered species). An obsolete purpose does not automatically mean the Service should get rid of the refuge.

Answer: No.

The National Wildlife Refuge System Mission and Goals and Refuge Purposes policy, announced on June 20, 2006, lists 5 goals for the Refuge System:

A. Conserve a diversity of fish, wildlife, and plants and their habitats, including species that are endangered or threatened with becoming endangered.

B. Develop and maintain a network of habitats for migratory birds, anadromous and interjurisdictional fish, and marine mammal populations that is strategically distributed and carefully managed to meet important life history needs of these species across their ranges.

C. Conserve those ecosystems, plant communities, wetlands of national or international significance, and landscapes and seascapes that are unique, rare, declining, or underrepresented in existing protection efforts.

D. Provide and enhance opportunities to participate in compatible wildlife-dependent recreation (hunting, fishing, wildlife observation and photography, and environmental education and interpretation).

E. Foster understanding and instill appreciation of the diversity and interconnectedness of fish, wildlife, and plants and their habitats.

Lamesteer NWR does not meet the goals of the NWRS or only marginally meets the first goal because:

It is a reservoir in the middle of a dry landscape enhanced by dam. It provides little migratory bird habitat – mostly for shorebirds and other very abundant or common species (chapter 3).

It is a water source, but any body of water would provide a resting stop and water source for birds, and there are other livestock ponds and water sources within a reasonable distance (figure 19).

Lamesteer is ringed by cattails and is heavily silted in. It probably has more value now as a shallow wetland, and with continued siltation, its value will decrease. There is little biological data but the value of WPAs in terms of habitat and species diversity is far greater.

Conservation implies action, and the Service has no authority to do anything other than impound habitat. Hunting is allowed by landowner permission. There are no other opportunities to provide wildlife-dependent recreation or to foster an

understanding or appreciation of the diversity and interconnectedness of fish, wildlife, and plants and their habitats.

A Service refuge sign exists on the road, but once visitors and refuge staff turn off the main road the refuge is difficult to find. Refuge staff asks permission of the landowner to go out on the land.

2. Does the refuge meet its purpose (fulfill the refuge's intent and statutory purpose)?

Explanation: Try to understand the intent of decision makers at the time the refuge was established.

Answer: No.

Lamesteer NWR is not a true sanctuary refuge; hunting is allowed now with landowner permission.

Since the Service does not control the uplands, they are not a breeding ground. The uplands are cropland or heavily grazed with CRP on the south side; the southwest corner produces crops. There is no authority or ability to control the quality of upland habitat breeding grounds. There are at least 125 breeding species in this region, far fewer at Lamesteer; an estimated 10 species breed there.

3. Does the refuge provide substantial support for migratory bird species, important sheltering habitat for threatened and endangered species, or support for species identified in authorizing legislation?

Explanation: The planning team must define "substantial." Refuge context is the key consideration. Substantial is relative to species, location, region, and other considerations. Example: Flocks of migratory birds (thousands) would be considered substantial.

Answer: No.

4a. Does the refuge have biological integrity; if it does not, is it feasible to restore the biological integrity of the converted or degraded habitat?

Answer: No, only through acquisition, and the Service would use limited resources to purchase easements in higher-priority areas.

Explanation: The presence of native habitat is not enough to meet Refuge System standards; the Service is not trying to save every remnant species. Identify what has changed from presettlement habitat conditions. Consider the contribution to regional biodiversity.

4b. Does the Service have or can it reasonably acquire the right to restore the habitat?

Answer: No.

The habitat is native habitat, and does not contribute to regional biodiversity. It is more silted in with cattails now than on previously farmed crop lands, which argues against biological restoration.

Degraded. Native vegetation exists, but the value has been reduced due to the introduction of non natives and the loss of ecological functions.

* To answer Yes on biological integrity, the answer must be Yes on both 4a and 4b.

There is limited communication with the landowner; the primary landowner lives in another state (see question 6 below).

5. Does it contribute to landscape conservation, provide a stepping stone for migratory birds, or serve as a unique habitat patch important to the conservation of a trust species?

Answer: No.

Lamesteer NWR is not the only water source in the area (figure 19).

It does not contribute to landscape conservation and is not important for trust species.

If Lamesteer NWR did not exist, migratory birds would not be impacted. Yellowstone River and other stock ponds in the vicinity provide for migrating birds, although Lamesteer NWR could be one of the larger ponds.

Within a 25-mile radius, there are 127 lakes or ponds; within a 50-mile radius, there are 425. The average size 9 acres.

Secondary Criteria

6. Politics/Community – Is there such significant community interest in and support for the refuge that divesture would result in unacceptable long-term public relations?

Answer: No.

The landowner of Section 15, T12N, R60E is elderly and lives in another state and rents out the property. He is not interested in selling the property to the service, and will be giving the property to an heir who wants it. He would like to see the easement stay on the property if the Service fixes the dam. If the Service will not repair the dam, the owner would like the easement back.

The landowner of the south half of Section 14 farms and runs cattle on the property and leases some of Section 15 from the first landowner. The reservoir is

shallower now and has more cattail in it than it did historically. The previous landowner would pump water from the reservoir to irrigate a nearby alfalfa field. He does not have strong feelings about keeping or removing the easement. The reservoir does not benefit him, and there is adequate livestock water with or without the dam.

There have been no comments from county commissioners on the planning process. The Town of Wibaux inquired about the planning process, but offered no comments.

7. Jurisdiction – Does the Service have or can it acquire the jurisdiction to meet the Refuge's purpose, and Refuge System mission and goals, and also prevent incompatible uses?

Answer: No.

8. Other Land Manager – Could some other party achieve most or all of the purposes of the refuge without the Service having to incur costs?

(Ask this question only if the answer to questions 1 and 2 are No.)

Answer: No.

Additional Considerations

Cost/Liability – Cost will never be a primary or secondary factor for divesting a refuge; cost (in itself) should not be a criterion for divesting land.

The dam was inspected recently and likely will need repair in the near future. This would be a huge cost and liability to the Service for minimal benefit in return.

If cost is a consideration for divestiture, it is because some other factor is driving the decision.

Liability is an addition to a decision to either keep or divest a refuge, but it is not a primary or secondary decision-making criterion.

Rules – The following 5 rules organize the responses to the criteria questions and determine whether to consider a refuge for divestiture.

***Rule 1: IF the refuge cannot meet 1 or more Refuge System goals, THEN it should be considered for divestiture.**
**This rule applies to Lamesteer Refuge System.*

Rule 2: IF the answers to questions 1 through 4 are as follows:

Yes – Meets a Refuge System goal, but only the education goal

No – Does not meet the refuge purpose

No – Does not substantially support trust species

No – Does not possess biological integrity

THEN the refuge should be considered for divestiture.

Rule 3: IF the answers to questions 1 through 5 are as follows:

Yes – Meets a Refuge System goal, but only the education goal

Yes - Purpose

No – Trust species

No – Biological integrity

No – Connectivity

THEN the refuge should be considered for divestiture.

Rule 4: IF the answers to questions 1 through 6 are as follows:

1. Yes – Goal
2. Maybe – Purpose
3. No – Trust species
4. Yes – Biological integrity
5. No – Connectivity
6. Yes – Jurisdiction

THEN keep the refuge (positive rule).

Rule 5: IF the answers to questions 1 through 3 are as follows,

Yes – Goal

Yes – Purpose

Yes – Trust species

THEN keep the refuge (positive rule).

Justification

Lamesteer NWR did not meet 1 or more of the Refuge System goals, and therefore should be considered for divestiture. It does not meet or minimally meets the refuge purpose. It does not substantially support trust species, and does not possess biological integrity. It should be considered for divestiture.

Environmental Action Statement

U.S. Fish and Wildlife Service, Region 6
Lakewood, Colorado

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy act and other statues, orders, and policies that protect fish and wildlife resources, I have established the following administrative record.

I have determined that the action of implementing the "Comprehensive Conservation Plan-Medicine Lake National Wildlife Refuge Complex" is found not to have significant environmental effects, as determined by the attached "finding of no significant impact" and the environmental assessment as found with the draft comprehensive conservation plan.

9/11/07

Stephen Guertin — Date
Acting Regional Director, Region 6
U.S. Fish and Wildlife Service
Lakewood, CO

9/11/07

Richard A. Coleman, PhD — Date
Assistant Regional Director, Region 6
National Wildlife Refuge System
U.S. Fish and Wildlife Service
Lakewood, CO

9/11/07

Dean Rundle — Date
Refuge Supervisor (CO, WY, MT, UT)
U.S. Fish and Wildlife Service, Region 6
Lakewood, CO

09/11/07

Jerry Rodriguez — Date
Project Leader
Medicine Lake National Wildlife Refuge Complex
Medicine Lake, MT

Finding of No Significant Impact

U.S. Fish and Wildlife Service, Region 6
Lakewood, Colorado

Three management alternatives for Medicine Lake National Wildlife Refuge (NWR) and the Northeast Montana Wetland Management District (WMD) were assessed as to their effectiveness in achieving the refuges' purposes and their impacts on the human environment.

- Alternative A, the "no-action" alternative, would continue current management programs and would not require significant increases in funding or staff.
- Alternative B for Medicine Lake NWR and the Northeast Montana WMD would conserve natural resources by restoring or protecting native mixed-grass prairie and maintaining high-quality nesting habitat. This alternative would focus funding for visitor services on developing access for visitors of all abilities and improving opportunities for wildlife-dependant uses (hunting, fishing, wildlife observation, photography, environmental education, and interpretation). It would encourage a greater understanding and appreciation for migratory birds and other native wildlife, the mixed-grass prairie, the wilderness, and the National Wildlife Refuge System.
- Alternative C would maximize staff resources for the conservation of natural resources by restoring or protecting native mixed-grass prairie and maintaining high-quality nesting habitats within Medicine Lake NWR and the Northeast Montana WMD. Visitor Programs would be improved but would focus primarily on encouraging a greater understanding and appreciation for the mixed-grass prairie ecosystem while maintaining existing access and opportunities for wildlife-dependant uses (hunting, fishing, wildlife observation, photography, environmental education, and interpretation).

Based on this assessment and the comments received, I have selected Alternative B for Medicine Lake NWR and the Northeast Montana WMD as the preferred alternative for implementation. The preferred alternative best meets the purposes for which the Medicine Lake NWR and the Northeast Montana WMD were established and it is preferable to the "no action" alternative in light of physical, biological, economic, and social factors. The preferred alternative would improve public access for wildlife-dependant recreation (hunting, fishing, wildlife observation, photography, environmental education, and interpretation) for people of all abilities.

Two management alternatives for Lamesteer NWR were assessed as to their effectiveness in achieving the refuge's purposes and their impacts on the human environment.

- Under Alternative A, the "no-action" alternative, Lamesteer NWR would continue to be an easement refuge superimposed on privately owned lands and used primarily as a resting place for migratory birds while on migration. The Service would continue to maintain the dam and spillway, including underwriting all maintenance costs. The landowner would continue to control access to the site, including all hunting access and the public uses.
- Alternative B would take Lamesteer NWR out of the National Wildlife Refuge System and relinquish the easement to the current landowners. Under this alternative, the dam structure would be given up to the landowners or destroyed. The Service's easement requirements would no longer exist. The Service would divest its interest in the refuge. This would be carried out within the 15-year life of this CCP.

For Lamesteer NWR, based on this assessment and the comments received, I have selected alternative B. This is preferable to the "no-action" alternative for several reasons. Alternative A does not achieve one or more goals of the National Wildlife Refuge System nor does it meet refuge purposes as a refuge and breeding ground for migratory birds. It lacks biological integrity, nor does it contribute to landscape conservation, provide substantial support for migratory bird species, or important sheltering habitat for threatened or endangered species. Lamesteer NWR does not contribute to the economic or other social aspects for the community.

I find that the preferred alternatives are not a major federal action that would significantly affect the quality of the human environment within the meaning of Section 102(2)(C) of the National Environmental Policy Act of 1969. Accordingly, the preparation of an environmental impact statement

IX. Reviewing Ecological Services Office Evaluation:

A. Concurrence X Nonconcurrence_____

B. Formal Consultation Required_____

C. Conference Required_____

D. Informal Conference Required_____

R. Mark Wilson 8-23-07

Field Supervisor, Montana State Office Date
Ecological Services, Region 6

on the proposes action is not required.

The following is a summary of anticipated environmental effects of implementation of the preferred alternative:

- The preferred alternatives will not adversely impact endangered or threatened species of their habitat.
- The preferred alternatives will not adversely impact archaeological or historical resources.
- The preferred alternatives will not adversely impact wetlands nor does the plan call for structures that could be damaged by or that would significantly influence the movement of floodwater.
- The preferred alternatives will not adversely affect air, geology, soils, or water. Class I air quality would be maintained on the Medicine Lake Wilderness.
- The preferred alternatives will not contribute to global climate change.
- The preferred alternatives will not have a disproportionately high or adverse human health or environmental effect on minority or low-income populations.
- The state of Montana has been notified and given the opportunity to review the comprehensive conservation plan and associated environmental assessment.

9/11/07

Stephen Guertin Date
Acting Regional Director, Region 6
U.S. Fish and Wildlife Service
Lakewood, CO

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM
For Medicine Lake National Wildlife Refuge Complex
Medicine Lake National Wildlife Refuge
Northeast Montana Wetland Management District
Lamesteer National Wildlife Refuge

Originating Person: Jerry Rodriguez
Telephone Number: (406) 789-2305
Date: August 21, 2007

I. Region: 6

II. **Service Activity: Refuges;** Medicine Lake National Wildlife Refuge Complex

III. Pertinent Species and Habitat:

A. Listed species and/or their critical habitat within the action area:
whooping crane, *Grus americana* (federally listed: endangered)
piping plover, *Charadrius melodus,* (federally listed: threatened)
least tern, *Sterna antillarum* (federally listed: threatened)

B. Proposed species and/or proposed critical habitat within the action area:
There are no known proposed species or critical habitat in the Medicine Lake NWR Complex

C. Candidate species within the action area:
None

IV. Geographic area or station name and action:

Station: Medicine Lake National Wildlife Refuge Complex
Action: Development and implementation of Comprehensive Conservation Plan

V. Location: (map attached)

A. Ecoregion number and name:
Region 6, Mountain-Prairie Region, Main Stem Missouri Ecosystem and Upper Missouri/Yellowstone/Upper Columbia rivers

B. County and State
Sheridan, Roosevelt, Daniels, Wibaux counties, Montana

C. Distance to nearest town:
Medicine Lake headquarters is located on North Shore Road adjacent to the town of Medicine Lake Montana. The towns of Plentywood and Culbertson are about 20 miles equidistant north and south along Montana State Highway 16. Lamesteer NWR, a satellite refuge to Medicine Lake is located about 160 miles south in Wibaux County and 20 miles southeast of Wibaux, Montana. The Northeast Montana Wetland Management

District (WMD) is located in Sheridan, Daniels, and Roosevelt counties. It is bounded on the north by the Canadian province of Saskatchewan, on the east by North Dakota, on the west by the Fort Peck Indian Reservation, and on the south by the Missouri River.

D. Species/habitat occurrence:

Whooping cranes occasionally migrate through the refuge complex using areas wetlands and grain fields.

Least Terns nest on islands and gravel bars in the Missouri River, the southern boundary of the northeast Montana WMD.

Piping plovers-A significant portion of the threatened Great Plains population of piping plover breeds in the refuge complex. A network of closed alkali lake basins in the northeast part of the refuge complex typically supports 85 percent of Montana's breeding plover population and 5 to 10 percent of the entire Great Plains population. The population was listed as threatened in 1985.

Plovers nesting in northeast Montana have the highest breeding recruitment of the Great Plains population, due largely to the relatively intact wetland-prairie habitat. Comprehensive surveys of breeding adults have been conducted annually since 1988. Breeding populations have averaged approximately 153 adult plovers with 60 breeding pairs. About 60 percent of the plovers nest on private and state land, and about 40 percent on waterfowl production areas on Medicine Lake National Wildlife Refuge (Draft Comprehensive Conservation Plan, August 2007).

Plovers in the refuge complex typically nest along the shorelines of shallow, semipermanent, hypersaline-to-eusaline wetlands that are generally associated with the Missouri Coteau. Beaches with some gravel or scattered cobble are preferred. Plovers increasingly use waterfowl production areas and the refuge for nesting during periods of severe drought.

Recruitment has averaged about 1.1 fledglings produced per nesting pair, a higher rate than most other areas, but still only approximately the level to maintain a stable population. Since 1996, the refuge complex has participated in a larger cooperative recovery effort with the Nature Conservancy, Montana Fish, Wildlife, and Parks, and the North Dakota Game and Fish Department, and private land owners.

VI. Description of proposed action:

Implementation of the goals, objectives, and strategies of the Comprehensive Conservation Plan for the next 15 years, in addition to fulfilling the goals of the National Wildlife Refuge System.

The preferred alternative for Medicine Lake NWR and the Northeast Montana WMD would

conserve natural resources by restoring or protecting native mixed-grass prairie and maintaining high-quality nesting habitats within the refuge complex. This alternative would focus funding for visitor services on developing access for visitors of all abilities and improving opportunities for wildlife-dependent uses while encouraging a greater understanding and appreciation for migratory birds and other native wildlife, the mixed-grass prairie, the wilderness, and the National Wildlife Refuge System.

The preferred alternative for Lamesteer NWR would be to divest the Service's interest in this 800-acrea easement refuge and relinquish the easement to the current landowner. The dam structure would be given up to the landowners or destroyed.

VII. Determination of effects:

A. Explanation of effects of the action on species and critical habitats in Items III. A, B and C:

Whooping crane: Implementing the CCP would have no effect on this migrant crane. The hunting closure on sandhill cranes and tundra swans on Medicine Lake NWR and the northeast Montana WMD would be continued to protect migrant whooping cranes.

Least tern: This species is not found on the complex, but may be found on island and gravel river bars of the Missouri River located along the southern boundary of the northeast MT WMD. Should this species occasionally use the complex, it is expected that implementation of the CCP would have no effect on habitats frequented by this species.

Piping plover: Implementing the CCP would not adversely affect this plover species. The continued preservation and management of complex lands, including predator management, restrictions on certain public uses, habitat management, and preservation of wetland-prairie habitat combined with the continued partnerships with other states, non-profit organizations, and adjacent landowners will benefit piping plover. There is already federally designated critical habitat in the action area, and the CCP does not find a need to propose designating further habitat as critical habitat within the complex at this time.

B. Explanation of actions to be implemented to reduce adverse effects:

None are necessary. All actions delineated in the CCP would be in accordance with provisions of protection and restoration plans for several species, as delineated by the Service and other Federal and State agencies.

VIII. Effect determination and response requested:

A. Listed species/designated critical habitat:

Determination	Response Requested
no effect/no adverse modification (whooping crane, least tern:)	___X__Concurrence
No effect, not likely to adversely affect species/adversely modify critical habitat (piping plover:)	__X__Concurrence
May affect, and is likely to adversely affect species/adversely modify critical habitat (Species:)	____Formal Consultation

B. Proposed species/proposed critical habitat:

Determination	Response Requested
no effect on proposed species/no adverse modification of proposed critical habitat (Species:)	____Concurrence
is likely to jeopardize proposed species/ adversely modify proposed critical habitat (Species:)	_____Concurrence

C. Candidate species:

Determination	Response Requested
no effect: (Species:)	____ Concurrence
is likely to jeopardize candidate species (Species:)	_____Conference

Field Supervisor/Refuge Manager 08/22/07 Date

Appendix G

Land Protection Plan

Prepared by:

U.S. Fish and Wildlife Service

Medicine Lake National Wildlife Refuge

223 North Shore Road

Medicine Lake, Montana

and

U.S. Fish and Wildlife Service

Division of Refuge Planning

P.O. Box 25486 - DFC

Denver, Colorado 80225

Land Protection Plan

This Land Protection Plan (LPP) provides a general description of the operations and management of the proposed additions to the Medicine Lake National Wildlife Refuge (NWR), as outlined in the Preferred Alternative of the Comprehensive Conservation Plan (CCP). The U.S. Fish and Wildlife Service has developed this LPP during the planning process to provide local landowners, government agencies, and the public a general understanding of the anticipated management approaches for the proposed fee-title and conservation easement acquisition. The purpose of the LPP is to present an overview of the Service's proposed management approach to wildlife and associated habitats, public uses, interagency coordination, public outreach, and other issues related to operations.

Introduction and Project Description

The Medicine Lake NWR has developed a CCP to provide the refuge manager a 15-year management plan to conserve fish, wildlife, and plant resources and their related habitats, while providing opportunities for compatible wildlife-dependent recreational uses. As part of the CCP, the refuge staff evaluated the future habitat protection needs of the refuge. The refuge's land-acquisition project proposal is part of a conservation strategy to protect highly productive wildlife habitat, including both wetlands and uplands, through fee-title or easement purchase of approximately 1,780 acres of land adjoining and surrounding the refuge. This LPP addresses the refuge's habitat protection needs for the next 15 years.

The refuge was established by Executive Order in 1935 "as a breeding ground for migratory birds and other wildlife." The 31,660-acre refuge consists of 2 noncontiguous areas: the 28,396- acre Main Unit which contains the 8,200-acre Medicine Lake, as well as 17 smaller water units and adjacent grasslands, and the 3,264-acre Homestead Unit, which includes 1,280 acres of wetlands in 5 water units and the rest in grassland habitat. The refuge contains an 11,330-acre wilderness area that was established in 1976 and includes Medicine Lake with its natural islands, and the 2,300-acre Sandhills Unit, which has habitat found in only 1 other location in Montana.

The boundary of the project area comprises "roundouts" of 11 parcels ranging in size from 37 acres to 612 acres. The Service intends to purchase 1,780 acres of private land from willing landowners within the new approved boundary. The Service intends to purchase acreage, in fee-title or conservation easements, of important wetlands and grasslands habitats to expand existing protected conservation lands within the project area.

The purposes of the Medicine Lake NWR project area are:

- To protect habitat integrity by preventing fragmentation
- To preserve landscape integrity to maintain, sustain, and enhance the historic plant, animal, and insect biodiversity of native prairie habitats
- To minimize invasive plant infestations caused by soil disturbance
- To a lesser extent to improve management and maintenance of the refuge boundary

Major Wildlife Values

The proposed project area provides breeding and migration habitat for a diverse array of bird species. The refuge bird list includes 272 species, of which 125 are documented breeders. The Medicine Lake NWR is considered 1 of approximately 500 Globally Important Bird Areas by the American Bird Conservancy (Chipley 2001). The wetlands of the project area are extremely valuable habitat for waterfowl, shorebirds, and other wetland-dependent wildlife. Native prairie and Conservation Reserve Program (CRP) grasslands in the project area provide large tracts of crucial breeding habitat for a host of grassland birds that are exhibiting dramatic continental declines.

Seventeen species that breed in the project area are on the Partners in Flight and the National Audubon Society's national watch lists (Muehtler 1998, Pashley et al. 2000): piping plover; yellow rail; long-billed curlew; marbled godwit; willet; Wilson's phalarope, Franklin's gull, short-eared owl, Sprague's pipit; Brewer's, clay-colored, Baird's sparrows; and Nelson's sharp-tailed lark bunting; chestnut-collared and McCown's longspurs; and bobolink. All of these are upland prairie nesters, with the exception of piping plover, Franklin's gull, and yellow rail, which nest in wetland habitats. Twenty-seven species that occur in the complex are nongame migratory bird species of management concern (USFWS: the 1995 List), and 20 of those breed within the project area.

The importance of this area to breeding and migrating waterfowl has long been recognized and was the primary reason for the purchase of the refuge in 1935. Most common nesting ducks are mallard, gadwall, northern pintail, northern shoveler, blue-winged teal, and lesser scaup, with a total of 14 species breeding locally. Although the density and diversity of nesting waterfowl is outstanding, more remarkable are the high nest-success and recruitment rates in the area — among the highest recorded in the Prairie Pothole Region.

Unlike more intensively-farmed areas of the Prairie Pothole Region, this area retains extensive, contiguous tracts of publicly and privately owned grasslands, and has a coyote-based predator community (rather than red foxes, raccoons, and striped skunks). Nest success consequently is relatively high, varying between 25 to 70 percent (Mayfield). For example, recorded nest success on Refuge grasslands during 1975-1999 averaged 30 to 40 percent (range 12 to 78 percent). Recruitment rates for mallards (0.97) and likely other dabblers, are the highest of any refuge lands in the Prairie Pothole Region (USFWS 1996), and make it an important "source" breeding area. Up to 40,000 ducks have been produced annually on the refuge alone. The numerous large wetlands of the project area provide important migration habitat for hundreds of thousands of waterfowl and waterbirds in spring and fall, including endangered whooping cranes and threatened bald eagles.

The large pelican nesting colony on Medicine Lake has existed since at least 1939. With more than 10,000 nesting pelicans, it is 1 of the largest colonies in the United States. These pelicans range throughout the complex during the breeding season, foraging in area wetlands. Other abundant birds that nest in colonies include eared grebe; black, Forster's and common terns; Franklin's gull; great blue heron; and black-crowned night heron.

The refuge is central to the breeding ranges of the passerine birds (or songbirds) endemic to the northern Great Plains, many of which are experiencing alarming population declines (Sauer et al. 1997). From 1995 to 1999, the most abundant breeding passerines in the refuge grasslands were grasshopper sparrow, Baird's sparrow, chestnut-collared longspur, and Savannah sparrow. Western meadowlark, clay-colored and Le Conte's sparrows, lark buntings, and bobolink were also common. All of these species are showing continental declines, mostly due to loss of native grassland habitats. Many are also 'area sensitive,' meaning they disappear from an area once grasslands are fragmented below a minimum size. These species still occur in high numbers in northeast Montana primarily because of the relatively intact nature and size of remaining prairie areas.

Concentrations of migrating shorebirds are found throughout the complex, especially in drier years, when low water levels leave large areas of exposed shoreline. Several upland-nesting shorebirds are also common breeders in grassland habitats: marbled godwit, willet, upland sandpiper, and Wilson's phalarope. A large proportion of the threatened Great Plains populations of piping plovers breed on alkali lakes in northeast Montana. This population was listed as threatened in 1985. As many as 34 pairs have nested on the refuge during low water years. Plovers nesting in northeast Montana have the highest breeding recruitment of the Great Plains population, largely due to the relatively intact wetland and prairie complexes found in the area (Murphy et al. 2000).

At least 38 species of mammals and 16 species of amphibians and reptiles are also found in the complex. Smooth green snake and western hognose snake, common to the refuge and sandhills, are considered species of concern by the Montana Natural Heritage Program.

Threats to and Status of the Resources

The greatest threat to these lands are agricultural conversions from grasslands to cropland, conversions from grassland to groundwater-irrigated cropland, drainages of wetlands and conversions to cropland, and development of residential homes and ranchettes. As an example, during the period from 1982 to 1997, more than 1.2 million acres of native prairie was converted to agricultural production in Montana (Johnson 2000).

The Service believes that the proposed protection of habitat supports wildlife values by protecting large tracts of private lands from residential and commercial development that would undermine these values and fragment habitats.

The Service is also concern with the fragmentation of habitats in other areas of Montana. This habitat loss is due primarily to the conversion of lands, once significant to wildlife, to summer homes and associated human-uses. In a landscape largely intact, habitat fragmentation poses a substantial threat to the continued viability of wildlife populations. Given the current strong market for scenic western properties, Montana prairie lands will be vulnerable to sale and subdivision for residential and commercial development.

Residential and commercial development, as well as fragmentation, can present a substantial threat to aquatic ecosystems. Housing developments can bring problems such as sewage-derived nutrient additions to streams and lakes, wetland drainage, water diversion, invasive or noxious weeds, and the introduction of nonnative fishes into aquatic ecosystems.

Proposed Action

The Service intends to purchase or receive donated conservation easements on approximately 1,780 acres from willing landowners within the approved boundary. The primary objective of this proposal is to maintain biological diversity and related wildlife values, and conserve the relatively naturally functioning systems and processes of the refuge.

Funding for the purchase of fee title lands will come from the Migratory Bird Conservation Fund or the Land and Water Conservation Fund. The Nature Conservancy, Ducks Unlimited, and other conservation groups could be interested in this area and may become a partner. Other partnership components, such as habitat management activities, will continue to be funded through the Partners for Wildlife Program, private sources, and other state and federal resource agencies.

The primary objective of this refuge will continue to be to promote the conservation and recovery of migratory birds and endangered species, and to maintain the unique biological diversity of the area. The proposed refuge addition will continue to protect and maintain the integrity of the complex of grassland and wetland habitats and the diversity complement of fish, wildlife, and plants.

The refuge acquisition program would rely on voluntary participation from landowners. If the land is purchased in fee title, the property would become part of the Medicine Lake NWR and would be managed according to the establishing purpose of the refuge. If the Service accepts a donation or purchases conservation easements, subdividing and developing for residential, commercial, or industrial purposes would not be permitted. Altering the natural topography, converting native grassland to cropland, and draining wetlands or establishing game farms also would be prohibited. All land would remain in private ownership, and property tax and weed control would remain the responsibility of the landowner. Control of public access to the land also would remain under the control of the landowner.

A portion of the proposed expansion would be managed by the Northeast Montana Wetland Management District (WMD), which is administered by Medicine Lake NWR. If acreage is purchased for conservation easements, the project area will be checked by WMD staff to ensure compliance with the terms of the easement. The Service's role is to monitor the purchased easements to ensure that landowners comply with the easement agreement so that the property does not undergo subdivision, development for home sites, or conversion of native rangeland to cropland. The Service believes current ranching practices, such as grazing, are compatible with the purpose of the refuge.

Protection Alternatives

An alternative that was considered but not selected was a conservation strategy to protect highly productive wildlife habitat, including wetlands and uplands, through the purchase of approximately 8,400 acres of lands adjoining and surrounding the refuge.

The project was viewed as an opportunity to unite the refuge into one unit while protecting from development a riverine floodplain and native mixed-grass prairie. This alternative would have enhanced wildlife habitat, protected existing senior water rights, and adjusted administrative boundaries for ease of management.

After a more detailed biological review, the Service decided that the threat within the riparian flood zone, from agricultural conversion or development was not great enough to warrant the protection and status of the National Wildlife Refuge System.

Priority Areas

The Service has created 3 priority zones for acquiring fee title or conservation easements on private lands that will provide the largest benefit to wildlife (see figure 1). Providing connectivity and wildlife habitat linkages to existing protected lands is a key element used to delineate priority areas within a project area. Connectivity of habitats also helps ensure that wide-ranging species, such as migratory birds, receive sufficient habitat to meet their life-cycle requirements.

The project area has been split into 3 priority zones for acquiring conservation easements using the following criteria:

- connectivity to other lands
- biological significance to migratory birds

Priority 1 Zone: This includes the area on the northeast side of the refuge. Priority 1 Zone lies within the highly productive Prairie Pothole Region and has relief typical of the glacial drift prairie relatively gentle rolling plains with occasional shallow depressions. This is an area of high wetland density, and resulting prairie wetland complexes contain a high diversity of wetland types and sizes.

Priority 2 Zone: Priority 2 Zone also has protective wetlands and remnant native grassland species. Vegetation is primarily the wheatgrass-needlegrass association of the mixed-grass prairie (Coupland 1950), but plant associations are diverse and fluctuate greatly in time and space with annual moisture, slope, aspect, and soil type. Subirrigated, wet meadow areas are dominated by prairie cordgrass, switch grass, western wheatgrass, rushes and sedges, and abundant tall forbs.

Priority 3 Zone – Priority zone 3 is influenced by Big Muddy Creek, a meandering, narrow (less than 30 feet wide), perennial prairie stream, the largest in the area. This floodplain consists primarily of soils formed in deposits from glacial outwash and alluvial deposits that are moderately to poorly drained, and are saline or salt-affected in many locations. Numerous wetlands were formed from shallow

depressions, oxbow cutoffs, and a high water table from underground aquifers.

Acquisition Alternatives

The Service proposes to acquire fee title and conservation easements principally by using the Migratory Bird Conservation Fund and funds appropriated under the Land and Water Conservation Act, which is derived from royalties paid for offshore oil and gas leasing. Such funds are intended for land and water conservation projects. The funds are not derived from general taxes.

The Migratory Bird Conservation Fund has been used within the refuge project area to protect waterfowl and other wildlife habitat on private land through the Small Wetlands Acquisition Program.

Management activities associated with easements may be funded through other sources, such as The Nature Conservancy, Ducks Unlimited, North American Wetland Conservation Act grants, Partners for Fish and Wildlife, and other private and public partners.

Coordination

The Medicine Lake NWR proposed acquisition program has been discussed with landowners, conservation organizations, federal, state and county governments, and other interested groups and individuals. The proposal and associated CCP and EA address the protection of native habitats, primarily through acquisition of fee-title and conservation easements, by the Service under the direction of the National Wildlife Refuge System.

A public open house held in Medicine Lake, Montana on November 29, 2006, to take comments and identify issues to be analyzed for the proposed project. Landowners, citizens, and elected representatives attended the meetings. In addition, Service field staffs have contacted local government officials, other public agencies, sporting clubs, and conservation groups.

Socio-cultural Considerations

This area also hosts state, federal, and private conservation lands. The 2.1 million-acre Fort Peck Indian Reservation forms the west boundary of the refuge on the west side of Big Muddy Creek. The State of Montana owns 286,204 acres of State School Land within the 3 county area. The Nature Conservancy owns about 700 acres and, by perpetual easement, protects several hundred additional acres about 25 miles north. The U. S. Department of Agriculture administers approximately 465,000 acres of CRP contracts in the area.

The economy of the Medicine Lake area is primarily agrarian, and cattle ranches dominate the private lands within the project area. Land parcels are relatively large, which helps maintain this intact landscape. The human population is sparse, and towns are widely scattered. Private lands are also used for hunting. A seasonal influx of tourists is attracted to the area for open space opportunities to bird watch, camp, canoe, fish, and hunt.

Summary of Proposed Action

Table 1 shows the acreage of habitat protection priority-zone lands (Zones 1, 2, and 3) identified for acquisition of fee title or conservation easements.

Table 1. Priority zone acreage for fee-title or conservation easement acquisitions for Medicine Lake NWR.

Description	*Total Area (acres)*
Priority Zone 1	1,092
Priority Zone 2	477
Priority Zone 3	215
Total	1,784

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Appendix H

List of Plant and Wildlife Species

This appendix contains the common and scientific names of plant associations, amphibians, reptiles, fish, birds, and mammals of the Medicine Lake National Wildlife Refuge Complex. Plant associations of Sheridan County are as described by Heidel et al. 2000.

Plant Associations

Plant associations listed below are for woodland, shrubland, herbaceous, and other types.

Woodland Types

green ash	*Fraxinus pennsylvanica*
common chokecherry	*Prunus virginiana*
quaking aspen	*Populus tremuloides*
common snowberry	*Symphoricarpos albus*

Shrubland Types

silver sagebrush	*Artemisia cana*
western wheatgrass	*Pascopyrum smithii*
silverberry shrubland	*Elaeagnus commutata*
few-flowered wild buckwheat	*Eriogonum pauciflorum*
broom snakeweed	*Gutierrezia sarothrae*
common chokecherry	*Prunus virginiana*
black greasewood	*Sarcobatus vermiculatus*
western wheatgrass	*Pascopyrum smithii*
buffaloberry	*Shepherdia argentea*
western snowberry	*Symphoricarpos occidentalis*

Herbaceous Types

prairie sandreed	*Calamovilfa longifolia*
needle and thread	*Stipa comata*
wheat sedge	*Carex atherodes*
woolly sedge	*Carex lanuginosa*
clustered field sedge	*Carex praegracilis*
saltgrass	*Distichlis spicata*
common spikerush	*Eleocharis palustris*
few-flowered spikerush	*Eleocharis quinqueflora*
thickspike wheatgrass	*Elymus lanceolatus*
prairie junegrass	*Koeleria macrantha*
thick-spike wheatgrass	*Elymus lanceolatus*
foxtail barley	*Hordeum jubatum*
indian ricegrass	*Oryzopsis hymenoides*
lemon scurfpea	*Psoralidium lanceolatum*
switchgrass	*Panicum virgatum*
mat muhly	*Muhlenbergia richardsonis*
little bluestem	*Schizachyrium scoparium*
western wheatgrass	*Pascopyrum smithii*
saltgrass	*Distichlis spicata*
blue grama	*Bouteloua gracilis*
green needlegrass	*Nassella viridula*
water smartweed	*Polygonum amphibium*
sago pondweed	*Potamogeton pectinatus*
common water-milfoil	*Myriophyllum spicatum*
Nuttall's alkaligrass	*Puccinellia nuttalliana*
ditch grass Great Plains	*Ruppia maritima Great Plains*
red glasswort	*Salicornia rubra*
plains muhly	*Muhlenbergia cuspidata*
hardstem bulrush	*Scirpus acutus*
alkali bulrush	*Scirpus maritimus*
threesquare bulrush	*Scirpus pungens*
sprangletop	*Scolochloa festucacea*
prairie Whitetop	*Scolochloa festucacea*
prairie cordgrass	*Spartina pectinata*
Fendler cats eye	*Cryptantha fendleri*
Schweinitz' flatsedge	*Cyperus schweinitzii*

western porcupine grass	*Stipa curtiseta*
common arrow-grass	*Triglochin maritimum*
common cattail western	*Typha latifolia western*
plains phlox	*Phlox andicola*

Undescribed Types

slimstem reedgrass	*Calamagrostis stricta*
water sedge	*Carex aquatilis*
fireberry hawthorn	*Crataegus chrysocarpa*
shrubby cinquefoil	*Pentaphylloides floribunda*
western porcupine grass	*Stipa curtiseta*
thickspike wheatgrass	*Elymus lanceolatus*
slender wheatgrass	*Elymus trachycaulus*
alkali cordgrass	*Spartina gracilis*
creeping juniper	*Juniperus horizontalis*
thickspike wheatgrass	*Elymus lanceolatus*
prairie cordgrass	*Spartina pectinata*
black greasewood	*Sarcobatus vermiculatus*
Nuttall's alkaligrass	*Puccinellia nuttalliana*
Nevada bulrush	*Scirpus nevadensis*
plains Muhly	*Muhlenbergia cuspidata*

Amphibians and Reptiles

Salamanders

tiger salamander	*Ambistoma tigrinum*

Frogs and Toads

western chorus frog	*Pseudacris triseriata*
northern leopard frog	*Rana pipiens*
wood frog	*Rana sylvatica* (possible, but undocumented)
woodhouse's toad	*Bufo woodhousei*
Canadian toad	*Bufo hemiophrys*
Great Plains toad	*Bufo cognatus*
plains spadefoot	*Scaphiopus bombifrons*

Turtles

painted turtle	*Chrysemys picta*
snapping turtle	*Chelydra serpentine*

Snakes

racer	*Coluber constrictor*
western terrestrial gartersnake	*Thamnophis elegans*
plains garter snake	*Thamnophis radix*
smooth green snake	*Opheodrys vernalis*
northern redbelly snake	*Storeria occipitomaculata*
western hognose snake	*Heterodon nasicus*
bullsnake	*Pituophis catenifer*

Fishes

The following fishes occur in Big Muddy Basin, Montana (Brown 1971; Holton and Johnson 1996).

Hiodontidae

goldeye	*Hiodon alosoides*

Cyprinidae

brassy minnow	*Hybognathus hankinsoni*
common carp	*Cyprinus carpio*
emerald shiner	*Notropis atherinoides*
fathead minnow	*Pimephales promelas*
flathead chub	*Hybopsis gracilis*
lake chub	*Couesius plumbeus*
longnose dace	*Rhynichthys cataractae*
northern redbelly dace	*Phoxinus eos*
northern redbelly dace x finescale dace	*Phoxinus eos x P. neogaeus*
pearl dace	*Margariscus margarita*
plains minnow	*Hybognathus placitus*
western silvery minnow	*Hybognathus argyritis*

Catostomidae

longnose sucker	*Catostomus catostomus*
river carpsucker	*Carpoides carpio*
white sucker	*Catostomus commersoni*

Ictaluridae

black bullhead	*Ictalurus melas*

Esocidae

northern pike	*Esox lucius*

Gadidae

burbot	*Lota lota*

Gasterosteidae

brook stickleback	*Culaea inconstans*

Centrarchidae

black crappie	*Pomoxis nigromaculatus*
white crappie	*Pomoxis annularis*

Percidae

Iowa darter	*Etheostoma exile*
sauger	*Stizostedion canadense*
walleye	*Stizostedion vitreum*
yellow perch	*Perca flavenscens*

Butterflies

Pieridae (Whites and Sulphurs)

checkered white	*Pontia protodice*
western white	*Pontia occidentalis*
cabbage white	*Pieris rapae*
Olympia marble	*Euchloe olympia*
clouded sulphur	*Colias philodice*
orange sulphur	*Colias eurytheme*

Lycaenidae (Coppers) (Hairstreaks) (Blues)

gray copper	*Lycaena dione*
purplish copper	*Lycaena helloides*
great copper	*Lycaena xanthoides*
spring azure	*Celastrina lucia*
silvery blue	*Glaucopsyche lygdamus*
Melissa blue	*Lycaeides melissa*
greenish blue	*Plebejus saepiolus*

Nymphalidae (Fritillaries) (Checkerspots) (Crescents) (Satyrs)

variegated fritillary	*Euptoieta claudia*
callippe fritillary (Nevada fritillary)	*Speyeria callippe* (Speyeria nevadensis)
Gorgone checkerspot	*Chlosyne gorgone*
pearl crescent	*Phyciodes tharos*
northern crescent	*Phyciodes cocyta*
painted lady	*Vanessa curdui*
red admiral	*Vanessa atalanta*
eyed brown	*Satyrodes eurydice*
inornate ringlet	*Cenonympha inornata*
common wood nymph	*Cercyonis pegala*
Uhler's arctic	*Oeneis uhleri*
monarch	*Danaus plexippus*

Hesperiidae (Skippers)

northern cloudywing	*Thorybes pylades*
common checkered skipper	*Pyrgus communis*
common sootywing	*Pholisora catullus*
Garita skipperling	*Oarisma garita*
European skipper	*Thymelicus lineola*
common branded skipper	*Hesperia colorado*
Peck's skipper	*Polites peckius*
tawney-edged skipper	*Polites themistoclies*
Delaware skipper	*Anatrytone logan*

Birds

The 283 bird species recorded at Medicine Lake NWR include the following:

- 5 introduced species
- 1 extinct species
- 2 extirpated species
- 125 breeding species
- 1 federally endangered species
- 1 federally threatened species

The order of this list of resident, migratory, and nesting birds at Medicine Lake NWR follows. "The American Ornithologists' Union check-list of North American Birds" (7th ed. 1998; 42nd supplement 2000).

* indicates a documented breeding record

\# indicates a migratory nongame bird species of management concern in the United States (USFWS 1995)

Loons

common loon# *Gavia immer*

Grebes

pied-billed grebe*	*Podilymbus podiceps*
horned grebe*	*Podiceps auritus*
red-necked grebe	*Podiceps grisegena*
eared grebe*	*Podiceps nigricollis*
western grebe*	*Aechmophorus occidentalis*
Clark's grebe*	*Aechmophorus clarkii*

Pelicans

American white pelican* *Pelecanus erythrorhynchos*

Cormorants

double-crested cormorant* *Phalacrocorax auritus*

Bitterns, Herons, and Egrets

American bittern*#	*Botaurus lentiginosus*
great blue heron*	*Ardea herodias*
great egret	*Ardea alba*
snowy egret	*Egretta thula*
black-crowned night-heron*	*Nycticorax nycticorax*

Ibises and Spoonbills

white-faced ibis*# *Plegadis chihi*

New World Vultures

turkey vulture *Cathartes aura*

Swans, Geese, and Ducks

greater white-fronted goose	*Anser albifrons*
snow goose	*Chen caerulescens*
Ross's goose	*Chen rossii*
Canada goose*	*Branta canadensis*
tundra swan	*Cygnus columbianus*
wood duck	*Aix sponsa*
gadwall*	*Anas strepera*
American wigeon*	*Anus americana*
American black duck	*Anas rubripes*
mallard*	*Anas platyrhynchos*
blue-winged teal*	*Anas discors*
cinnamon teal*	*Anas cyanoptera*
northern shoveler*	*Anas clypeata*
northern pintail*	*Anas acuta*
green-winged teal*	*Anas crecca*
canvasback*	*Aythya valisineria*
redhead*	*Aythya americana*
ring-necked duck*	*Aythya collaris*
greater scaup	*Aythya marila*
lesser scaup*	*Aythya affinis*
white-winged scoter	*Melanitta fusca*
long-tailed duck	*Clangula hyemalis*
bufflehead*	*Bucephala albeola*
common goldeneye	*Bucephala clangula*
Barrow's goldeneye	*Bucephala islandica*
hooded merganser	*Lophodytes cucullatus*
common merganser	*Mergus merganser*

red-breasted merganser	*Mergus serrator*
ruddy duck*	*Oxyura jamaicensis*

Osprey, Kites, Hawks, and Eagles

osprey	*Pandion haliaetus*
bald eagle	*Haliaethus leucocephalus*
northern harrier*#	*Circus cyaneus*
sharp-shinned hawk	*Accipiter striatus*
Cooper's hawk	*Accipiter cooperii*
northern goshawk#	*Accipiter gentilis*
broad-winged hawk	*Buteo platypterus*
Swainson's hawk*	*Buteo swainsoni*
red-tailed hawk*	*Buteo jamaicensis*
ferruginous hawk*#	*Buteo regalis*
rough-legged hawk	*Buteo lagopus*
golden eagle*	*Aquila chrysaetos*

Falcons and Caracaras

American kestrel*	*Falco sparverius*
merlin	*Falco columbarius*
gyrfalcon	*Falco rusticolus*
peregrine falcon#	*Falco peregrinus*
prairie falcon*	*Falco mexicanus*

Gallinaceous Birds

gray partridge*	*Perdix perdix* (introduced)
ring-necked pheasant*	*Phasianus colchicus* (introduced)
sharp-tailed grouse*	*Tympanuchus phasianellus*
greater prairie-chicken	*Tympanuchus cupido* (extirpated)
wild turkey	*Meleagris gallopavo*

Rails

yellow rail*#	*Coturnicops noveboracensis*
Virginia rail*	*Rallus limicola*
sora*	*Porzana carolina*
American coot*	*Fulica americana*

Cranes

sandhill crane	*Grus canadensis*
whooping crane	*Grus Americana* (endangered)

Plovers

black-bellied plover	*Pluvialis squatarola*
American golden-plover	*Pluvialis dominica*
semipalmated plover	*Charadrius semipalmatus*
piping plover*	*Charadrius melodus* (threatened)
killdeer*	*Charadrius vociferus*

Stilts and Avocets

black-necked stilt	*Himantopus mexicanus*
American avocet*	*Recurvirostra americana*

Sandpipers and Phalaropes

greater yellowlegs	*Tringa melanoleuca*
lesser yellowlegs	*Tringa flavipes*
solitary sandpiper	*Tringa solitaria*
spotted sandpiper*	*Actitis macularia*
willet*	*Catoptrophorus semipalmatus*
upland sandpiper*#	*Bartramia longicauda*
eskimo curlew	*Numenius borealis* (extirpated)
whimbrel	*Numenius phaeopus*
long-billed curlew*#	*Numenius americanus*
hudsonian godwit	*Limosa haemastica*
marbled godwit*	*Limosa fedoa*
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 alpine*
stilt sandpiper	*Calidris himantopus*
buff-breasted sandpiper	*Tryngites subruficollis*
short-billed dowitcher	*Limnodromus griseus*
long-billed dowitcher	*Limnodromus scolopaceus*
Wilson's snipe*	*Gallinago gallinago*
Wilson's phalarope*	*Phalaropus tricolor*
red-necked phalarope	*Phalaropus lobatus*

Skuas, Jaegers, Gulls, and Terns

Franklin's gull*	*Larus pipixcan*
Bonaparte's gull	*Larus philadelphia*
ring-billed gull*	*Larus delawarensis*
California gull*	*Larus californicus*
herring gull	*Larus argentatus*
glaucous gull	*Larus hyperboreus*
Caspian tern*	*Sterna caspia*
common tern*	*Sterna hirundo*
Forster's tern*	*Sterna forsteri*
black tern*#	*Chlidonias niger*

Pigeons and Doves

rock dove [also: common pigeon]*	*Columba livi a* (introduced)
mourning dove*	*Zenaida macroura*
passenger pigeon	*Ectopistes migratorius* (extinct)
band-tailed pigeon	*Columba fasciata*
Eurasian collared-dove	*Streptopelia decaocto* (introduced)

Cuckoos and Anis

black-billed cuckoo*	*Coccyzus erythropthalmus*
yellow-billed cuckoo	*Coccyzus americanus*

Typical Owls

eastern screech-owl	*Otus asio*
great horned owl*	*Bubo virginianus*
snowy owl	*Nyctea scandiaca*
burrowing owl*#	*Athene cunicularia*
long-eared owl*	*Asio otus*
short-eared owl*#	*Asio flammeus*

Nightjars

common nighthawk*	*Chordeiles minor*

Swifts

chimney swift	*Chaetura pelagica*

Hummingbirds

ruby-throated hummingbird	*Archilochus colubris*

Kingfishers

belted kingfisher*	*Ceryle alcyon*

Woodpeckers

red-headed woodpecker#	*Melanerpes erythrocephalus*
yellow-bellied sapsucker	*Sphyrapicus varius*
downy woodpecker	*Picoides pubescens*
hairy woodpecker	*Picoides villosus*
northern flicker*	*Colaptes auratus*

Tyrant Flycatchers

olive-sided flycatcher	*Contopus cooperi*
western wood pewee	*Contopus sordidulus*
eastern wood pewee	*Contopus virens*
yellow-bellied flycatcher	*Empidonax flaviventris*
alder flycatcher	*Empidonax alnorum*
willow flycatcher	*Empidonax traillii*
least flycatcher*	*Empidonax minimus*
eastern phoebe	*Sayornis phoebe*

Say's phoebe*	*Sayornis saya*
great crested flycatcher	*Myiarchus crinitus*
western kingbird*	*Tyrannus verticalis*
eastern kingbird*	*Tyrannus tyrannus*

Shrikes

loggerhead shrike*#	*Lanius ludovicianus*
northern [also: great grey] shrike	*Lanius excubitor*

Vireos

blue-headed vireo	*Vireo solitarius*
warbling vireo	*Vireo gilvus*
Philadelphia vireo	*Vireo philadelphicus*
red-eyed vireo	*Vireo olivaceus*

Crows, Jays, and Magpies

blue jay	*Cyanocitta cristata*
black-billed magpie*	*Pica hudsonia*
American crow*	*Corvus brachyrhynchos*
common raven	*Corvus corax*

Larks

horned lark*	*Eremophila alpestris*

Swallows

purple martin	*Progne subis*
tree swallow*	*Tachycineta bicolor*
violet-green swallow*	*Tachycineta thalassina*
northern rough-winged swallow*	*Stelgidopteryx serripennis*
bank swallow*	*Riparia riparia*
cliff swallow*	*Petrochelidon pyrrhonota*
barn swallow*	*Hirundo rustica*

Titmice and Chickadees

black-capped chickadee*	Poecile atricapilla

Nuthatches

red-breasted nuthatch	*Sitta canadensis*
white-breasted nuthatch	*Sitta carolinensis*

Creepers

brown creeper	*Certhia americana*

Wrens

house wren*	*Troglodytes aedon*
sedge wren*#	*Cistothorus platensis*
marsh wren*	*Cistothorus palustris*

Kinglets

golden-crowned kinglet	*Regulus satrapa*
ruby-crowned kinglet	*Regulus calendula*

Old World Warblers

blue-gray gnatcatcher	*Polioptilla caerulea*

Thrushes

eastern bluebird*	*Sialia sialis*
western bluebird	*Sialia mexicana*
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*

Mimic Thrushes

gray catbird*	*Dumetella carolinensis*
northern mockingbird	*Mimus polyglottos*
brown thrasher*	*Toxostoma rufum*

Starlings

European starling*	*Sturnus vulgaris* (introduced)

Wagtails and Pipits

American pipit	*Anthus rubescens*
Sprague's pipit*#	*Anthus spragueii*

Waxwings

bohemian waxwing	*Bombycilla garrulus*
cedar waxwing*	*Bombycilla cedrorum*

Wood Warblers

Tennessee warbler	*Vermivora peregrina*
orange-crowned warbler	*Vermivora celata*
Nashville warbler	*Vermivora ruficapilla*
yellow warbler*	*Dendroica petechia*
chestnut-sided warbler	*Dendroica pensylvanica*
magnolia warbler	*Dendroica magnolia*
Cape May warbler	*Dendroica tigrina*
black-throated blue warbler	*Dendroica caerulescens*
yellow-rumped warbler	*Dendroica coronata*
black-throated green warbler	*Dendroica virens*
Townsend's warbler	*Dendroica townsendi*
Blackburnian warbler	*Dendroica fusca*
pine warbler	*Dendroica pinus*
prairie warbler	*Dendroica discolor*
palm warbler	*Dendroica palmarum*
bay-breasted warbler	*Dendroica castanea*
blackpoll warbler	*Dendroica striata*
black-and-white warbler	*Mniotilta varia*
American redstart*	*Setophaga ruticilla*
ovenbird	*Seiurus aurocapillus*
northern waterthrush	*Seiurus noveboracensis*
Kentucky warbler	*Oporornis formosus*
Connecticut warbler	*Oporornis agilis*
mourning warbler	*Oporornis philadelphia*
MacGillivray's warbler	*Oporornis tolmiei*
common yellowthroat*	*Geothlypis trichas*
Wilson's warbler	*Wilsonia pusilla*
Canada warbler	*Wilsonia canadensis*
yellow-breasted chat*	*Icteria virens*

Tanagers

scarlet tanager	*Piranga olivacea*
western tanager	*Piranga ludoviciana*

Sparrows and Towhees

spotted towhee*	*Pipilo maculatus*
American tree sparrow	*Spizella arborea*
chipping sparrow*	*Spizella passerina*
clay-colored sparrow*	*Spizella. Pallida*
Brewer's sparrow*#	*Spizella breweri*
field sparrow*	*Spizella pusilla*
vesper sparrow*	*Pooecetes gramineus*
lark sparrow*	*Chondestes grammacus*
lark bunting*#	*Calamospiza melanocorys*
Savannah sparrow*	*Passerculus sandwichensis*
grasshopper sparrow*#	*Ammodramus savannarum*
Baird's sparrow*#	*Ammodramus bairdii*
Le Conte's sparrow*	*Ammodramus leconteii*
Nelson's sharp-tailed sparrow*	*Ammodramus nelsoni*
fox sparrow	*Passerelia iliaca*
song sparrow*	*Melospiza melodia*
Lincoln's sparrow	*Melospiza lincolnii*
wamp sparrow	*Melospiza georiana*
white-throated sparrow	*Zonotrichia albicollis*
Harris' sparrow	*Zonotrichia querula*
white-crowned sparrow	*Zonotrichia leucophrys*
dark-eyed junco	*Junco hyemalis*
McCown's longspur*#	*Calcarius mccownii*

Smith's longspur	*Calcarius pictus*
Lapland longspur	*Calcarius lapponicus*
chestnut-collared longspur*#	*Calcarius ornatus*
snow bunting	*Plectrophenax nivalis*

Cardinals, Grosbeaks, and Allies

northern cardinal	*Cardinalis cardinalis*
rose-breasted grosbeak	*Pheucticus ludovicianus*
black-headed grosbeak	*Pheucticus melanocephalus*
blue grosbeak	*Guiraca caerulea*
lazuli bunting*	*Passerina amoena*
indigo bunting	*Passerina cyanea*
dickcissel#	*Spiza americana*

Blackbirds and Orioles

bobolink*	*Dolichonyx oryzivorus*
red-winged blackbird*	*Agelaius phoeniceus*
western meadowlark*	*Surnella neglecta*
yellow-headed blackbird*	*Xanthocephalus xanthocephalus*
rusty blackbird	*Euphagus carolinus*
Brewer's blackbird*	*Euphagus cyanocephalus*
common grackle*	*Quiscalus quiscula*
brown-headed cowbird*	*Molothrus ater*
orchard oriole*	*Icterus spurius*
Baltimore oriole*	*Icterus galbula*
Bullock's oriole	*Icterus bullockii*

Finches

pine grosbeak	*Pinicola enucleator*
purple finch	*Carpodacus purpureus*
house finch*	*Carpodacus mexicanus*
common redpoll	*Carduelis flammea*
hoary redpoll	*Carduelis. hornemanni*
pine siskin	*Carduelis pinus*
American goldfinch*	*Carduelis tristis*
evening grosbeak	*Coccothraustes vespertinus*

Old World sparrows

house sparrow*	*Passer domesticus* (introduced)

Mammals

The following list of mammals have ranges within the area of Medicine Lake Complex.

* indicates documented occurrence (refuge data, Thompson 1982)

# indicates documented (trapped or seen) by E.A. Preble at Johnson Lake (1910)

Insectivores

Shrews

Arctic shrew*	*Sorex arcticus*
Baird's shrew	*Sorex bairdii*
Cinereus (masked) shrew*	*Sorex cinereus*
pygmy shrew*	*Sorex hoyi*
Merriam's shrew	*Sorex merriami*
northern short-tailed shrew	*Blarina brevicauda*

Bats

long-eared bat	*Myotis evotis*
Keen's bat *	*Myotis. keenii*
little brown bat *	*Myotis lucifugus*
northern long-eared bat	*Myotis septentrionalis*
small-footed bat	*Myotis subulatus*
western red bat	*Lasiurus blossevillii*
eastern red bat	*Lasiurus borealis*
hoary bat	*Lasiurus cinereus*
silver-haired bat	*Lasionycteris noctivagans*
big brown bat	*Eptesicus fuscus*

Hares and Rabbits

mountain cottontail*	*Sylvilagus nuttalli*
snowshoe hare*	*Lepus americanus*
white-tailed jackrabbit*#	*Lepus townsendii*

Squirrels

least chipmunk	*Tamias minimus*
woodchuck	*Marmota monax*
Franklin's ground squirrel	*Spermophilus franklinii*
Richardson's ground squirrel*#	*Spermophilus richardsonii*
thirteen-lined ground squirrel*#	*Spermophilus tridecemlineatus*
black-tailed prairiedog	*Cynomys ludovicianus*

Pocket Gophers

northern pocket gopher*#	*Thomomys talpoides*
plains pocket gopher	*Geomys bursarius*

Heteromyids

olive-backed pocket mouse*#	*Perognathus fasciatus*
plains pocket mouse	*Perognathus flavescens*
Ord's kangaroo rat	*Dipodomys ordii*

Beavers

American beaver*	*Castor canadensis*

Mice, Rats, and Voles

western harvest mouse	*Reithrodontomys megalotis*
plains harvest mouse	*Reithrodontomys montanus*
white-footed mouse	*Peromyscus leucopus*
deer mouse*#	*Peromyscus maniculatus*
northern grasshopper mouse *#	*Onychomys leucogaster*
bushy-tailed woodrat	*Neotoma cinerea*
Norway rat*	*Rattus norvegicus*
house mouse*	*Mus musculus*
southern red-backed vole	*Clethrionomys gapperi*
prairie vole*	*Microtus ochrogaster*
meadow vole*#	*Microtus pennsylvanicus*
sagebrush vole*	*Lemmiscus curtatus*
common muskrat*#	*Ondatra zibethicus*

Jumping Mice

meadow jumping mouse*	*Zapus hudsonius*
western jumping mouse	*Zapus princeps*

New World Porcupines

common [also: North American] porcupine*	*Erethizon dorsatum*

Carnivores

Canids

coyote*#	*Canis latrans*
gray wolf*#	*Canis lupus* (extirpated)
swift fox*#	*Vulpes velox* (extirpated)
red fox*	*Vulpes vulpes*

Bears

American black bear*	*Ursus americanus*
grizzly (brown) bear*	*Ursus arctos* (extirpated)

Procyonids

common raccoon*	*Procyon lotor*

Mustelids

long-tailed weasel*#	*Mustela frenata*
black-footed ferret	*Mustela nigripes*
least weasel*	*Mustela nivalis*
American mink*	*Mustela vison*
wolverine*	*Gulo gulo*
American badger*#	*Taxidea taxus*
northern river otter	*Lontra canadensis*

Mephitids

striped skunk*#	*Mephitis mephitis*

Felids

feral (or domestic) cat*	*Felis catus* (introduced)
bobcat*	*Lynx rufus*

Cervids

wapiti (elk)* (introduced)	*Cervus elaphus*
mule or black-tailed deer*	*Odocoileus hemionus*
white-tailed deer*	*Odocoileus virginianus*
moose*	*Alces alces*
caribou*	*Rangifer tarandus*

Pronghorn

pronghorn*#	*Antilocapra americana*

Bovids

American bison*	*Bos bison* (extirpated)
domestic cow*	*Bos taurus*

Appendix I

Refuge Operating Needs System (RONS)

Tier 1 Projects					
Project #	*Station*	*Project Title*	*Cost Estimate (Thousands) First Year Need*	*Personnel FTE*	*Recurring Annual Need (Thousands)*
00004	MDLNWR	Protect visitors, natural, and cultural resources, and facilities (Refuge Officer)	$65	1.0	$75
00002	MDLNWR	Initiate and Expand GIS, GPS and ADP Capabilities within the Complex (GIS/GPS/ADP specialist)	$65	1.0	$89
97025	MDLNWR	Monitor Wildlife Response to Upland Management (Refuge Operations Specialist)	$65	1.0	$89
00003	MDLNWR	Manage Visitor Programs, Environmental Education, Outreach, Friends Group (Outdoor Recreation Planner)	$65	1.0	$89
98004	MDLNWR	Exotic Tree Control (Maintenance Worker)	$37.5	.5	$32
98008	MDLNWR	Cover Map Refuge Complex Vegetation	$204		$15
98001	MDLNWR	Refuge Water Budget Model (Refuge Operations Specialist)	$65	1.0	$75
97020	MDLNWR	Conduct Wildlife and Habitat Monitoring	$121		$10
97022	MDLNWR	Install predator exclusion fences	$77		$5
99001	MDLNWR	Aerial Photo Coverage of Refuge Complex Administered Lands	$88		$2

Tier 2 Projects				
Project #	*Station*	*Project Title*	*First Year Need (Thousands)*	*Recurring Annual Need (Thousands)*
06010	MDLNWR	Restore Mixed-grass Prairie Uplands in Eastern Montana	$300	$0
99003	MDLNWR	Expand Water Management Capabilities	$459	$15
00006	MDLNWR	Improve Visitor Services & Administrative Functions within Refuge Complex-Receptionist	$65	$63
99004	MDLNWR	Enhance Wildlife Habitat within the Complex	$95	$4

Tier 2 Projects, cont.				
Project #	*Station*	*Project Title*	*First Year Need (Thousands)*	*Recurring Annual Need (Thousands)*
97007	MDLNWR	Increase Monitoring of Wildlife Populations by Bird Banding	$80	$25
97008	MDLNWR	Carp Control	$45	$7
97010	MDLNWR	Enhance Public Perception of the Service	$207	$17
97011	MDLNWR	Expand Management Capabilities with Bunkhouse Rehabilitation	$96	$25
97012	MDLNWR	Enhance Visitor Contact Areas Refuge Headquarters	$112	$25
97021	MDLNWR	White Pelican Monitoring/Study-Wildlife Biologist	$65	$89
97024	MDLNWR	Wildlife Habitat Enhancement on Refuge and Adjoining Private Land	$65	$53
97023	MDLNWR	Homestead Mechanical Water Management	$222	$10
98012	MDLNWR	Cultural Resource Survey	$255	$10
98013	MDLNWR	Moist Soil Mapping and Air Quality	$34	$25
98014	MDLNWR	Air Quality Monitoring Invertebrates	$33	$5
98011	MDLNWR	Air Quality Literature Survey	$60	$37
98010	MDLNWR	Air Quality Monitoring	$49	$10
98009	MDLNWR	Air Quality- Fine Particle Sampling	$132	$30
98007	MDLNWR	Visual Air Quality	$121	$30
98005	MDLNWR	Air Quality- Scene Monitoring	$89	$30
00014	MDLNWR	Provide Opportunities for Wildlife Observation and Photography within the Complex	$112	$8
98002	MDLNWR	Implement a Fisheries Management Program	$110	$12
00015	MDLNWR	Complete Grounds Work of Headquarters Complex	$178	$30
97009	MDLNWR	Enhance Disease Monitoring within the Complex to Reduce Resource Losses	$62	$10
00016	MDLNWR	Address the Problem of Lack of House within the Refuge Complex	$220	$17
97028	MDLNWR	Upland Habitat Enhancement	$93	$10
00017	MDLNWR	Investigate Predatory Impacts of gull Colonies on Nesting Migratory Birds	$75	$25
99006	MDLNWR	Design and Print New Complex Leaflets to Service Standards	$65	$6
99007	MDLNWR	Fire Management Program Building	$209	$7
99008	MDLNWR	Develop Refuge Complex Video and Slide Presentation	$108	$15
00010	MDLNWR	Enhance Water Management Capabilities	$397	$12
00012	MDLNWR	Enhance Refuge Complex Volunteer Program	$60	$10
00013	MDLNWR	Survey Burrowing Owl Populations within the Complex	$141	$26

Appendix J

Service Asset Maintenance Management System (SAMMS)

Station	*Project Title*	*Cost Estimate (thousands)*	*SAMMS Work Order #*
	DEFERRED MAINTENANCE		
MDLNWR	Replace deteriorating windows	est. needed	2006518618
MDLNWR	Rehab quarters by replacing septic system R608 DMFP	$21,000	2006553681
MDLNWR	Rehab Basement and Attic R6XX, DM	$47,000	93106879
MDLNWR	Replace 1934 bunkhouse R612 DMFP	$521,000	93106883
MDLNWR	Replace lawn shed R6 DMRP	$10,000	02120719
MDLNWR	Replace Storage Building R6XX, DM	$39,000	95106895
MDLNWR	Replace worn dam #1 R6 DMRP	$1,039,000	97109869
MDLNWR	Replace 3 48" metal screwgates on Dam #1 R609 DMFP	$235,000	2006553684
MDLNWR	Rehab Canal Banks R6XX, DM	$495,000	90106876
MDLNWR	Rehab Sayer Bay water control structure R612 DMFP	$41,000	94106886
MDLNWR	Rehabilitate Canals R6XX, DM	$30,000	2007721033
MDLNWR	Rehabilitate Canals R6XX, DM	$200,000	90106874
MDLNWR	Rehab Dam as per Dam Report R6 DMRH	est. needed	2006521048
MDLNWR	Rehabilitate deteriorating dike R6 DMRH	est. needed	2006518572
MDLNWR	Replace Water Control R6XX, DM	$45,000	90106877
MDLNWR	Replace non functional WCS R6 DMRP	$33,000	2006518522
MDLNWR	Replace deteriorating WCS R6 DMRP	$33,000	2006518525
MDLNWR	Rehabilitate Gaffney Canal R6 DMRH	est. needed	2006518316
MDLNWR	Rehabilitate canal R6 DMRH	est. needed	2006518547
MDLNWR	Rehabilitate dike due to severe damage R6 DMRH	est. needed	2006518310
MDLNWR	Rehabilitate Dam R610 DMFP	$385,000	96106898
MDLNWR	Repair Tower deficiencies	$27,000	2006512540
MDLNWR	Replace Distribution Lines R6XX, DM	$93,000	94106888
MDLNWR	Rehab Road R6XX, DM	$385,000	99106920
MDLNWR	Rehab Boundary Fences R6XX, DM	$93,000	95106893
MDLNWR	Replace Boundary Fence R6XX, DM	$39,000	95106892
MDLNWR	Rehab Fence R6XX, DM	$84,000	90106873
MDLNWR	Replace 10 miles fence R609 DMFP	$50,000	95106894
MDLNWR	Replace Signs and Posts R6XX, DM	$38,000	90106923
MDLNWR	Remove Piles from Ditch R6XX, DM	$63,000	93106881
MDLNWR	Repair Homestead outlet R608 DMFP	$61,000	94106887
MDLNWR	Rehabilitate Canal slopes	est. needed	2006517754
MDLNWR	Rehabilitate spillway to prevent flooding	est. needed	2006517772
MDLNWR	Rehabilitate Breeser Dam R611 DMFP	$348,000	93106880
MDLNWR	Rehabilitate Breeser WCS R611 DMFP	$62,000	2006516738
MDLNWR	Replace Fence R6XX, DM	$71,000	97106899
MDLNWR	Repair Boundary Fence R6XX, DM	$73,000	93106885
MDLNWR	Rehabiliate Dike due to leaks at the base	$235,000	2006517773
MDLNWR	Repair Fence R6XX, DM	$27,000	99106903
MDLNWR	Repair Fence R6XX, DM	$26,000	96106897
MDLNWR	Replace Sewage Lines R6XX, DM	$329,000	95106890
MDLNWR	Repair Predator Fence R6XX, DM	$28,000	99106904
MDLNWR	Repair Homestead Dam	$235,000	2006521033

Station	*Project Title*	*Cost Estimate (thousands)*	*SAMMS Work Order #*
	DEFERRED MAINTENANCE, cont.		
MDLNWR	Rehabilitate dike by removing trees	$235,000	2006518301
MDLNWR	Replace Culverts R6XX, DM	$32,000	95106891
MDLNWR	Replace Cattle Guards R6XX, DM	$45,000	2006554796
MDLNWR	Rehab Trail R6XX, DM	$58,000	01117719
MDLNWR	Repair Lamesteer dam R612 DMFP	$655,000	90109868
MDLNWR	Repair Lamesteer WCS	$235,000	2006519022
MDLNWR	Replace 5 miles of fence R611 DMFP	$34,000	91106905
MDLNWR	Replace Boundary Fence R6XX, DM	$155,000	93106906
MDLNWR	Replace deteriorating windows	est. needed	2006518618
MDLNWR	Rehab quarters by replacing septic system R608 DMFP	$21,000	2006553681
MDLNWR	Rehab Basement and Attic R6XX, DM	$47,000	93106879
MDLNWR	Replace 1934 bunkhouse R612 DMFP	$521,000	93106883
MDLNWR	Replace lawn shed R6 DMRP	$10,000	02120719
MDLNWR	Replace Storage Building R6XX, DM	$39,000	95106895
MDLNWR	Replace worn dam #1 R6 DMRP	$1,039,000	97109869
MDLNWR	Replace 3 48" metal screwgates on Dam #1 R609 DMFP	$235,000	2006553684
MDLNWR	Rehab Canal Banks R6XX, DM	$495,000	90106876
MDLNWR	Rehab Sayer Bay water control structure R612 DMFP	$41,000	94106886
MDLNWR	Rehabilitate Canals R6XX, DM	$30,000	2007721033
MDLNWR	Rehabilitate Canals R6XX, DM	$200,000	90106874
MDLNWR	Rehab Dam as per Dam Report R6 DMRH	est. needed	2006521048
MDLNWR	Rehabilitate deteriorating dike R6 DMRH	est. needed	2006518572
MDLNWR	Replace Water Control R6XX, DM	$45,000	90106877
MDLNWR	Replace non functional WCS R6 DMRP	$33,000	2006518522
MDLNWR	Replace deteriorating WCS R6 DMRP	$33,000	2006518525
MDLNWR	Rehabilitate Gaffney Canal R6 DMRH	est. needed	2006518316
MDLNWR	Rehabilitate canal R6 DMRH	est. needed	2006518547
MDLNWR	Rehabilitate dike due to severe damage R6 DMRH	est. needed	2006518310
MDLNWR	Rehabilitate Dam R610 DMFP	$385,000	96106898
	EQUIPMENT		
MDLNWR	Replace 1979 Ford Tractor/Backhoe R607 HVYEQ	$111,000.00	01117506
MDLNWR	Replace tractor mounted rotary mower R6XX, EQ	$46,000.00	00106933
MDLNWR	Replace 1988 John Deere 2955 Tractor R6XX, EQ	$87,000.00	01117484
MDLNWR	Replace 1997 Kawasaki Mule in 2007 R6XX, EQ	$54,000.00	01116952
MDLNWR	Replace 1998 Kawasaki Mule ATV in 2008 R6XX, EQ	$54,000.00	01116955
MDLNWR	Replace 1998 Arctic Cat ATV R6XX, EQ	$48,000.00	01116960
MDLNWR	Replace 1998 Arctic Cat 4x4 ATV R6XX, EQ	$48,000.00	01116961
MDLNWR	Replace 1988 Case Off-set Disc R6XX, EQ	$63,000.00	01117043
MDLNWR	Replace 1986 Lilliston Grass Drill R6XX, EQ	$57,000.00	01117045
MDLNWR	Replace 1986 Lilliston Grass Drill #2 R6XX, EQ	$57,000.00	01117048
MDLNWR	Replace 1998 Truax Native Grass Drill R6XX, EQ	$59,000.00	01117054
MDLNWR	Replace 1995 John Deere Lawn Tractor R6XX, EQ	$46,000.00	01117313
MDLNWR	Replace 1994 Skidsteer Loader R6XX, EQ	$88,000.00	01117317
MDLNWR	Replace 1994 John Deere Tractor R6XX, EQ	$46,000.00	01117318
MDLNWR	Replace 1998 Alamo Flail Mower R6XX, EQ	$62,000.00	01117319
MDLNWR	Replace 1993 Military Gorman Rupp 4" Diesel R6XX, EQ	$57,000.00	01117328
MDLNWR	Replace 1992 Pacific Wildland Firefighting R6XX, EQ	$52,000.00	01117331
MDLNWR	Replace 1997 Wajax-Pacific Firefighting R6XX, EQ	$57,000.00	01117333
MDLNWR	Replace 1998 Buffalo earth scraper R6XX, EQ	$57,000.00	01117342

Station	*Project Title*	*Cost Estimate (thousands)*	*SAMMS Work Order #*
	EQUIPMENT, cont.		
MDLNWR	Replace 1998 Snowmobile in 2008 R6XX, EQ	$48,000.00	01117344
MDLNWR	Replace 1998 Arctic Cat Snowmobile in 2008 R6XX, EQ	$48,000.00	01117346
MDLNWR	Replace 1996 High Pressure Sprayer R6XX, EQ	$54,000.00	01117354
MDLNWR	Replace 1998 4630 4x4 Fencing Tractor R6XX, EQ	$89,000.00	01117521
MDLNWR	Replace 1988 Wisconsin equipment trailer R6XX EQ	$67,000.00	01117529
MDLNWR	Replace 1998 Tree Planter for Bobcat R6XX, EQ	$54,000.00	01117534
MDLNWR	Replace 1994 Chevrolet S-350 4x4 flatbed R6XX, EQ	$72,000.00	01117665
MDLNWR	Replace 1981 IHC 4x4 Firetruck R6XX, EQ	$157,000.00	01117673
MDLNWR	Replace 1995 Ford 3/4 ton Service Truck R6XX, EQ	$69,000.00	01117677
MDLNWR	Replace 1995 Dodge Dakota 4x4 pickup R6XX, EQ	$67,000.00	01117680
MDLNWR	Replace 2000 Ford 4x4 Pickup R6XX, EQ	$67,000.00	01117683
MDLNWR	Replace 1998 Ford 4x4 truck R6XX, EQ	$67,000.00	01117685
MDLNWR	Replace 1998 Ford 4x4 Pickup R6XX, EQ	$67,000.00	01117686
MDLNWR	Replace 2001 Chevy Tahoe 4x4 Utility Truck R6XX, EQ	$72,000.00	01117687
MDLNWR	Replace 2001 Chevrolet Suburban 4x4 R6XX, EQ	$78,000.00	01117689
MDLNWR	Replace 2001 Ford 550 Diesel Firetruck R6XX, EQ	$78,000.00	01117691
MDLNWR	Replace trailered post pounder R6XX, EQ	$48,000.00	01118360
MDLNWR	Replace duel axle trailer R6XX, EQ	$78,000.00	02118686
MDLNWR	Replace Trimble GPS Unit, Model 33302-51 R6XX, EQ	$57,000.00	02121382
MDLNWR	Replace 2001 John Deere Rotary Mower R6XX, EQ	$52,000.00	02121384
MDLNWR	Replace Backup Generator R6XX, EQ	$60,000.00	02121387
MDLNWR	Replace 2002 Arctic Cat ATV R6XX, EQ	$48,000.00	02121391
MDLNWR	Replace 2002 Arctic Cat ATV in 2012 R6XX, EQ	$48,000.00	02121395
MDLNWR	Replace 2001 Panther airboat R6XX, EQ	$78,000.00	02121687
MDLNWR	Replace 2001 Mohawk Vehicle Lift R6XX, EQ	$62,000.00	02121689
MDLNWR	Replace 2002 Ford Crewcab flatbed R6XX, EQ	$72,000.00	02121691
MDLNWR	Replace 2002 Chevrolet S-10 Pickup R6XX, EQ	$59,000.00	02121692
MDLNWR	Replace 2002 pumper unit in 2012 R6XX, EQ	$57,000.00	02121693
MDLNWR	Replace 2002 Polaris 6x6 ATV R6XX, EQ	$48,000.00	02121694
MDLNWR	Replace 2002 Arctic Cat ATV in 2012 R6XX, EQ	$48,000.00	03127069
MDLNWR	Replace 2002 Travel Trailer in 2014 R6XX, EQ	$50,000.00	03127070
MDLNWR	Replace 2001Travel Trailer in 2012 R6XX, EQ	$51,000.00	03127095
MDLNWR	Replace 2003 Dodge Pickup in 2013 R6XX, EQ	$64,000.00	03127096
MDLNWR	Replace 2003 Chevrolet 4x4 Pickup R6XX, EQ	$65,000.00	03127097
MDLNWR	Replace 2003 Dodge Caravan in 2013 R6XX, EQ	$70,000.00	03127099
MDLNWR	Replace 2003 Dodge Pickup in 2015 R6XX, EQ	$64,000.00	03127100
MDLNWR	Replace 2003 Toolcat Utiltiy Loader R6XX, EQ	$74,000.00	04133255
MDLNWR	Replace a trailered avian incinerator R6XX, EQ	$57,000.00	04133256
MDLNWR	Replace 1979 Ford Tractor/Backhoe R607 HVYEQ	$111,000.00	01117506
MDLNWR	Replace tractor mounted rotary mower R6XX, EQ	$46,000.00	00106933
MDLNWR	Replace 1988 John Deere 2955 Tractor R6XX, EQ	$87,000.00	01117484
MDLNWR	Replace 1997 Kawasaki Mule in 2007 R6XX, EQ	$54,000.00	01116952
MDLNWR	Replace 1998 Kawasaki Mule ATV in 2008 R6XX, EQ	$54,000.00	01116955
MDLNWR	Replace 1998 Arctic Cat ATV R6XX, EQ	$48,000.00	01116960
MDLNWR	Replace 1998 Arctic Cat 4x4 ATV R6XX, EQ	$48,000.00	01116961
MDLNWR	Replace 1988 Case Off-set Disc R6XX, EQ	$63,000.00	01117043
MDLNWR	Replace 1986 Lilliston Grass Drill R6XX, EQ	$57,000.00	01117045
MDLNWR	Replace 1986 Lilliston Grass Drill #2 R6XX, EQ	$57,000.00	01117048

Station	*Project Title*	*Cost Estimate (thousands)*	*SAMMS Work Order #*
	CONSTRUCTION		
MDLNWR	Construct a water control structure that will allow water from Big Muddy Creek to flow into Johnson Lake WPA. Majority of cur	$115,000	98123537
MDLNWR	Construct boardwalks and wildlife blinds R6 VFE-11	$150,000	00123535
MDLNWR	Construct an Office/Environmental Education Center where Montana Highway #16 bisects the refuge. Design and install interpret	$1,535,000	97109870
	REFUGE ROADS		
MDLNWR	R6 Medicine Lake NWR RTE 900, DMRH	$176,664	2006521040
MDLNWR	Medicine Lake NWR RTE 105, DMRH	$382,536	2006516793

Appendix K

Fire Management Program

The Service has administrative responsibility including fire management for the Medicine Lake NWR Complex (complex), which covers approximately 43,450 acres in northeast Montana.

The Role of Fire

In ecosystems of the Great Plains, vegetation has evolved under periodic disturbance and defoliation from grazing, fire, drought, and floods. This periodic disturbance is what kept the ecosystem diverse and healthy while maintaining significant biodiversity for thousands of years.

Historically, natural fire and ignitions by Native American people have played an important disturbance role in many ecosystems by removing fuel accumulations, decreasing the impacts of insects and diseases, stimulating regeneration, cycling nutrients, and providing a diversity of habitats for plants and wildlife.

When fire and grazing are excluded from prairie landscapes, a build-up of thatch and the invasion of woody vegetation results increases fuel loadings. This increase in fuel loads creates the potential for severe, hard-to-control wildland fires, which threaten firefighters and public safety, as well as federal and private facilities.

However, when fire is used properly it can:

- reduce hazardous fuels build-up in both wildland-urban interface (WUI) and nonWUI areas;
- improve wildlife habitats by reducing the density of vegetation and/or changing plant species composition;
- sustain and increase biological diversity;
- improve woodlands and shrublands by reducing plant density;
- reduce susceptibility of plants to insect and disease outbreaks;
- improve quality and quantity of wildlife and livestock forage.

Wildland Fire Management Policy and Guidance

In 2001, the Secretaries of the Interior and Agriculture approved an update of the 1995 "Federal Fire Policy." The 2001 "Federal Wildland Fire Management Policy" directs federal agencies to achieve a balance between fire suppression to protect life, property, and resources, and fire use to regulate fuels and maintain healthy ecosystems. It also directs agencies to use the appropriate management response for all wildland fire regardless of the ignition source.

This policy provides 9 guiding principles that are fundamental to the success of the fire management program.

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildland fires as an ecological process and natural change agent will be incorporated into the planning process.
- Fire management plans (FMPs), programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities.
- Fire management programs and activities are economically viable, on the basis of values to be protected, costs, and land and resource management objectives.
- FMPs and activities are based on the best available science.
- FMPs and activities incorporate public health and environmental quality considerations.
- Federal, state, tribal, local, interagency, and international coordination and cooperation are essential.
- Standardization of policies and procedures among federal agencies is an ongoing objective.

The fire management considerations, guidance, and direction should be addressed in the land-use resource management plans (for example, the CCP). The FMP is a step-down plan derived from the land-use plans and habitat plans, with more detail on fire suppression, fire use, and fire management activities.

Management Direction

The Medicine Lake NWR Complex will protect life, property, and other resources from wildland fire by safely suppressing all wildfires. Prescribed fire

and manual and mechanical fuel treatments will be used in an ecosystem context to protect federal and private property, and for habitat management purposes. Fuel reduction activities will be applied in collaboration with federal, state, private, and nongovernmental organizations partners.

Fuel treatments will be applied depending on the priorities established in the goals and strategies outlined in the U.S. Fish & Wildlife Service National Wildlife Refuge System Wildland Fire Management Program Strategic Plan 2003-2010 and the region 6 Refuges' Regional Priorities (Fiscal Year 2007 - 2011). For WUI treatments, areas with community wildfire protection plans (CWPPs) and communities at risk (CAR) will be the primary focus. The 2 communities at risk located near the refuges that were identified in the Federal Register (August 17, 2001) were Froid and Medicine Lake. The development of CWPPs is an ongoing process. The CWPP for the City of Medicine Lake is being developed, and the CWPP for the City of Froid will be completed in the near future.

All aspects of the fire management program will be conducted in a manner consistent with applicable laws, policies, and regulations. The Medicine Lake NWR Complex will maintain an FMP to accomplish the fire management goals (see Fire Management Goals). Prescribed fire, and manual and mechanical fuel treatments will be applied in a scientific way, under selected weather and environmental conditions.

Fire Management Goals

The goals and strategies of the National Wildlife Refuge System Wildland Fire Management Program Strategic Plan are consistent with Department of Interior (DOI) and U.S Forest Service policies, National Fire Plan direction, the President's Healthy Forest Initiative, the 10-Year Comprehensive Strategy and Implementation Plan, National Wildfire Coordinating Group (NWCG) Guidelines, initiatives of the Wildland Fire Leadership Council, and Interagency Standards for Fire and Aviation Operations.

The region 6 NWRS Priorities FY07 - 11 are consistent with the refuge's vision statement: "to maintain and improve the biological integrity of the region, ensure the ecological condition of the region's public and private lands are better understood, and endorse sustainable use of habitats that support native wildlife and people's livelihoods."

The fire management goals for the complex are to use prescribed fire, and manual and mechanical treatments to:

1) reduce the threat to life and property through hazardous fuels reduction treatments; and

2) meet the habitat goals and objectives identified in this CCP.

Fire Management Objective

The objective of the fire management program is to use prescribed fire, and manual and mechanical treatment methods to reduce unnatural fuel loads and attempt to return to a natural burn cycle of 3 to 7 years. This will require treating between 2,000 and 5,000 acres annually over a 5-year average. This fire management cycle will keep fuel loads at safer levels and enhance plant vigor and health over time.

Strategies

The refuges will use strategies and tactics that consider public and firefighter safety as well as resource values at risk. Wildland fire suppression, prescribed fire methods, manual and mechanical means, timing, and monitoring are described in more detail within the step-down FMP.

All management actions will use prescribed fire, manual and/or mechanical means to reduce hazardous fuels, restore and maintain desired habitat conditions, control nonnative vegetation, and control the spread of woody vegetation within the diverse ecosystem habitats. The fuels treatment program will be outlined in the FMP for the refuge. Prescribed fire burn plans will be developed for specific sites, following the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide (2006) template.

Prescribed fire temporarily reduces air quality by diminishing visibility and releasing components through combustion. The refuges will meet the Clean Air Act emission standards by adhering to the Montana/Idaho Smoke Management Program requirements during all prescribed fire activities.

Fire Management Organization, Contacts, and Cooperation

Qualified fire management technical oversight for the refuges will be established by region 6 of the Service, using the fire management district approach. Under this approach, fire management staff will be determined by established modeling systems based on the fire management workload of a group of refuges, and possibly interagency partners.

The fire management workload consists of historical wildland fire suppression activities, as well as historical and planned fuels treatments.

Depending on budgets, fire management staffing and support equipment may be located at the administration station or at other refuges within the district, and will be shared among all units. Fire management activities will be conducted in a coordinated and collaborative manner with federal and nonfederal partners.

Upon approval of this CCP, a new FMP will be developed for the complex. The FMP may be done as:

1) a FMP that covers each refuge and wetland management district;

2) a FMP that covers the refuges within this CCP;

3) a FMP that covers the fire management district; or

4) an interagency FMP.

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