

Glossary

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. It is a process that uses feedback from research, monitoring, and evaluation of management actions to support or modify objectives and strategies at all planning levels. It is also a process in which policy decisions are implemented within a framework of scientifically driven experiments to test predictions and assumptions inherent in management plans. Analysis of results helps managers determine whether current management should continue as is or whether it should be modified to achieve desired conditions.

Administration Act—National Wildlife Refuge System Administration Act of 1966.

alluvial fan—A sedimentary deposit where a fast-flowing stream has flown into a flatter plain.

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

amphibian—A class of cold-blooded vertebrates that includes frogs, toads, and salamanders.

anastomosis—Reconnection of two streams that formerly had been separated.

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

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.

breeding habitat—Habitat used by migratory birds or other animals during the breeding season.

canopy—A layer of foliage, generally the uppermost layer, in a vegetative stand; midlevel or understory vegetation in multilayered stands. Canopy closure (also canopy cover) is an estimate of the amount of overhead vegetative cover.

CCP—See comprehensive conservation plan.

CFR—See Code of Federal Regulations.

cfs—Cubic feet per second.

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.

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 National Wildlife 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 National Wildlife Refuge System, and to meet other relevant mandates (Draft Service Manual 602 FW 1.5).

concern—See issue.

conservation—Management of natural resources to prevent loss or waste. Management actions may include preservation, restoration, and enhancement.

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

cultural resources—The remains of sites, structures, or objects used by people in the past.

dense nesting cover—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 one to two species of wheatgrass, alfalfa, and sweetclover.

disturbance—Significant alteration of habitat structure or composition. May be natural (for example,

fire) or human-caused events (for example, timber harvest).

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

duck, dabbling—Duck that mainly feeds on vegetable matter by upending on the water surface, or by grazing, and only rarely dives.

duck, diving—Duck that mainly feeds by diving through the water.

EA—See environmental assessment.

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 U.S. Fish and Wildlife 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.

ecotype—A subspecies or race that is especially adapted to a particular set of environmental conditions.

EIS—Environmental impact statement.

Elderhostel—A not-for-profit organization established in 1975 that allows senior citizens to travel and take educational programs in the United States around the world.

emergent—A plant rooted in shallow water and having most of the vegetative growth above water. Examples include 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.

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 finding of no significant impact (40 CFR 1508.9).

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

Federal trust resource—A trust is something managed by one 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.

fee title—Acquisition of most or all of the rights to a tract of land.

Federal land—Public land owned by the Federal Government, including lands such as national forests, national parks, and national wildlife refuges.

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.

FMP—Fire management plan.

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.

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.

goal—Descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose but does not define measurable units (Draft Service Manual 620 FW 1.5).

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

head cuts—abrupt changes in streambed elevation.

hemi-marsh—The emergent phase of a seasonal or semipermanent wetland where the ratio of open-water area to emergent vegetation cover is about 50:50, and vegetation and open-water areas are highly interspersed.

- hydrogeomorphic methodology (HGM)**—An interdisciplinary science that focuses on the interaction and linkage of hydrologic processes with landforms or earth materials and the interaction of geomorphic processes with surface and subsurface water in temporal and spatial dimensions.
- hydroperiod**—Period of time during which soils, waterbodies, and sites are wet.
- 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 one another.
- Improvement Act**—See National Wildlife Refuge System Improvement Act of 1997.
- indigenous**—Originating or occurring naturally in a particular place.
- integrated pest management (IPM)**—Methods of managing undesirable species such as invasive plants; includes education, prevention, physical or mechanical methods of control, biological control, responsible chemical use, and cultural methods.
- interseed**—Mechanical seeding of one or several plant species into existing stands of established vegetation.
- 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 species**—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**—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).
- level ditching**—Ditches developed to improve water distribution, provide open water for waterfowl, furnish nesting islands, and encourage aquatic vegetation for waterfowl and furbearers. The material removed and piled along the ditch edge provides nesting and loafing sites for waterfowl. The production of waterfowl from level ditching is dependent upon the suitability of the wetland.
- management alternative**—See alternative.
- management plan**—Plan that guides future land management practices on a tract of land.
- migration**—Regular extensive, seasonal movements of birds between their breeding regions and their wintering regions; to pass usually periodically from one region or climate to another for feeding or breeding.
- migratory bird**—Bird species that 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.
- 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 six 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 chance that a nest will hatch at least one egg.
- nongovernmental organization**—Any group that is not composed of Federal, State, tribal, county, city, town, local, or other governmental entities.
- North American Waterfowl Management Plan**—The North American Waterfowl Management Plan,

signed in 1986, recognizes that the recovery and perpetuation of waterfowl populations depends on restoring wetlands and associated ecosystems throughout the United States and Canada. It established cooperative international efforts and joint ventures comprised of individuals; corporations; conservation organizations; and local, State, Provincial, and Federal agencies drawn together by common conservation objectives.

noxious weed—Any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry, or other interests of agriculture, irrigation, navigation, natural resources of the United States, public health, or the environment.

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 provides 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).

obligate—Necessary for survival.

palustrine—Relating to a system of inland, nontidal wetlands characterized by the presence of trees, shrubs, and emergent vegetation (vegetation that is rooted below water but grows above the surface). Palustrine wetlands range from permanently saturated or flooded land to land that is wet only seasonally.

Partners in Flight program—Western Hemisphere program designed to conserve Neotropical migratory birds and officially endorsed by numerous Federal and State agencies and nongovernmental organizations; also known as the Neotropical Migratory Bird Conservation Program.

partnership—Contract or agreement entered into by two or more individuals, groups of individuals, organizations or agencies in which each agrees to furnish a part of the capital or some in-kind service, such as labor, for a mutually beneficial enterprise.

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.

planning team—Team that prepares the comprehensive conservation plan. Planning teams are interdisciplinary in membership and function. A team generally consists of a planning team leader; refuge manager and staff biologist; staff specialists or other representatives of Service programs,

ecosystems or regional offices; and State partner wildlife agencies, as appropriate.

planning team leader—Typically a professional planner or natural resource specialist knowledgeable of the requirements of National Environmental Policy Act and who has planning experience. The planning team leader manages the refuge planning process and ensures compliance with applicable regulatory and policy requirements.

planning unit—Single refuge, an ecologically or administratively related refuge complex, or distinct unit of a refuge. The planning unit also may include lands currently outside refuge boundaries.

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.

preferred alternative—The selected final alternative that becomes the final plan. It can be the proposed action, the no-action alternative, another alternative, or a combination of actions or alternatives discussed in the draft comprehensive conservation plan and National Environmental Policy Act document.

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 one or more objectives of habitat management, wildlife management, or hazard reduction.

pristine—Typical of original conditions.

private land—Land that is owned by a private individual, a group of individuals, or a nongovernmental organization.

private landowner—Any individual, group of individuals, or nongovernmental organization that owns land.

private organization—Any nongovernmental organization.

priority public use—One of six 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 National Wildlife 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;

- Native American tribes; and foreign nations. It may include anyone outside the core planning team. It includes those who may or may not have expressed an interest in Service issues and those who do or do not realize that Service decisions may affect them.
- public involvement or scoping**—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, falcon, or vulture that feeds wholly or chiefly on meat taken by hunting or on carrion (dead carcasses).
- refuge purpose**—See purpose of the refuge.
- Refuge System**—See National Wildlife Refuge System.
- refuge use**—Any activity on a refuge, except administrative or law enforcement activity, carried out by or under the direction of an authorized Service employee.
- resident species or wildlife**—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 corridor**—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.
- runoff**—Water from rain, melted snow, or agricultural or landscape irrigation that flows over the land surface into a waterbody.
- 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.
- 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 snipe, that frequent the seashore or mud flat areas.
- 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. Species that (1) are documented or have apparent population declines, (2) are small or restricted populations, or (3) depend on restricted or vulnerable habitats.
- stand**—Any homogenous area of vegetation with more or less uniform soils, landform, and vegetation. Typically used to refer to forested areas.
- stepdown 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**—Vascular or nonvascular hydrophyte, either rooted or nonrooted, that lies entirely beneath the water surface, except for flowering parts in some species.
- temporal**—Of or relating to time.
- 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.
- tile drainage**—In agricultural, a method of draining the soil subsurface to reduce moisture.
- trust resource**—See Federal trust resource.
- trust species**—See Federal trust species.
- U.S. Fish and Wildlife Service (Service or USFWS)**—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 that comprises 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.

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

U.S. Geological Survey—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.

ungulate—A hoofed mammal.

vision statement—A concise statement of the desired future condition of the planning unit, based primarily on the National Wildlife 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; includes egrets, great blue herons, black-crowned night-herons, and bitterns.

waterbird—Birds dependent upon aquatic habitats to complete portions of their life cycles (for example, breeding).

waterfowl—A category of birds that includes ducks, geese, and swans.

watershed—Geographic area within which water drains into a particular river, stream or body of water. A watershed includes both the land and the body of water into which the land drains.

wetland—Land transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water.

WG—Wage Grade Schedule (pay rate schedule for certain Federal positions).

wildland fire—A free-burning fire requiring a suppression response; all fire other than prescribed fire that occurs on wildlands (Service Manual 621 FW 1.7).

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 six priority general public uses of the Refuge System.

wildlife management—Practice of manipulating wildlife populations either directly through regulating the numbers, ages, and sex ratios harvested, or indirectly by providing favorable habitat conditions and alleviating limiting factors.

woodland—Open stands of trees with crowns not usually touching, generally forming 25–60 percent cover.

Appendix A

Key Legislation and Policy

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

A.1 National Wildlife Refuge System

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

(National Wildlife Refuge System Improvement Act of 1997)

GOALS

- To fulfill our statutory duty to achieve refuge purpose(s) and further the Refuge 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 four guiding principles for management and general public use of the Refuge System established by Executive Order No. 12996 (1996):

- **Public Use**—The Refuge System provides important opportunities for compatible wildlife-dependent recreational activities involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation.
- **Habitat**—Fish and wildlife will not prosper without high-quality habitat and without fish and wildlife, traditional uses of refuges cannot be sustained. The Refuge System will continue to conserve and enhance the quality and diversity of fish and wildlife habitat within refuges.
- **Partnerships**—America's sportsmen and women were the first partners who insisted on protecting valuable wildlife habitat within wildlife refuges. Conservation partnerships with other Federal agencies, State agencies, tribes, organizations, industry, and the 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.

A.2 Legal and Policy Guidance

Management actions on national wildlife refuges and wetland management districts are circumscribed by many mandates including laws and Executive orders. Regulations that affect refuge and district management the most are listed below.

American Indian Religious Freedom Act (1978)—Directed 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)—Prohibited discrimination in public accommodations and services.

Antiquities Act (1906)—Authorized 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)—Directed the preservation of historic and archaeological data in Federal construction projects.

Archaeological Resources Protection Act (1979), as amended—Protected 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)—Required federally owned, leased, or funded buildings and facilities to be accessible to persons with disabilities.

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

Section 404 (of the Clean Water Act)—Authorized the Secretary of the Army, acting through the Chief of Engineers, to issue permits, after notice and opportunity for public hearing, for discharge of dredged or fill material into navigable waters of the United States, including wetlands, at specified disposal sites. Required selection of disposal sites be in accordance with guidelines developed by the Administrator of the Environmental Protection Agency in conjunction with the Secretary of the Army. Stated that the Administrator can prohibit or restrict use of any defined area as a disposal site whenever she or he determines, after notice and opportunity for public hearings, that discharge of such materials into such areas will have an unacceptable adverse effect on municipal water supplies, shellfish beds, fishery areas, wildlife, or recreational areas.

Dingell–Johnson Act (1950)—Authorized the Secretary of the Interior to provide financial assistance for State fish restoration and management plans and projects. Financed by excise taxes paid by manufacturers of rods, reels, and other fishing tackle. Known as the Federal Aid in Sport Fish Restoration Act.

Emergency Wetlands Resources Act (1986)—Promoted wetland conservation for the public benefit to help fulfill international obligations in various migratory bird treaties and conventions. Authorized the purchase of wetlands with Land and Water Conservation Fund monies.

Endangered Species Act (1973), as amended—Required all Federal agencies to carry out programs for the conservation of threatened and endangered species.

Environmental Education Act of 1990—Established the Office of Environmental Education within the Environmental Protection Agency to develop and administer a Federal environmental education program. Responsibilities of the office include developing and supporting programs to improve understanding of the natural and developed environment and the

relationships between humans and their environment, supporting the dissemination of educational materials, developing and supporting training programs and environmental education seminars, managing a Federal grant program, and administering an environmental internship and fellowship program. Required the office to develop and support environmental programs in consultation with other Federal natural resource management agencies including the Service.

Executive Order No. 11644, Use of Off-road Vehicles on Public Lands (1972)—Provided policy and procedures for regulating off-road vehicles.

Executive Order No. 11988, Floodplain Management (1977)—Required 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. Prevented Federal agencies from contributing to the “adverse impacts associated with occupancy and modification of floodplains” and the “direct or indirect support of floodplain development.” In the course of fulfilling their respective authorities, Federal agencies “shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains.”

Executive Order No. 11990, Protection of Wetlands (1977)—Directs Federal agencies to (1) minimize destruction, loss, or degradation of wetlands and (2) preserve and enhance the natural and beneficial values of wetlands when a practical alternative exists.

Executive Order No. 12996, Management and General Public Use of the National Wildlife Refuge System (1996)—Defined the mission, purpose, and priority public uses of the Refuge System; presented four principles to guide management of the Refuge System.

Executive Order No. 13007, Indian Sacred Sites (1996)—Directed 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.

Executive Order No. 13443, Facilitation of Hunting Heritage and Wildlife Conservation (2007)—Directed Federal agencies that have programs and activities that have a measurable effect on public land management, outdoor recreation, and wildlife management, including the Department of the Interior and the Department of Agriculture, to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat.

Federal Noxious Weed Act (1990)—Required 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)—Required the preservation of evidence of the Government's organization, functions, policies, decisions, operations, and activities, as well as basic historical and other information.

Federal Water Pollution Control Act of 1972—Required any applicant for a Federal license or permit to conduct any activity that may result in a discharge into navigable waters to obtain a certification from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over navigable waters at the point where the discharge originates or will originate, that the discharge will comply with applicable effluent limitations and water quality standards. Required that a certification obtained for construction of any facility must also pertain to subsequent operation of the facility.

Fish and Wildlife Act (1956)—Directed the Secretary of the Interior to develop the policies and procedures necessary for carrying out fish and wildlife laws and to research and report on fish and wildlife matters. Established the U.S. Fish and Wildlife Service within the Department of the Interior, as well as the positions of Assistant Secretary for Fish and Wildlife and Director of the Service.

Fish and Wildlife Coordination Act (1958)—Allowed the U.S. Fish and Wildlife Service to enter into agreements with private landowners for wildlife management purposes. Also required consultation with the U.S. Fish and Wildlife Service and State fish and wildlife agencies where the waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted, or otherwise controlled or modified by any agency under a Federal permit or license. Consultation is to be undertaken for the purpose of preventing loss of and damage to wildlife resources.

Fish and Wildlife Improvement Act of 1978—Improved the administration of fish and wildlife programs and amends several earlier laws including the Refuge Recreation Act, the National Wildlife Refuge System Administration Act, and the Fish and Wildlife Act of 1956. Authorized the Secretary to accept gifts and bequests of real and personal property on behalf of the United States. Authorized the use of volunteers for Service projects and appropriations to carry out volunteer programs.

Historic Sites, Buildings and Antiquities Act (1935), known as the Historic Sites Act, as amended (1965)—Declared

a national policy to preserve historic sites and objects of national significance, including those located at refuges and districts. Provided procedures for designation, acquisition, administration, and protection of such sites and for designation of national historic and natural landmarks.

Junior Duck Stamp Conservation and Design Act (1994)—Directed the Secretary of the Interior to create a junior duck stamp and to license and market the stamp and the stamp design. The proceeds from these efforts are used to support conservation education awards and scholarships. In 2000, Congress preauthorized the Junior Duck Stamp Conservation and Design Program Act for another five years, and expanded the conservation education program throughout the United States and its territories. Since that time, all 50 states, the District of Columbia, American Samoa, and the U.S. Virgin Islands have joined the program.

Land and Water Conservation Fund Act of 1965—Provided money from leasing bonuses, production royalties, and rental revenues for offshore oil, gas, and sulphur extraction to the Bureau of Land Management, the USDA Forest Service, the U.S. Fish and Wildlife Service, and State and local agencies for purchase of lands for parks, open space, and outdoor recreation.

Migratory Bird Conservation Act (1929)—Established 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)—Authorized the opening of part of a refuge to waterfowl hunting and requires each waterfowl hunter 16 years of age or older to possess a valid Federal hunting stamp. Receipts from the sale of the stamp are deposited in a special Treasury account known as the Migratory Bird Conservation Fund and are not subject to appropriations.

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

National Environmental Policy Act (1969)—Required 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. Required Federal agencies to integrate this act with other planning requirements and prepare appropriate documents to facilitate better environmental decisionmaking (40 CFR 1500).

National Historic Preservation Act (1966), as amended—Established 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)—Defined the National Wildlife Refuge System and authorized 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—Set the mission and administrative policy for all refuges in the National Wildlife Refuge System. Mandated comprehensive conservation planning for all units of the Refuge System (amendment to the National Wildlife Refuge System Administration Act).

National Wildlife Refuge System Volunteer and Community Partnership Enhancement Act of 1998—Encouraged the use of volunteers to help the Service in the management of refuges within the Refuge System. Facilitated partnerships between the Refuge System and non-Federal entities to promote public awareness of the resources of the Refuge System and public participation in the conservation of those resources. Encouraged donations and other contributions by persons and organizations to the Refuge System.

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

North American Wetlands Conservation Act (1989)—Provided for the conservation of North American wetland ecosystems, waterfowl and other migratory birds, fish, and wildlife that depend on such habitats.

Pittman–Robertson Act (1937)—Taxed the purchase of ammunition and firearms and earmarks the proceeds to be distributed to the States for wildlife restoration. Known as the Federal Aid in Wildlife Restoration Act or P–R Act.

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

Refuge Revenue Sharing Act, Section 401 (1935)—Provided for payments to counties in lieu of taxes using revenues derived from the sale of products from refuges.

Refuge Trespass Act of June 28, 1906—Provided the first Federal protection for wildlife at national wildlife refuges. Made it unlawful to hunt, trap, capture, willfully disturb, or kill any bird or wild animal, or take or destroy the eggs of any such birds, on any lands of the United States set apart or reserved as refuges or breeding grounds for such birds or animals by any law, proclamation, or Executive order, except under rules and regulations of the Secretary. Protected Government property on such lands.

Rehabilitation Act (1973)—Required 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.

Transfer of Certain Real Property for Wildlife Conservation Purposes Act of 1948—Provided that, upon termination by the Administrator of the General Services Administration, real property no longer needed by a Federal agency can be transferred without reimbursement to the Secretary of the Interior if the land has particular value for migratory birds or to a State agency for other wildlife conservation purposes.

U.S. Department of the Interior Order No. 3226 (2001)—Directed bureaus and offices of the Department to analyze the potential effects on climate change when undertaking long-range planning, setting priorities for scientific research, and making major decisions about use of resources.

Volunteer and Community Partnership Enhancement Act (1998)—Encouraged the use of volunteers to help in the management of refuges within the Refuge System. Facilitated partnerships between the Refuge System and non-Federal entities to promote public awareness of the resources of the Refuge System and public participation in the conservation of the resources and encouraged donations and other contributions.

Wilderness Act of 1964—Directed the Secretary of the Interior, within 10 years, to review every roadless area of 5,000 or more acres and every roadless island (regardless of size) within the Refuge System and National Park Service for inclusion in the National Wilderness Preservation System.

Appendix B

List of Preparers, Consultation, and Coordination

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

<i>Team member</i>	<i>Position</i>	<i>Work unit</i>
Mike Artmann	Wildlife biologist and GIS specialist	U.S. Fish and Wildlife Service, Region 6, Division of Refuge Planning, Lakewood, Colorado
Bob Danley	Outdoor recreation planner	Lee Metcalf National Wildlife Refuge, Stevensville, Montana
Teresa Giffen	Editor	ICF International, Sacramento, California
Deborah Goslin	Biological science technician	Lee Metcalf National Wildlife Refuge, Stevensville, Montana
Erin Holmes	Refuge manager	Tualatin National Wildlife Refuge, Sherwood, Oregon (transferred April 2011)
Laura King	Refuge program specialist (planning team leader)	U.S. Fish and Wildlife Service, Region 6, Division of Refuge Planning, Lakewood, Colorado
Tom Reed	Refuge manager	Lee Metcalf National Wildlife Refuge, Stevensville, Montana

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

<i>Contributor</i>	<i>Position</i>	<i>Work unit</i>
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Todd Graham	Biologist and owner	Aeroscene Land Logic, Bozeman, Montana
Louis Hartjes	Fire management officer	Lee Metcalf National Wildlife Refuge, Stevensville, Montana

<i>Contributor</i>	<i>Position</i>	<i>Work unit</i>
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Dean Vaughan	Private lands biologist	U.S. Fish and Wildlife Service, Partners for Fish and Wildlife, Moiese, Montana
George Wasser	Teacher	Stevensville Public Schools, Stevensville, Montana
Germaine White	Information and education specialist	Natural Resources Department, Confederated Salish and Kootenai Tribes Pablo, Montana

Appendix C

Public Involvement

A notice of intent to prepare the draft comprehensive conservation plan (CCP) and environmental assessment (EA) was published in the Federal Register on September 30, 2009. The Service compiled a mailing list of more than 270 names during preplanning. The list included private citizens; local, regional, and State government representatives and legislators; other Federal agencies; and interested organizations. Public scoping was announced through news releases and a mailed planning update; it provided information on the history of the refuge, an overview of the CCP process, and invitations to two public scoping meetings. The planning update included a form for providing written comments. Emails were also accepted at the refuge's email address: leemetcalf@fws.gov.

Two public meetings were held in the communities of Stevensville and Missoula, Montana on September 29 and October 1, 2009, respectively. There were 12 attendees, primarily local citizens and staff from Senator Max Baucus's local office. Following a presentation about the refuge and an overview of the CCP and National Environmental Policy Act processes, attendees were encouraged to ask questions and offer comments. Verbal comments were recorded, and each attendee was given a comment form to submit additional thoughts or questions in writing.

All written comments were due November 13, 2009; 20 emails and letters were received in addition to the verbal comments recorded at the public scoping meeting. All comments were shared with the planning team and considered throughout the planning process. In addition to 200 private individuals, the following organizations and agencies were given the opportunity to provide comments about this planning process.

C.1 Federal Officials

U.S. Representative Dennis Rehberg, Washington, DC
U.S. Senator Jon Tester, Washington, DC
U.S. Senator Max Baucus, Washington, DC

C.2 Federal Agencies

Bitterroot National Forest, USDA Forest Service,
Hamilton, Montana

Lewis and Clark National Trail, National Park Service, Omaha, Nebraska
National Park Service, Denver, Colorado
Northern Rocky Mountain Science Center, Missoula, Montana
USDA Forest Service, Bitterroot National Forest, Stevensville, Montana
USDA Forest Service, Regional Office and Lolo National Forest, Missoula, Montana

C.3 Tribal Officials

Confederated Salish and Kootenai Tribal Council, Pablo, Montana
Nez Perce Tribal Executive Council, Lapwai, Idaho

C.4 State Officials

Governor Brian Schweitzer, Helena, Montana
Representative Ray Hawk, Florence, Montana
Representative Gary MacLaren, Victor, Montana
Representative Bob Lake, Hamilton, Montana
Senator Rick Laible, Darby, Montana
Senator Jim Shockley, Victor, Montana

C.5 State Agencies

Travelers Rest State Park, Lolo, Montana
Montana Department of Environmental Quality, Helena, Montana
Montana Fish, Wildlife & Parks, Missoula, Montana
Montana Fish, Wildlife & Parks, Hamilton, Montana
Montana Fish, Wildlife & Parks, Helena, Montana
Montana Historical Society, Helena, Montana
Montana State Historic Preservation Office, Helena, Montana
Ravalli County Extension Office, Hamilton, Montana
Ravalli County Weed District, Stevensville, Montana

C.6 Local Government

Mayor of Stevensville, Stevensville, Montana
Ravalli County Commissioners, Hamilton, Montana

C.7 Organizations

American Bird Conservancy, The Plains, Virginia
American Bird Conservancy, Kalispell, Montana
American Legion Post #94, Stevensville, Montana
Audubon Society, Helena, Montana
Audubon Society, Hamilton, Montana
Audubon Society, Missoula, Montana
Audubon Society, Washington, DC
Bitterroot Water Forum, Hamilton, Montana
Defenders of Wildlife, Washington, DC
Ducks Unlimited, Clancy, Montana
Ducks Unlimited, Memphis, Tennessee
Family of Peter Whaley, Missoula, Montana
Five Valleys Audubon Society, Missoula, Montana
Friends of Lee Metcalf National Wildlife Refuge,
Stevensville, Montana
Institute for Bird Populations, Point Reyes Station,
California
Isaak Walton League, Gaithersburg, Maryland
Missoula Convention & Visitors Bureau, Missoula,
Montana
Montana Conservation Science Institute, Missoula,
Montana
Montana Natural Heritage Program, Helena, Montana
Montana Natural Heritage Program, Missoula, Montana
Montana Natural History Center, Missoula, Montana
Montana Preservation Alliance, Helena, Montana
National Trappers Association, New Martinsville,
West Virginia
National Wildlife Federation, Reston, Virginia and
Helena, Montana
National Wildlife Refuge Association, Washington, DC
The Nature Conservancy, Helena, Montana

Ravalli County Fish & Wildlife Association, Hamil-
ton, Montana
Ravenworks Ecology, Stevensville, Montana
Sierra Club, San Francisco, California
Stevensville Historical Museum, Stevensville, Montana
Stevensville Main Street Association, Stevensville,
Montana
The Teller, Corvallis, Montana
Watershed Education Network, Missoula, Montana
The Humane Society, Washington, DC
The Wilderness Society, Washington, DC
Trout Unlimited, Missoula, Montana
The Wildlife Society, Townsend, Montana

C.8 Universities and Schools

Colorado State University Libraries, Fort Collins,
Colorado
Northwestern University, Evanston, Illinois
University of Montana, Missoula, Montana
Stevensville Public Schools, Stevensville, Montana

C.9 Media

Billings Gazette Online, Billings, Montana
The Billings Outpost, Billings, Montana
Bitterroot Star, Stevensville, Montana
Great Falls Tribune, Great Falls, Montana
The Missoulian, Missoula, Montana
Montana Public Radio, Missoula, Montana
Ravalli Republic, Hamilton, Montana
Stonydale Press, Stevensville, Montana
Yellowstone Public Radio, Billings, Montana

C.10 Individuals

200 private individuals

Appendix D

Draft Compatibility Determinations

D.1 Refuge Information

REFUGE NAME

Lee Metcalf National Wildlife Refuge

DATE ESTABLISHED

February 4, 1964

ESTABLISHING AND ACQUISITION AUTHORITIES

Migratory Bird Conservation Act (16 United States Code [U.S.C.] 661–667e)

Refuge Recreation Act (16 U.S.C. 460k–1)

State of Montana approval under provisions of Public Law 87–383 (75 Stat. 813)

REFUGE PURPOSES

“for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. 715d (Migratory Bird Conservation Act)

“suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species ...” 16 U.S.C. 460k–1

“the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 U.S.C. 460k–2 (Refuge Recreation Act, as amended (16 U.S.C. 460k–460k–4))

D.2 National Wildlife Refuge System Mission

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

D.3 Description of Uses

The following uses are evaluated for compatibility within the Lee Metcalf National Wildlife Refuge:

- hunting
- fishing
- wildlife observation and noncommercial photography
- environmental education and interpretation
- commercial filming, audio recording, and still photography
- cooperative farming and prescriptive grazing
- research and monitoring

HUNTING

Hunting is one of six wildlife-dependent priority public uses specified in the Improvement Act. Hunting occurs in two forms on the refuge: waterfowl (by shotgun) and white-tailed deer (by bow). In addition to the site-specific regulations mentioned below, State hunting regulations would apply to all Lee Metcalf Refuge lands open to hunting. Hunters may only possess and use U.S. Fish and Wildlife Service (Service)–approved, nontoxic shot shells on the refuge, and vehicle travel and parking is restricted to public roads, pulloffs, and parking areas. The refuge Web site and public use brochures provide guidance on site-specific regulations. The general hunting regulations are available from Montana Fish, Wildlife & Parks (MFWP).

Waterfowl hunting is restricted to the southeast part of the refuge. This 628-acre area of the refuge encompasses five wetlands and is closed to the general public. Waterfowl hunters access this area from one parking area. According to 2005–2009 records, fourteen blinds together accommodate an average of 965 visits per year. Waterfowl hunting is conducted during the State hunting season, which usually occurs from the first week of October through first week of January. Waterfowl hunting is available on a first-come, first-served basis except for opening weekend, during which blinds are allocated by drawing.

Archery hunters access 2,275 acres of refuge lands from five archery hunting access parking areas. According to 2005–2009 records, archery hunting for white-tailed deer draws an average of 1,030 visits annually and an average of 33 deer are harvested each

year. Deer hunting season starts in early September and ends the second week in January. In addition to providing a compatible recreational activity, deer hunting assists the refuge in managing overbrowsing of native habitats.

The comprehensive conservation plan (CCP) for the Lee Metcalf National Wildlife Refuge proposes to continue the hunting uses described above.

Availability of Resources. Hunting would be administered by the refuge staff. Currently, refuge staff does not include a dedicated or collateral duty law enforcement officer or a refuge biologist to monitor deer populations. It is anticipated that the refuge would rely on the zone law enforcement officer or staff from other refuges. Also, the regional inventorying and monitoring biologist would assist with analysis and trend monitoring.

Infrastructure in place on the refuge includes the following:

- hunt information kiosk
- five parking area and check-in stations
- 14 waterfowl blinds (2 are universally accessible)

Anticipated Impacts of Use. The hunting program on Service lands would continue to provide hunters ample quality hunting opportunities without materially detracting from the mission and goals of the National Wildlife Refuge System (Refuge System) or from the establishing purposes of refuge lands. Public use brochures and the refuge Web site would be kept up-to-date and made readily available to hunters. Hunter success and satisfaction would continue to be monitored using the hunter registration kiosk sign-in sheet along with random contacts with hunters in the field and in the refuge office.

The National Wildlife Refuge System Act of 1966, other laws, and the Service's policy permit hunting on a national wildlife refuge when it is compatible with the purposes for which the refuge was established and acquired. Habitat that normally supports healthy wildlife populations produces harvestable surpluses that are a renewable resource. As practiced on Lee Metcalf Refuge, hunting does not pose a threat to the wildlife populations and, in some instances, is necessary for sound wildlife management. However, by its very nature, hunting creates a disturbance to wildlife and directly affects the individual animal being hunted. Nonetheless, it is well recognized that this activity has given many people a deeper appreciation of wildlife and a better understanding of the importance of conserving their habitat, which has ultimately contributed to the Refuge System mission. Furthermore, despite the potential impacts of hunting, a goal of Lee Metcalf Refuge is to provide opportunities for quality wildlife-dependent recreation. Hunting would be designed and

monitored to offer a safe and quality program and to keep adverse effects within acceptable limits.

Although hunting directly affects the hunted animal and may indirectly disturb other animals, limits on hunting access and harvest would ensure that populations do not fall to unsustainable levels. Closed areas on the refuge provide sanctuary to migratory birds during the hunting season. In some cases, hunting can be used as a management tool to control elevated populations that are negatively affecting wildlife habitat (for example, through overbrowsing).

Additional impacts from hunting include conflicts with individuals participating in wildlife-dependent, priority public uses such as wildlife observation and photography.

Determination. Hunting is a compatible use on Lee Metcalf Refuge.

Stipulations Necessary to Ensure Compatibility

- Visitors participating in hunting would be provided the Service's public use regulations, including site-specific regulations and State hunting regulations.
- Hunters would continue to use approved nontoxic shot for waterfowl hunting.
- Vehicles would be restricted to county and designated public roads and parking areas in the refuge.
- Signage and brochures would be used to provide hunters information on where and how to hunt on the refuge to ensure compliance with public use regulations.

Justification. A secondary goal of the Refuge System is to provide opportunities, when found compatible, for the public to develop an understanding and appreciation for wildlife. Hunting is identified as a priority public use in the National Wildlife Refuge System Improvement Act of 1997 (Improvement Act) and would help meet the above secondary goal with only minimal conflicts. Hunting can instill, in citizens of all ages, a greater appreciation for wildlife and its habitat. This appreciation may extend to the Refuge System, other conservation agencies, and to the individual personal land conservation ethic.

Based on anticipated biological impacts described above and in the environmental assessment (EA) that accompanied the draft CCP for Lee Metcalf Refuge, the Service has determined that hunting within the refuge would not interfere with the Service's habitat goals and objectives or purposes for which the refuge was established. Limiting access and monitoring the use would help limit any adverse effects.

Mandatory 15-year Reevaluation Date:

RECREATIONAL FISHING

Recreational fishing is one of six wildlife-dependent priority public uses specified in the Improvement

Act. Fishing is allowed within the wildlife viewing area (WVA) (145 acres), specifically along Francois Slough and the Bitterroot River. Fishing is available year-round, though limited in winter and during spring flooding. Fishing would be conducted in accordance with the rules and regulations set by the State of Montana. Additional refuge-specific regulations are printed in the refuge fishing brochure.

The draft CCP does not call for the implementation of any new fishing programs.

Availability of Resources. The refuge would continue to work with MFWP to conduct fish and creel surveys. The regional inventorying and monitoring biologist would assist with analysis and trend monitoring. The refuge would rely on the law enforcement officer, stationed at the refuge, and law enforcement staff from other refuges to enforce fishing regulations.

Anticipated Impacts of Use. Fishing and other human activities cause disturbance to wildlife and trampling of vegetation along the bank of rivers and streams. There would also be some mortality to those fish caught and then released. Refuge-specific regulations would assist in managing anglers and minimizing disturbance.

Determination. Fishing is a compatible use at designated fishing areas on Lee Metcalf Refuge.

Stipulations Necessary to Ensure Compatibility

- Visitors participating in fishing would follow the Service's public use regulations and State fishing regulations and limits. Rules specific to the refuge are published in the refuge fishing brochure.
- Vehicles would be restricted to county and designated public roads and parking areas.
- No boats may be used or launched at the WVA or anywhere else on the refuge, with the exception of boats launched off-refuge that then travel through the refuge on the Bitterroot River. Public fishing on the Bitterroot River by boat is restricted to below the high watermark, and boats cannot be launched onto the river from refuge lands.
- Boats, fishing equipment, and all other personal property must be removed at the end of each day.

Justification. Fishing is a priority public use identified in the Improvement Act. No long-term or significant adverse impacts of wildlife resources are expected from the primary or supporting uses. Based on the biological effects addressed above and in the EA that accompanied the draft CCP for Lee Metcalf Refuge, the Service has determined that fishing would not interfere with the Service's habitat goals and objectives or purposes for which the refuge was established.

Mandatory 15-year Reevaluation Date:

WILDLIFE OBSERVATION AND NONCOMMERCIAL PHOTOGRAPHY

Wildlife observation and photography are two of six wildlife-dependent priority public uses identified in the Improvement Act. Wildlife observation and photography on the refuge are conducted at the following public use areas: (1) the WVA; (2) outside the visitor contact area; (3) the Kenai Nature Trail; and (4) Wildfowl Lane, a county road that runs through the refuge.

The WVA, located in the southwest corner of the refuge, has four trail segments that total 2.5 miles. The area is open to off-trail hiking and observation. The 0.55-mile accessible Metcalf Trail segment is 10 feet wide and paved and has three concrete benches. The three other trail segments are soil or gravel and vary in width. The gravel parking area is three-quarters of an acre, large enough to accommodate recreational vehicles. There is also a designated paved parking area for visitors with disabilities. Additional facilities include an information kiosk, porta-potties, and an education shelter.

At the visitor contact area, visitors are provided a spotting scope to view waterfowl and other waterbirds and raptors on the adjacent ponds. This is one of the most popular wildlife observation and photography sites for visitors, including school groups.

The Kenai Nature Trail is 1.25 miles long (figure 6). It starts at refuge headquarters and parallels the eastern edge of Ponds 6, 8, and 10. The areas immediately next to the trail are closed, so visitors must remain on the trail. The first quarter mile of this trail is asphalt and meets accessibility guidelines. Five benches and one spotting scope are positioned along this paved section of trail. The remaining trail is bare soil and is not considered accessible. An additional four benches, one overlook platform with spotting scope, boardwalk, two wooden bridges, and two permanent photo blinds are located along this part of the Kenai Nature Trail.

Two permanent photo blinds are located along the Kenai Nature Trail (figure 6). Blind 1 is located one-third mile from the visitor contact area on Pond 8; it sits within 55 acres of open water and marsh land and is sheltered to the east by cottonwood and alder trees. Blind 2 is located one-third mile from the visitor contact area on approximately 85 acres of open water on Pond 10.

An "L"-shaped 2.8-mile section of Wildfowl Lane travels through the refuge on a south-central to east-central direction and has informally serves as the refuge auto tour route. The southern and easternmost miles of the road are paved or covered with recycled asphalt. The remaining road is gravel. The road is wide—at least 33 feet in width—allowing motorists to pull over safely and observe wildlife.

Wildlife observation and photography would be conducted year-round at the WVA, the visitor contact area, Kenai Nature Trail, and Wildfowl Lane.

The CCP proposes to continue the above wildlife observation and noncommercial photography activities and add the following to improve opportunities for these uses:

- The refuge would work with the county to develop the 2.8 miles of Wildfowl Lane, described above, as an auto tour route, with observation sites and accompanying interpretation.
- The existing footprint of the Kenai Nature Trail would be moved east in select areas by 10–30 yards to lessen disturbance to waterbirds using the slough portion of Pond 8.
- The Kenai Nature Trail would be extended westward using the Pond 8 dike road (near Potato Cellar Pond); it would then loop south, travel just north of a former residence site, and then connect to Wildfowl Lane (figure 6). This trail addition measures 1.25 miles in length. The trail may be open seasonally for public use. The closure would provide refuge for migrating and nesting waterfowl and other waterbirds. This spur to the Kenai Nature Trail would provide additional opportunities for wildlife viewing and photography, environmental education, and interpretation.
- Through partnerships, the refuge would conduct an annual wildlife photography workshop highlighting how to photograph wildlife while minimizing disturbance.
- Waterfowl hunting Blind 2 would be upgraded to provide a photo blind for photographers with disabilities. At least two portable photo blinds would be purchased and available for visitor use.

Availability of Resources. Wildlife observation and photography would be administered by refuge staff. The refuge would rely on the zone law enforcement officer and staff from other refuges for law enforcement. Signage and law enforcement would be used to keep visitors from crossing into areas closed to public use.

The porta-potties would be maintained twice a week, and paved trails would be sealed periodically to maintain a smooth surface.

The proposed extension of the Kenai Nature Trail may require the construction of a boardwalk in wet areas.

Anticipated Impacts of Use. There would be temporary disturbance to wildlife near the WVA and along trails. This disturbance would be minimized through refuge regulations and education including brochures, signage, and staff- or volunteer-led wildlife walks that highlight the ethics of wildlife observation and photography.

Determination. Wildlife observation and photography are compatible uses on Lee Metcalf National Wildlife Refuge.

Stipulations Necessary to Ensure Compatibility

- Visitors participating in wildlife observation and photography would be strongly encouraged to follow all public use regulations.
- All users of the Kenai Nature Trail would be required to stay on the trail.
- Non-Fish and Wildlife Service vehicles would be restricted to county and public access roads in the refuge.
- Viewing areas would be designed to minimize disturbance impacts on wildlife and all refuge resources while providing good opportunities to view wildlife in their natural environments.
- Visitors using permanent or portable observation and photography blinds would be provided with information on properly using these structures to minimize disturbance to wildlife, habitats, and other refuge visitors.
- Photography outside of public use sites is not allowed.
- Dogs are allowed only on leashes and only on trails in the WVA.
- Bicycles, horses, and off-road vehicles are not allowed on the refuge.

Justification. Wildlife observation and photography is a wildlife-dependent, priority public use. No unacceptable, long-term or significant adverse impacts on wildlife resources are expected from the primary or supporting uses.

Mandatory 15-year Reevaluation Date:

ENVIRONMENTAL EDUCATION AND INTERPRETATION

Environmental education and interpretation are two of six wildlife-dependent priority public uses specified in the Improvement Act.

Most environmental education programs would be conducted at sites near refuge headquarters: (1) the visitor contact area, (2) Okefenokee Room, (3) outdoor education shelter, (4) outdoor amphitheater, and (5) Kenai Nature Trail. The WVA would also be used for staff-led programs but even more so by self-directed environmental education partner organizations and school groups. Environmental education can be both formal and informal, and it can range from presentations to special events like festivals or fishing clinics. However, certain programming, usually special events, may involve additional refuge lands outside the headquarters area. The refuge would continue to organize and provide at least 15 on- and off-refuge annual and special events for adults and students.

The refuge has hosted an average of 2,300 students annually. Students come from communities as far as Darby to the south (approximately 40 miles) and Ronan to the north (about 85 miles). Most students are from grades 3–5. Environmental education would be conducted year-round; however, most students visit the refuge in May, and these visits are typically limited by the individual schools to one visit per year.

Interpretation of the natural and cultural resources of the refuge and the Bitterroot Valley would be provided year-round in the same designated environmental education and wildlife observation and photography areas. Interpretation would be conducted through interpretive panels, revolving displays, videos, online materials, brochures, flyers, handouts, and booklets. New displays would be professionally planned and produced.

Interpretive panels and brochures would be maintained and updated to reflect changes in information or policy and to meet the Service's graphic standards.

The CCP proposes to continue environmental education and interpretation and add the following to improve these programs:

- The Service would expand the programs and opportunities for environmental education and interpretation, reaching additional students and visitors. These programs would focus on the values and importance of the natural, historical, and cultural resources of the refuge and the Bitterroot Valley, including the refuge's efforts to maintain, enhance, and restore native plant and wildlife communities on the refuge.
- Partnerships would be developed with local universities to provide opportunities for students to conduct research and monitoring projects that are beneficial to the refuge, that help address management needs, and that provide an opportunity for students to work on the refuge and with refuge staff.
- The Service would expand opportunities to collaborate with universities to provide outdoor classrooms for students interested in the refuge, its management programs, its current issues, and the values of the Refuge System.
- A classroom and associated supplies would be added to the expanded visitor center for environmental education programs.
- The Service would continue to maintain and update the current five kiosks, including three with interpretive panels. An additional interpretive panel would be located along the river trail within the WVA explaining the migration of the Bitterroot River.
- Interpretation would be provided along the Kenai Nature Trail, within the WVA, and along the auto tour route.

- On the north end of the refuge, a kiosk would be constructed at a parking lot used by hunters; it would provide regulations as well as information on refuge purposes and resources.

Availability of Resources. The refuge's outdoor recreation planner and volunteers, supplemented by other current Service staff, would continue to develop and lead these programs. Expanding current programs may require additional visitor services staff and volunteers.

Funding for environmental education and interpretation activities, directional signs, and brochures would be mainly supported by annual operation and maintenance money. Funding from other sources such as grants, regional project proposals, challenge cost-share agreements, and other temporary funding sources would also be sought and used as they became available.

Anticipated Impacts of Use. The bulk of environmental education and interpretation would take place in the refuge headquarters area. The use of the refuge for onsite activities by groups of teachers and students for environmental education or interpretation may impose a short-term, low-level impact on the immediate and surrounding area. Impacts may include trampling of vegetation and temporary disturbance to nearby wildlife species during the activities.

Refuge brochures, interpretive panels, and other educational materials would continue to be updated as needed to meet Service requirements. The Service would continue to promote a greater public understanding and appreciation of the refuge resources, programs, and issues through interpretive, outreach, and environmental educational programs. Presentations, both on and off Service lands, would be provided to refuge visitors, school groups, and organizations, allowing the Service to reach a broader audience. Onsite presentations would be managed to minimize disturbance to wildlife, habitat, and cultural resources.

Determination. Environmental education and interpretation are compatible uses on Lee Metcalf Refuge.

Stipulations Necessary to Ensure Compatibility. On-site activities would be held where minimal impact on wildlife and habitats would occur. The Service would review new environmental education and interpretation activities to ensure that these activities meet program and refuge management objectives and are compatible.

- Visitors participating in environmental education and interpretation programs would follow all Service regulations. Compliance with regulations would be achieved through education, signage, and law enforcement and would minimize negative impacts on refuge habitat and wildlife.

- Environmental education would be restricted to daylight hours.
- Environmental education may be limited to reduce disturbance to wildlife, particularly during the nesting seasons. The refuge manager would evaluate and, if appropriate, approve additional environmental education sites on the basis of potential impacts on wildlife. Access should be restricted around active bird nests and during other sensitive life history phases of refuge resources.
- Educational activities would be commonly held in the Okefenokee Room, outdoor education shelter, outdoor amphitheater, WVA, and the Kenai Nature Trail. On occasion and by special use permit only, environmental education activities may occur near dikes along Ponds 8 and 10, Grube Barn, and management areas I-4 and I-5. A number of stipulations would cover special events:
 - The Bitterroot and Five Valleys Audubon Societies' bird walk activities would be held on refuge-approved dates and times and located in public use areas.
 - The Great Backyard Bird Count in mid-February—a national “citizen science” event that promotes knowledge of native birds—would take place in areas open to the public. Event activities must be approved by the refuge manager.
 - Ground Hog Day, February 2, would include information and activities that emphasize the natural history of mammals, ecology, habitat, community processes, and the Refuge System; event activities must be approved by the refuge manager, and the location of this event would be restricted to the area around the Grube Barn. Other proposed locations would need to be approved by the refuge manager.
 - Montana Junior Duck Stamp Program activities (mid-April to early May) would take place at the outdoor amphitheater and education shelter. The program would highlight the integration of science with the arts. Event activities must be approved by the refuge manager.
 - The Weed Pull in mid-May is a public event targeting the removal of noxious weeds, which is compatible with refuge and management purposes. Staff would work with partners employing environmental education curriculum and outreach to educate visiting public on noxious weed identification and management. Event locations must be approved by the refuge manager.
 - For the Kid's Fishing Clinic, held in both June and September, all fishing and environmental education stations would be positioned for the purpose of safety and minimizing resource

disturbance. Activities would primarily be located surrounding the Refuge Headquarters area, but may occur, with issuance of a special use permit, in areas currently closed to public use. Event locations and times must be approved by the refuge manager.

- The spring and summer Hunter Safety Courses would be held at the Okefenokee Room, Kenai Nature Trail, Grube Barn, and parts of management units I-4 and I-5 with issuance of a special use permit. Activities would be planned to ensure safety and minimize wildlife and visitor disturbance. Event activities and optional locations must be approved by the refuge manager.
- The Stevensville Audubon Christmas Bird Count is held in December or January every year. Refuge staff escort Audubon volunteers, counting and identifying all birds encountered on the refuge. Most bird identification activities would be conducted from refuge roads and dikes, minimizing wildlife disturbance; event activities and locations must be approved by the refuge manager. Unaccompanied individuals may not enter areas closed to the public without a Special Use Permit.

Justification. A secondary goal of the Refuge System is to provide opportunities, when found compatible, for the public to develop an understanding and appreciation for wildlife.

Environmental education and interpretation can be used to help citizens of all ages build a land ethic and act responsibly in protecting wildlife and habitats, which in turn can enrich a person's life, provide an incentive for outdoor activity with associated health benefits, and potentially lessen the likelihood of that person violating laws protecting wildlife. Additionally, environmental education and interpretation are important tools for the refuge to provide visitors with an awareness of its purposes, values, and specific issues such as invasive species, habitat management, restoration of natural processes, and migratory bird management. These tools would provide visitors and students with a greater understanding of the mission and importance of the Refuge System to the American people.

Based on anticipated biological impacts described above and in the EA that accompanies the draft CCP for Lee Metcalf National Wildlife Refuge, the Service determines that environmental education and interpretation would not significantly detract from the Service's implementation of wildlife habitat goals and objectives, or with the purposes for which the refuge was established. Managing areas used for conducting environmental education and interpretation, monitoring those areas, and mitigating impacts would help minimize potential adverse effects.

Mandatory 15-year Reevaluation Date:**COMMERCIAL FILMING, AUDIO RECORDING, AND STILL PHOTOGRAPHY**

Commercial filming is the digital or film capture of a visual image. Commercial audio recording is the capture of sound. Commercial still photography is the digital or film capture of a still image. Each of these activities is conducted by a person, business, or other entity for a market audience for use in a documentary, television program, feature film, advertisement, or similar project. It does not include news coverage or visitor use.

Lee Metcalf Refuge provides opportunities for commercial filming and still photography of migratory birds and other wildlife. Requests from commercial persons, businesses, or entities to conduct commercial activities would be evaluated on their merit in educating the public about the resources and purposes of the refuge and the Refuge System. Any issued special use permit for filming or photography would designate the specific areas that may be accessed and the activities that are allowed (refer to “Stipulations Necessary to Ensure Compatibility” below).

In rare cases the Service may permit access to areas closed to the public. The public benefit, as determined by the refuge manager, must outweigh the potential disturbance to wildlife resources.

Availability of Resources. Current staff would evaluate requests for commercial photography, filming, or audio recording. Administrative costs for reviewing applications, the issuance of subsequent special use permits, and staff time to monitor compliance may be offset by a fee.

Anticipated Impacts of Use. Wildlife filmmakers and photographers tend to create the greatest disturbance of all wildlife observers (Dobb 1998, Klein 1993, Morton 1995). While observers frequently stop to view wildlife, photographers are more likely to approach animals (Klein 1993). Even a slow approach by photographers tends to have behavioral consequences on wildlife (Klein 1993). Photographers often remain close to wildlife for extended periods of time in an attempt to habituate the subject to their presence (Dobb 1998). Furthermore, photographers with low-power lenses tend to get much closer to their subjects (Morton 1995). This usually results in increased disturbance to wildlife as well as habitat, including the trampling of plants. Handling of animals and disturbing vegetation (such as cutting plants and removing flowers) or cultural artifacts is strictly prohibited on Service lands.

Issuance of special use permits with strict guidelines and monitoring by refuge staff for compliance may help minimize or avoid these impacts. Permittees who do not follow the stipulations of their special use permits could have their permits revoked, and further

applications for filming or photographing on refuge lands would be denied.

Determination. In rare circumstances, commercial filming, audio recording, and still photography would be compatible uses on Lee Metcalf Refuge.

Stipulations Necessary to Ensure Compatibility. Commercial filming or photography must (1) demonstrate a means to increase the public’s knowledge, appreciation, and understanding of the purposes of Lee Metcalf National Wildlife Refuge, the National Wildlife Refuge System, or the wildlife resources that are managed on these lands. Failure to fully demonstrate a measurable means to meet this criterion would likely result in a denial of the special use permit request.

Any commercial filming and audio recording would require a special use permit that would (1) identify conditions that protect the refuge’s values, purposes, resources, and public health and safety and (2) prevent unnecessary disruption of the public’s use and enjoyment of the refuge. Such conditions may be, but are not limited to, specifying road conditions when access would not be allowed, establishing time limitations, identifying routes of access, limiting the number of participants, and specifying the exact location participants are allowed. These conditions would be identified to prevent excessive disturbance to wildlife, damage to habitat or refuge infrastructure, or conflicts with other visitor services or management activities.

The special use permit would stipulate that imagery produced on refuge lands would be made available for use in environmental education and interpretation, outreach, internal documents, or other suitable uses. In addition, any commercial products must include appropriate credits to the Lee Metcalf National Wildlife Refuge, the National Wildlife Refuge System, and the U.S. Fish and Wildlife Service.

Still photography requires a special use permit (with specific conditions as outlined above) if one or more of the following would occur:

- It takes place at locations where or at times when members of the public are not allowed.
- It uses models, sets, or props that are not part of the location’s natural or cultural resources or administrative facilities.
- The Service would incur additional administrative costs to monitor the activity.
- The Service would need to provide management and oversight to avoid impairment of the resources and values of the site, limit resource damage, or minimize health and safety risks to the visiting public.
- The photographer intends to intentionally manipulate vegetation to create a shot (for example, cutting vegetation to create a blind).

To minimize the impact on Service lands and resources, refuge staff would ensure that all commercial filmmakers and commercial still photographers comply with policies, rules, and regulations. The staff would monitor and assess the activities of all filmmakers, audio recorders, and still photographers.

Justification. Commercial filming, audio recording, and still photography are economic uses that, if allowed, must contribute to the achievement of the refuge purposes, mission of the Refuge System, or the mission of the Service. Providing opportunities for these uses should result in an increased public awareness of the refuge's ecological importance as well as advancing the public's knowledge and support for the Refuge System and the Service. The stipulations outlined above and conditions imposed in the special use permits issued to commercial filmmakers, audio recorders, and still photographers would ensure that these wildlife-dependent activities occur with minimal adverse effects on resources or visitors.

Mandatory 10-year Reevaluation Date:

COOPERATIVE FARMING AND PRESCRIPTIVE GRAZING

The Service has used cooperative farming and prescriptive livestock grazing in the past as a management tool to manage a variety of upland, riparian, and seasonal wetland habitats. These tools would be used to meet habitat objectives, control vegetative litter, promote native plant production and diversity, control the spread of invasive plant species, and help convert disturbed grasslands back to native plant species.

Cooperative farming is usually done on a share basis where the Service and the cooperator each receive a share of the crop. The Service would retain its share as standing cover for wildlife forage or in exchange for additional work from the cooperator such as invasive plant control, grass seeding, or provision of supplies such as herbicides and fence materials for habitat protection and improvement on the management unit. Any income received by the Service would be deposited in the Refuge Revenue Sharing Account. Cooperative farming would primarily be used to treat invasive species by continually farming specific areas until seedbed is reduced. Following this process, these areas would be restored to native species found on that site. The site would continue to be monitored for reinvasion.

Grazing by livestock has been a preferred management tool because the effect on habitat is controllable and measurable. Grazing may occur throughout the year as management needs dictate. For wetland units, the purpose of grazing would be to consume portions of emergent vegetation and to break root rhizomes with hoof action. This would likely result in enhanced aeration of soils, removing portions of monotypic emergent vegetation. For upland units, grazing would be used

to mimic the historical grazing patterns, most likely employing short-duration, intense grazing pressure with extended rest periods.

Fencing and controlling livestock is the responsibility of the cooperating rancher. The Service provides instruction and guidance within the special use permit for placement of fences, water tanks, and livestock supplements to ensure that sensitive habitats or refuge assets are protected. A temporary electric fence is used in most grazing applications. Current forage conditions, habitat objectives, and available water determine stocking rates in each grazing unit.

The draft CCP proposes to continue using cooperative farming and prescriptive livestock grazing to meet habitat objectives. Furthermore, the draft CCP establishes goals and objectives for specific habitat types where these tools may be used. In addition, the Service has identified target wildlife species (for example, grasshopper sparrow and marbled godwit) and their habitat requirements, which has resulted in objectives that guide these programs to achieve the habitat needs of these target species. The refuge would improve the monitoring and research programs for vegetation and wildlife to assess habitat and wildlife population responses to prescriptive livestock grazing.

Availability of Resources. Current refuge staff and funding resources are sufficient for the purposes of monitoring habitats and implementing research needs to understand the impacts of grazing on refuge habitats. One biological technician would be necessary to carry out the on-the-ground monitoring. These programs would continue to be conducted through special use permits or cooperative farming agreements, which minimize the need for staff time and Service assets to complete work. Permittees would be selected on their ability to accomplish refuge habitat goals and minimize expenditures of staff time and resources. Fencing, caring for, and all animal husbandry tasks are the responsibility of the permittee. The permittee is also responsible for keeping all animals within the management unit and preventing them from roaming at large. The Service provides direction on the placement of temporary fences, water tanks, livestock supplements, loading and off-loading panels and chutes to ensure the protection of sensitive habitats and refuge resources.

Anticipated Impacts of Use. The cooperative farming and prescriptive livestock-grazing program is used to meet habitat- and species-specific goals and objectives identified in the draft CCP. This program is intended to maintain and enhance habitat conditions for the benefit of a wide variety of migratory birds and other wildlife that use the refuge.

Some wildlife disturbance may occur during operation of noisy farming equipment, and some animals may be temporarily displaced. Wildlife would receive

the short-term benefit of standing crops or stubble for food and shelter and the long-term benefit of having historical cropland or other poor-quality habitat converted to native grasses and shrubs. Reducing the number of invasive species and the existing seedbed would support future restoration efforts.

Some trampling of areas by livestock occurs around watering areas. It is anticipated that grazing will continue to be used to manage vegetative monocultures on a rotational basis. Grazing, as well as fire, is known to increase the nutrient cycling of nitrogen and phosphorous (Hauer and Spencer 1998, McEachern et al. 2000). Hoof action may break up the soil cap on upland fields, allowing moisture to infiltrate the soil and allowing native plant seeds to become established. However, cattle grazing would also increase the risk of invasive plants becoming established. Grazing in the spring could have adverse effects on grassland-bird nests due to trampling and loss of vegetation. In addition, the presence of livestock may disturb some wildlife species and some public users. The long-term benefits of this habitat management tool should outweigh the short-term negative effects.

Determination. Cooperative farming and prescriptive grazing as habitat management tools are compatible uses on Lee Metcalf National Wildlife Refuge.

Stipulations Necessary to Ensure Compatibility. To ensure consistency with management objectives, the Service would require general and specific conditions for each cooperative farming and grazing permit.

To minimize impacts on nesting birds and other wildlife, the refuge manager would determine and incorporate any necessary timing constraints on the permitted activity into the cooperative farming agreement or special use permit.

The cooperative farming agreement or special use permit would specify the type of crop to be planted. Farming permittees would be required to use Service-approved chemicals that are less detrimental to wildlife and the environment.

Control and confinement of livestock are the responsibility of the permittee, but the Service would continue to determine where fences, water tanks, and livestock supplements (if necessary) are placed within the management unit. Temporary electric fences are used to retain livestock within grazing cells as well as to protect sensitive habitat areas and refuge assets such as water control structures. Cooperators would be required to remove fences at the end of the grazing season.

When grazing fees are assessed, they are based on the current-year U.S. Department of Agriculture Statistics Board publication, "Grazing Fee Rates for Cattle by Selected States and Regions." Standard deductions for labor associated with the grazing permit may be included on the special use permit.

The refuge would monitor vegetation and soils to assess if habitat requirements of target species are being met. A minimum of one temporary biological technician is necessary to monitor and document these activities.

Justification. Habitat management needs to occur to maintain and enhance habitat for migratory birds and other wildlife in this altered landscape. When properly managed and monitored, cooperative farming and prescriptive livestock grazing can rejuvenate native grasses and help control the spread of some invasive plant species and some undesirable monoculture species like cattail. Prescriptive grazing is controlled and the results monitored (for example, vegetation monitoring) so that adjustments in the grazing program are made to meet habitat goals and objectives. The cooperative farming program would be monitored to determine the effectiveness and necessary duration and frequency of farming needed to control and reduce invasive species.

Using local cooperators to perform the work is a cost-effective method to accomplish habitat objectives. The long-term benefits of habitat restoration and management far outweigh any short-term impacts caused by grazing.

Mandatory 10-year Reevaluation Date:

RESEARCH AND MONITORING

Lee Metcalf Refuge receives approximately 8–12 requests each year to conduct scientific research or monitoring on Service lands. Priority is given to studies that contribute to the enhancement, protection, preservation, and management of the refuge's native plant, fish, and wildlife populations and their habitats. Non-Fish and Wildlife Service applicants must submit a proposal that outlines the following:

- objectives of the study
- justification for the study
- detailed methodology and schedule
- potential impacts on wildlife and habitat including disturbance (short- and long-term), injury, or mortality
- description of measures the researcher would take to reduce disturbances or impacts
- staff required and their qualifications and experience
- status of necessary permits such as scientific collection permits and endangered species permits
- costs to the Service including staff time requested, if any
- anticipated progress reports and endproducts such as reports or publications

Refuge staff would review research and monitoring proposals on a case-by-case basis and issue special use

permits if approved. Criteria for evaluation include, but are not limited to, the following:

- Research and monitoring that contribute to specific refuge management issues would be given higher priority over other requests.
- Research and monitoring that would cause undue disturbance or would be intrusive would likely not be approved. The degree and type of disturbance would be carefully weighed when evaluating a research request.
- Research projects that can answer the same questions yet be conducted off-refuge are less likely to be approved.
- Evaluations would determine if effort has been made to minimize disturbance through study design, including adjusting location, timing, scope, number of researchers, study methods, and number of study sites.
- If staffing or logistics make it impossible for the refuge to monitor researcher activity, this may be a reason to deny the request.
- The length of the project would be considered and agreed upon prior to approval. Projects would be reviewed annually.

Availability of Resources. Current resources are minimally adequate to administer research and monitoring efforts. A full-time biological science technician would assist in monitoring research proposals and projects. It is anticipated that approximately \$4,000 per year is required to administer and manage current research and monitoring projects. Coordination with a Service inventorying and monitoring biologist would be necessary to administer large or long-term projects, which generally require more in-depth evaluation of applications, management of permits, and oversight of projects. The refuge would work with this biologist to identify research and monitoring needs and work with other Service staff, universities, and scientists to develop studies that would benefit the refuge and address the goals and objectives in the draft CCP.

Anticipated Impacts of Use. Some degree of disturbance is expected with research activities, because most researchers enter areas and use Service roads that are closed to the public. In addition, some research requires collecting samples and/or handling wildlife. However, the overall impact on wildlife and habitats is expected to be minimal with research studies when special use permits include conditions to minimize those impacts.

Determination. Research and monitoring are compatible uses on the Lee Metcalf Refuge.

Stipulations Needed to Ensure Compatibility

- Extremely sensitive wildlife habitats and species are sufficiently protected from disturbance by limiting research activities in these areas.
- All refuge rules and regulations are followed unless otherwise exempted by refuge management.
- Refuge staff use the criteria for evaluating research and monitoring proposals as outlined above (“Description of Use”) when determining whether to approve a proposed project on the refuge. If proposed research methods are evaluated and determined to have potential impacts on refuge wildlife or habitat, it must be demonstrated that the research is necessary for refuge resource conservation management. All projects are reviewed annually.
- Measures to minimize potential impacts would need to be developed and included as part of the project and study design. These measures, with potential modifications and/or additions, would be listed as conditions on the special use permit.
- The length of the project would be considered and agreed on before approval.
- Projects would be reviewed annually and any modifications made as appropriate.
- Refuge staff would monitor research and monitoring activities to ensure compliance with all conditions of the special use permit. At any time, refuge staff may accompany the researchers to determine potential impacts. Staff may determine that previously approved research and special use permits be terminated due to observed impacts.
- No unauthorized individuals may accompany the researcher without prior consent from the refuge.
- The special use permit is non-transferrable from one researcher to any other individual.
- The refuge manager would have the ability to cancel a special use permit if the researcher is out of compliance or to ensure wildlife and habitat protection.

Justification. The program as described is determined to be compatible. Potential impacts of research activities on refuge resources would be minimized through restrictions included as part of the study design, and research activities would be monitored by refuge staff. Results of research projects would contribute to the understanding, enhancement, protection, preservation, and management of the refuge’s wildlife populations and their habitats.

Mandatory 10-year Reevaluation Date:

Appendix E

Species Lists

This appendix contains the common and scientific names of animals and plants that have been recorded on Lee Metcalf National Wildlife Refuge or the surrounding Bitterroot Valley. The bird and plant lists are from surveys, annual narratives (USFWS 1988–1993), and the 2009 Lee Metcalf Refuge Bioblitz event held in 2010. Species of concern were determined from global, Federal, and State of Montana listings (Montana Natural Heritage Program 2009).

CLASS AMPHIBIA

<i>Common name</i>	<i>Scientific name</i>
Frogs	
American bullfrog†	<i>Rana catesbeiana</i> †
Columbia spotted frog	<i>Rana luteiventris</i>
Toads and Salamanders	
Boreal toad*	<i>Bufo boreas</i> *
Long-toed salamander	<i>Ambystoma macrodactylum</i>

CLASS REPTILIA

<i>Common name</i>	<i>Scientific name</i>
Snakes	
Common garter snake	<i>Thamnophis sirtalis</i>
Terrestrial garter snake	<i>Thamnophis elegans</i>
Rubber boa	<i>Charina bottae</i>
Eastern racer	<i>Coluber constrictor</i>
Western rattlesnake	<i>Crotalus viridis</i>
Gopher snake	<i>Pituophis catenifer</i>
Turtles	
Painted turtle	<i>Chrysemys picta</i>

CLASS AVES

<i>Common name</i>	<i>Scientific name</i>
Swans, Geese, and Ducks	
Snow goose	<i>Chen caerulescens</i>
Ross's goose	<i>Chen rossii</i>
Greater white-fronted goose	<i>Anser albifrons</i>
Canada goose	<i>Branta canadensis</i>
Trumpeter swan*	<i>Cygnus buccinator</i> *
Tundra swan	<i>Cygnus columbianus</i>
Wood duck	<i>Aix sponsa</i>
Gadwall	<i>Anas strepera</i>
American wigeon	<i>Anas americana</i>
Eurasian wigeon	<i>Anas penelope</i>

<i>Common name</i>	<i>Scientific name</i>
Mallard	<i>Anas platyrhynchos</i>
Blue-winged teal	<i>Anas discors</i>
Cinnamon teal	<i>Anas cyanoptera</i>
Northern shoveler	<i>Anas clypeata</i>
Northern pintail	<i>Anas acuta</i>
Green-winged teal	<i>Anas crecca</i>
Canvasback	<i>Aythya valisineria</i>
Redhead	<i>Aythya Americana</i>
Ring-necked duck	<i>Aythya collaris</i>
Lesser scaup	<i>Aythya affinis</i>
Greater scaup	<i>Aythya marila</i>
Bufflehead	<i>Bucephala albeola</i>
Common goldeneye	<i>Bucephala clangula</i>
Barrow's goldeneye	<i>Bucephala islandica</i>
Hooded merganser	<i>Lophodytes cucullatus</i>
Common merganser	<i>Mergus merganser</i>
Red-breasted merganser	<i>Mergus serrator</i>
Ruddy duck	<i>Oxyura jamaicensis</i>
White-winged scoter	<i>Melanitta fusca</i>
Long-tailed duck	<i>Clangula hyemalis</i>
Surf scoter	<i>Melanitta perspicillata</i>
Black scoter	<i>Melanitta nigra</i>
Upland Gamebirds	
Ring-necked pheasant†	<i>Phasianus colchicus</i> †
Gray partridge†	<i>Perdix perdix</i> †
Ruffed grouse	<i>Bonasa umbellus</i> †
Wild turkey†	<i>Meleagris gallopavo</i> †
California quail†	<i>Callipepla californica</i> †
Loons	
Common loon*	<i>Gavia immer</i> *
Grebes	
Pied-billed grebe	<i>Podilymbus podiceps</i>
Horned grebe	<i>Podiceps auritus</i>
Red-necked grebe	<i>Podiceps grisegena</i>
Eared grebe	<i>Podiceps nigricollis</i>
Western grebe	<i>Aechmophorus occidentalis</i>
Clark's grebe*	<i>Aechmophorus clarkii</i> *
Pelicans	
American white pelican*	<i>Pelecanus erythrocephalus</i> *
Cormorants	
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Hérons	
American bittern*	<i>Botaurus lentiginosus</i> *
Great blue heron*	<i>Ardea herodias</i> *
Great egret	<i>Ardea alba</i>

<i>Common name</i>	<i>Scientific name</i>
Snowy egret	<i>Egretta caerulea</i>
Black-crowned night-heron*	<i>Nycticorax nycticorax</i> *
Cattle egret	<i>Bubulcus ibis</i>
Ibis	
White-faced ibis	<i>Plegadis chihi</i>
Vultures	
Turkey vulture	<i>Cathartes aura</i>
Hawks and Eagles	
Osprey	<i>Pandion haliaetus</i>
Bald eagle*	<i>Haliaeetus leucocephalus</i> *
Northern harrier	<i>Circus cyaneus</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Northern goshawk*	<i>Accipiter gentilis</i> *
Swainson's hawk	<i>Buteo swainsoni</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Ferruginous hawk	<i>Buteo regalis</i>
Rough-legged hawk	<i>Buteo lagopus</i>
Golden eagle*	<i>Aquila chrysaetos</i> *
White-tailed kite	<i>Elanus leucurus</i>
Falcons	
American kestrel	<i>Falco sparverius</i>
Merlin	<i>Falco columbarius</i>
Peregrine falcon*	<i>Falco peregrinus</i> *
Prairie falcon	<i>Falco mexicanus</i>
Gyr Falcon	<i>Falco rusticolus</i>
Rails	
Virginia rail	<i>Rallus limicola</i>
Sora	<i>Porzana carolina</i>
American coot	<i>Fulica americana</i>
Cranes	
Sandhill crane	<i>Grus canadensis</i>
Plovers	
Killdeer	<i>Charadrius vociferous</i>
Semipalmated plover	<i>Charadrius semipalmatus</i>
American golden plover	<i>Pluvialis dominica</i>
Black-bellied plover	<i>Pluvialis squatarola</i>
Avocets	
American avocet	<i>Recurvirostra americana</i>
Black-necked stilt*	<i>Himantopus mexicanus</i> *
Sandpipers	
Greater yellowlegs	<i>Tringa melanoleuca</i>
Lesser yellowlegs	<i>Tringa flavipes</i>
Solitary sandpiper	<i>Tringa solitaria</i>
Willet	<i>Catoptrophorus semipalmatus</i>

<i>Common name</i>	<i>Scientific name</i>
Spotted sandpiper	<i>Actitis macularia</i>
Whimbrel	<i>Numenius phaeopus</i>
Long-billed curlew*	<i>Numenius americanus*</i>
Marbled godwit	<i>Limosa fedoa</i>
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>
Short-billed dowitcher	<i>Limnodromus griseus</i>
Wilson's snipe	<i>Gallinago delicata</i>
Ruddy turnstone	<i>Arenaria interpres</i>
Wilson's phalarope	<i>Phalaropus tricolor</i>
Red-necked phalarope	<i>Phalaropus lobatus</i>
Sandpipers	
Stilt sandpiper	<i>Calidris himantopus</i>
Sanderling	<i>Calidris alba</i>
Semipalmated sandpiper	<i>Calidris pusilla</i>
Western sandpiper	<i>Calidris mauri</i>
Least sandpiper	<i>Calidris minutilla</i>
White-rumped sandpiper	<i>Calidris fuscicollis</i>
Pectoral sandpiper	<i>Calidris melanotos</i>
Dunlin	<i>Calidris alpina</i>
Baird's sandpiper	<i>Calidris bairdii</i>
Gulls and Terns	
Ring-billed gull	<i>Larus delawarensis</i>
Franklin's gull*	<i>Larus pipixcan*</i>
California gull	<i>Larus californicus</i>
Bonaparte's gull	<i>Larus philadelphia</i>
Forster's tern*	<i>Sterna forsteri*</i>
Black tern*	<i>Sterna niger*</i>
Caspian tern*	<i>Sterna caspia*</i>
Common tern*	<i>Sterna hirundo*</i>
Herring gull	<i>Larus argentatus</i>
Least tern*	<i>Sternula antillarum*</i>
Pigeon and Doves	
Mourning dove	<i>Zenaida macroura</i>
Rock dove	<i>Columbia livia</i>
Eurasian collared-dove†	<i>Streptopelia decaocto†</i>
Cuckoos	
Black-billed cuckoo*	<i>Coccyzus erythrophthalmus*</i>
Yellow-billed cuckoo*	<i>Coccyzus americanus*</i>
Owls	
Great horned owl	<i>Bubo virginianus</i>
Burrowing owl*	<i>Athene cunicularia*</i>
Long-eared owl	<i>Asio otus</i>
Short-eared owl	<i>Asio flammeus</i>
Northern saw-whet owl	<i>Aegolius acadicus</i>
Northern pygmy-owl	<i>Glaucidium gnoma</i>

<i>Common name</i>	<i>Scientific name</i>
Western screech-owl	<i>Megascops kennicottii</i>
Great gray owl*	<i>Strix nebulosa</i> *
Flammulated owl*	<i>Otus flammeolus</i> *
Snowy owl	<i>Bubo scandiacus</i>
Nighthawks	
Common nighthawk	<i>Chordeiles minor</i>
Swifts	
White-throated swift	<i>Aeronautes saxatalis</i>
Vaux's swift	<i>Chaetura vauxi</i>
Black swift*	<i>Cypseloides niger</i> *
Hummingbirds	
Rufous hummingbird	<i>Selasphorus rufus</i>
Calliope hummingbird	<i>Stellula calliope</i>
Black-chinned hummingbird	<i>Archilochus alexandri</i>
Kingfishers	
Belted kingfisher	<i>Ceryle alcyon</i>
Woodpeckers	
Lewis's woodpecker*	<i>Melanerpes lewis</i> *
Downy woodpecker	<i>Picoides pubescens</i>
Hairy woodpecker	<i>Picoides villosus</i>
Pileated woodpecker*	<i>Dryocopus pileatus</i> *
Northern flicker	<i>Colaptes auratus</i>
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>
Flycatchers	
Western kingbird	<i>Tyrannus verticalis</i>
Eastern kingbird	<i>Tyrannus forficatus</i>
Say's phoebe	<i>Saynoris saya</i>
Willow flycatcher	<i>Empidonax traillii</i>
Dusky flycatcher	<i>Empidonax oberholseri</i>
Hammond's flycatcher	<i>Empidonax hammondii</i>
Cordilleran flycatcher	<i>Empidonax occidentalis</i>
Least flycatcher	<i>Empidonax minimus</i>
Olive-sided flycatcher	<i>Contopus cooperi</i>
Western wood-pewee	<i>Contopus sordidulus</i>
Shrikes	
Loggerhead shrike*	<i>Lanius ludovicianus</i> *
Northern shrike	<i>Lanius excubitor</i>
Vireos	
Warbling vireo	<i>Vireo gilvus</i>
Cassin's vireo	<i>Vireo cassinii</i>
Plumbeous vireo	<i>Vireo plumbeus</i>
Red-eyed vireo	<i>Vireo olivaceus</i>
Jays, Crows, and Magpies	
Steller's jay	<i>Cyanocitta stelleri</i>
Clark's nutcracker	<i>Nucifraga columbiana</i>

<i>Common name</i>	<i>Scientific name</i>
Black-billed magpie	<i>Pica hudsonia</i>
American crow	<i>Corvus brachyrhynchos</i>
Pinyon jay*	<i>Gymnorhinus cyanocephalus*</i>
Common raven	<i>Corvus corax</i>
Larks	
Horned lark	<i>Eremophila alpestris</i>
Swallows	
Tree swallow	<i>Tachycineta bicolor</i>
Violet-green swallow	<i>Tachycineta thalassina</i>
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>
Bank swallow	<i>Riparia riparia</i>
Cliff swallow	<i>Petrochelidon pyrrhonota</i>
Barn swallow	<i>Hirundo rustica</i>
Chickadees	
Black-capped chickadee	<i>Parus atricapillus</i>
Mountain chickadee	<i>Parus gambeli</i>
Nuthatches	
Red-breasted nuthatch	<i>Sitta canadensis</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
Pygmy nuthatch	<i>Sitta pygmaea</i>
Creepers	
Brown creeper*	<i>Certhia americana*</i>
Wrens	
House wren	<i>Troglodytes aedon</i>
Winter wren*	<i>Troglodytes troglodytes*</i>
Marsh wren	<i>Cistothorus palustris</i>
Dipper	
American dipper	<i>Cinclus mexicanus</i>
Kinglets	
Golden-crowned kinglet	<i>Regulus satrapa</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>
Thrushes	
American robin	<i>Turdus migratorius</i>
Townsend's solitaire	<i>Myadestes townsendi</i>
Swainson's thrush	<i>Catharus ustulatus</i>
Hermit thrush	<i>Catharus guttatus</i>
Veery*	<i>Catharus fuscescens*</i>
Mountain bluebird	<i>Sialia currucoides</i>
Western bluebird	<i>Sialia mexicana</i>
Varied thrush	<i>Ixoreus naevius</i>
Thrashers, Mockingbirds, and Catbirds	
Gray catbird	<i>Dumetella carolinensis</i>
Sage thrasher*	<i>Oreoscoptes montanus*</i>
Starlings	
European starling	<i>Sturnus vulgaris</i>

<i>Common name</i>	<i>Scientific name</i>
Pipits	
American pipit	<i>Anthus rubescens</i>
Waxwings	
Bohemian waxwing	<i>Bombycilla garrulous</i>
Cedar waxwing	<i>Bombycilla cedrorum</i>
Warblers	
Nashville warbler	<i>Vermivora ruficapilla</i>
Orange-crowned warbler	<i>Vermivora celata</i>
Yellow warbler	<i>Dendroica petechia</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>
Townsend's warbler	<i>Dendroica townsendi</i>
Northern waterthrush	<i>Seiurus noveboracensis</i>
Common yellowthroat	<i>Geothlypis trichas</i>
MacGillivray's warbler	<i>Oporornis tolmiei</i>
Wilson's warbler	<i>Wilsonia pusilla</i>
Black-and-white warbler	<i>Mniotilta varia</i>
American redstart	<i>Setophaga ruticilla</i>
Yellow-breasted chat	<i>Icteria virens</i>
Blackpoll warbler	<i>Dendroica striata</i>
Sparrows	
American tree sparrow	<i>Spizella arborea</i>
Clay-colored sparrow	<i>Spizella pallida</i>
Chipping sparrow	<i>Spizella passerina</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
Spotted towhee	<i>Pipilo maculatus</i>
Harris' sparrow	<i>Zonotrichia querula</i>
Song sparrow	<i>Melospiza melodia</i>
Lincoln sparrow	<i>Melospiza lincolnii</i>
Vesper sparrow	<i>Poocetes gramineus</i>
Fox sparrow	<i>Passerella iliaca</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
LeConte's sparrow*	<i>Ammodramus leconteii*</i>
Swamp sparrow	<i>Melospiza georgiana</i>
Dark-eyed junco	<i>Junco hyemalis</i>
House sparrow	<i>Passer domesticus</i>
Snow bunting	<i>Plectrophenax nivalis</i>
Tanagers, Cardinals, and Buntings	
Western tanager	<i>Piranga ludoviciana</i>
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>
Lazuli bunting	<i>Passerina amoena</i>
Blackbirds	
Bobolink*	<i>Dolichonyx oryzivorus*</i>
Western meadowlark	<i>Sturnella neglecta</i>
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>

<i>Common name</i>	<i>Scientific name</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Bullock's oriole	<i>Icterus bullockii</i>
Common grackle	<i>Quiscalus quiscula</i>
Rusty blackbird	<i>Euphagus carolinus</i>
Finches	
House finch	<i>Carpodacus mexicanus</i>
Pine grosbeak	<i>Pinicola enucleator</i>
Evening grosbeak	<i>Coccothraustes vespertinus</i>
Common redpoll	<i>Carduelis flammea</i>
Pine siskin	<i>Carduelis pinus</i>
American goldfinch	<i>Carduelis tristis</i>
Red crossbill	<i>Loxia curvirostra</i>

CLASS MAMMALIA

<i>Common name</i>	<i>Scientific name</i>
Shrews	
Vagrant shrew	<i>Sorex vagrans</i>
Common (masked) shrew	<i>Sorex cinereus</i>
Yellow-pine chipmunk	<i>Tamias amoenus</i>
Bats	
California myotis	<i>Myotis californicus</i>
Western small-footed myotis	<i>Myotis ciliolabrum</i>
Western long-eared myotis	<i>Myotis evotis</i>
Little brown bat	<i>Myotis lucifugus</i>
Fringed myotis*	<i>Myotis thysanodes*</i>
Long-legged myotis	<i>Myotis volans</i>
Yuma myotis	<i>Myotis ymanensis</i>
Townsend's big-eared bat*	<i>Corynorhinus townsendii*</i>
Hoary bat*	<i>Lasiurus cinereus*</i>
Big brown bat	<i>Eptesicus fuscus</i>
Silver-haired bat	<i>Lasionycteris noctivagans</i>
Beavers	
American beaver	<i>Castor canadensis</i>
Porcupines	
Common porcupine	<i>Erethizon dorsatum</i>
Pocket Gophers	
Northern pocket gopher	<i>Thomomys talpoides</i>
Mice, Voles, and Rats	
Deer mouse	<i>Peromyscus maniculatus</i>
Meadow vole	<i>Microtus pennsylvanicus</i>
Bushy-tailed woodrat	<i>Neotoma cinerea</i>
Common muskrat	<i>Ondatra zibethicus</i>
Squirrels	
Red squirrel	<i>Tamiasciurus hudsonicus</i>

<i>Common name</i>	<i>Scientific name</i>
Columbian ground squirrel	<i>Spermophilus columbianus</i>
Northern flying squirrel	<i>Glaucomys sabrinus</i>
Eastern fox squirrel	<i>Sciurus niger</i>
Yellow-bellied marmot	<i>Marmota flaviventris</i>
Wolves, Coyotes, and Foxes	
Red fox	<i>Vulpes vulpes</i>
Coyote	<i>Canis latrans</i>
Gray wolf*	<i>Canis lupus*</i>
Cats	
Bobcat	<i>Lynx rufus</i>
Mountain lion	<i>Puma concolor</i>
Skunks	
Striped skunk	<i>Mephitis mephitis</i>
Weasels	
Short-tailed weasel	<i>Mustela erminea</i>
Northern river otter	<i>Lontra canadensis</i>
American badger	<i>Taxidea taxus</i>
Mink	<i>Mustela vison</i>
Raccoons	
Raccoon	<i>Procyon lotor</i>
Bears	
Black bear	<i>Ursus americanus</i>
Deer, Moose, and Elk	
White-tailed deer	<i>Odocoileus virginianus</i>
Moose	<i>Alces alces</i>
Mule deer	<i>Odocoileus hemionus</i>
Elk	<i>Cervus elaphus</i>

CLASS OSTEICHTHYES

<i>Common name</i>	<i>Scientific name</i>
Fish	
Largemouth bass†	<i>Micropterus salmoides</i> †
Pumpkinseed†	<i>Lepomis gibbosus</i> †
Yellow perch†	<i>Perca flavescens</i> †
Largescale sucker	<i>Catostomus macrocheilus</i>
Longnose sucker	<i>Catostomus catostomus</i>
Northern pikeminnow	<i>Ptychocheilus oregonensis</i>
Redside shiner	<i>Richardsonius balteatus</i>
Mountain whitefish	<i>Prosopium williamsoni</i>
Rainbow trout†	<i>Oncorhynchus mykiss</i> †
Brown trout†	<i>Salmo trutta</i> †
Brook trout†	<i>Salvelinus fontinalis</i> †
Bull trout*	<i>Salvelinus confluentus</i> *

CLASS PINOPSIDA

<i>Common name</i>	<i>Scientific name</i>
Pinaceae (Pine)	
Rocky Mountain juniper	<i>Juniperus scopulorum</i>
Lodgepole pine	<i>Pinus contorta</i>
Ponderosa pine	<i>Pinus ponderosa</i> v. <i>ponderosa</i>
Douglas fir	<i>Pseudotsuga menziesii</i> v. <i>glauca</i>

CLASS MAGNOLIOPSIDA

<i>Common name</i>	<i>Scientific name</i>
Aceraceae (Maple)	
Rocky mountain maple	<i>Acer glabrum</i>
Amaranthaceae Amaranth (Pigweed)	
Tumbleweed	<i>Amaranthus albus</i>
Prostrate pigweed	<i>Amaranthus graecizans</i>
Powell's amaranth	<i>Amaranthus powellii</i>
Redroot amaranth	<i>Amaranthus retroflexus</i>
Asclepiadaceae (Milkweed)	
Showy milkweed	<i>Asclepias speciosa</i>
Apocynaceae (Dogbane)	
Spreading dogbane	<i>Apocynum androsaemifolium</i>
Clasping leaved dogbane	<i>Apocynum sibiricum</i>
Balsaminaceae (Touch-Me-Not)	
Spurless jewelweed	<i>Impatiens ecalcarata</i>
Berberidaceae (Barberry)	
Oregon grape	<i>Berberis repens</i>
Betulaceae (Birch)	
Thin-leaved alder	<i>Alnus incana</i>
River birch	<i>Betula occidentalis</i>
Boraginaceae (Borage)	
Slender cryptantha	<i>Cryptantha affinis</i>
Houndstongue‡	<i>Cynoglossum officinale‡</i>
Blueweed‡	<i>Echium vulgare‡</i>
Western stickseed	<i>Lappula redowskii</i>
Corn gromwell	<i>Lithospermum arvense</i>
Wayside gromwell	<i>Lithospermum ruderale</i>
Field forget-me-not	<i>Myosotis arvensis</i>
Small flowered forget-me-not	<i>Myosotis laxa</i>
Blue forget-me-not	<i>Myosotis micrantha</i>
Common forget-me-not	<i>Myosotis scorpioides</i>
Early forget-me-not	<i>Myosotis verna</i>
Italian bugloss‡	<i>Anchusa azurea mill‡</i>
Scouler's popcorn-flower	<i>Plagiobothrys scouleri</i>
Cactaceae (Cactus)	
Brittle cholla	<i>Opuntia fragilis</i>

<i>Common name</i>	<i>Scientific name</i>
Callitriche (Water-Starwort)	
Northern water-starwort	<i>Callitriche hermaphroditica</i>
Water-starwort	<i>Callitriche heterophylla</i>
Pond water-starwort	<i>Campanula rotundifolia</i>
Campanulaceae (Harebell)	
Scotch harebell	<i>Campanula rotundifolia</i>
Caprifoliaceae (Honeysuckle)	
Blue elderberry	<i>Sambucus caerulea</i>
Common snowberry	<i>Symphoricarpos albus</i>
High-bush cranberry	<i>Viburnum opulus</i>
Caryophyllaceae (Pink)	
Blunt leaved sandwort	<i>Arenaria lateriflora</i>
Thyme-leaved sandwort	<i>Arenaria serpyllifolia</i>
Field chickweed	<i>Cerastium arvense</i>
Nodding chickweed	<i>Cerastium nutans</i>
Jagged chickweed	<i>Holosteum umbellatum</i>
White champion	<i>Lychnis alba</i>
Menzies' silene	<i>Silene menziesii</i>
Red sandspurry	<i>Spergularia rubra</i>
Long leaved starwort	<i>Stellaria longifolia</i>
Ceratophyllaceae (Hornwort)	
Common hornwort	<i>Ceratophyllum demersum</i>
Chenopodiaceae (Goosefoot)	
Fat hen	<i>Atriplex patula</i> v. <i>hastata</i>
Lambs quarter	<i>Chenopodium album</i>
Jerusalem oak	<i>Chenopodium botrys</i>
Maple leaved goosefoot	<i>Chenopodium hybridum</i>
Kochia/red belvedere‡	<i>Kochia scoparia</i> ‡
Poverty weed	<i>Monolepis nuttalliana</i>
Russian thistle‡	<i>Salsola kali</i> ‡
Compositae (Asteraceae) (Sunflower)	
Yarrow	<i>Achillea millefolium</i>
False dandelion	<i>Agoseris glauca</i>
Pearly everlasting	<i>Anaphalis margaritacea</i>
Nuttals pussy-toes	<i>Antennaria parviflora</i>
Rosy pussy-toes	<i>Antennaria microphylla</i>
Umber pussy-toes	<i>Antennaria umbrinella</i>
Common burdock‡	<i>Arctium minus</i> ‡
Meadow arnica	<i>Arnica chamissonis</i>
Western absinthium ‡	<i>Artemisia absinthium</i> ‡
Biennial sagewort	<i>Artemisia biennis</i>
Northern sagewort	<i>Artemisia campestris</i> v. <i>scouleriana</i>
Tarragon	<i>Artemisia dracunculus</i>
Fringed sagewort	<i>Artemisia frigida</i>
Western mugwort	<i>Artemisia ludoviciana</i> v. <i>latiloba</i>

<i>Common name</i>	<i>Scientific name</i>
Prairie sage	<i>Artemisia ludoviciana v. ludoviciana</i>
Smooth aster	<i>Aster laevis</i>
Few-flowered aster	<i>Aster modestus</i>
White prairie aster	<i>Aster pansus</i>
Beggar-ticks	<i>Bidens cernua</i>
Musk thistle‡	<i>Carduus nutans‡</i>
Spotted knapweed‡	<i>Centaurea maculosa‡</i>
Oxeye daisy‡	<i>Chrysanthemum leucanthemum‡</i>
Hairy golden aster	<i>Chrysopsis villosa</i>
Rabbit-brush	<i>Chrysothamnus nauseosus</i>
Canada thistle‡	<i>Cirsium arvense‡</i>
Wavy leaved thistle	<i>Cirsium undulatum</i>
Bull thistle	<i>Cirsium vulgare</i>
Horseweed	<i>Conyza canadensis</i>
Cutleaf daisy	<i>Erigeron compositus</i>
Spreading fleabane	<i>Erigeron divergens</i>
Shaggy fleabane	<i>Erigeron pumilus</i>
Showy fleabane	<i>Erigeron speciosus</i>
Daisy fleabane	<i>Erigeron strigosus v. strigosus</i>
Field filago	<i>Filago arvensis</i>
Blanket flower	<i>Gaillardia aristata</i>
Lowland cudweed	<i>Gnaphalium palustre</i>
Gumweed	<i>Grindelia squarrosa</i>
Sunflower	<i>Helianthus annuus</i>
Nuttals sunflower	<i>Helianthus nuttallii</i>
Narrow-leaved hawkweed	<i>Hieracium umbellatum</i>
Poverty weed	<i>Iva xanthifolia</i>
Prickly lettuce	<i>Lactuca serriola</i>
Pineapple weed‡	<i>Matricaria matricarioides‡</i>
Nodding microseris	<i>Microseris nutans</i>
False-agroseris	<i>Microseris troximoides</i>
Woolly groundsel	<i>Senecio canus</i>
Groundsel	<i>Senecio indecorus</i>
Tall butterweed	<i>Senecio serra</i>
Canada goldenrod	<i>Solidago canadensis</i>
Late goldenrod	<i>Solidago gigantea</i>
Missouri goldenrod	<i>Solidago missouriensis</i>
Western goldenrod	<i>Solidago occidentalis</i>
Common sowthistle	<i>Sonchus oleraceus</i>
Marsh sowthistle‡	<i>Sonchus uliginosus‡</i>
Common tansy‡	<i>Tanacetum vulgare‡</i>
Smooth dandelion‡	<i>Taraxacum laevigatum‡</i>
Common dandelion‡	<i>Taraxacum officinale‡</i>
Goatsbeard/western salsify‡	<i>Tragopogon dubius‡</i>
Cocklebur	<i>Xanthium strumarium</i>

<i>Common name</i>	<i>Scientific name</i>
Convolvulaceae (Morning-Glory)	
Field bindweed‡	<i>Convolvulus arvensis</i>
Cornaceae (Dogwood)	
Red-osier dogwood	<i>Cornus stolonifera</i>
Crassulaceae (Stonecrop)	
Lanceleaf stonecrop	<i>Sedum lanceolatum</i>
Cruciferae (Mustard)	
Pale alyssum	<i>Alyssum alyssoides</i>
Desert alyssum	<i>Alyssum desertorum</i>
Holboell's rockcress	<i>Arabis holboellii</i>
Nuttall's rockcress	<i>Arabis nuttallii</i>
Wintercress	<i>Barbarea orthoceras</i>
Hoary alyssum‡	<i>Berteroa incana‡</i>
Field mustard	<i>Brassica campestris</i>
Black mustard	<i>Brassica nigra</i>
Hairy false flax	<i>Camelina microcarpa</i>
Shepherd's purse	<i>Capsella bursa-pastoris</i>
Little western bittercress	<i>Cardamine oligosperma</i>
Pennsylvania bittercress	<i>Cardamine pennsylvanica</i>
Tansy mustard	<i>Descurainia sophia</i>
Woods draba	<i>Draba nemorosa</i>
Whitlow-grass	<i>Draba verna</i>
Wormseed mustard	<i>Erysimum cheiranthoides</i>
Dame's rocket	<i>Hesperis matronalis</i>
Field pepper grass	<i>Lepidium campestre</i>
Common pepper grass	<i>Lepidium densiflorum</i>
Clasping pepper grass	<i>Lepidium perfoliatum</i>
Western yellowcress	<i>Rorippa curvisiliqua</i>
Marsh yellowcress	<i>Rorippa islandica</i>
Watercress	<i>Rorippa nasturtiumaquaticum</i> v. <i>glabrata</i>
Jim hill mustard	<i>Sisymbrium altissimum</i>
Tumble mustard	<i>Sisymbrium loeselii</i>
Fanweed	<i>Thlaspi arvense</i>
Dipsacaceae (Teasel)	
Teasel‡	<i>Dipsacus sylvestris‡</i>
Euphorbiaceae (Spurge)	
Leafy spurge‡	<i>Euphorbia esula‡</i>
Corrugate-seeded spurge	<i>Euphorbia glyptosperma</i>
Thyme-leaf spurge	<i>Euphorbia serpyllifolia</i>
Ericaceae (Heath)	
White pyrola	<i>Pyrola elliptica</i>
Pinedrops	<i>Pterospora andromeda</i>
Geraniaceae (Geranium)	
Cranes bill	<i>Erodium cicutarium</i>
Bicknell's geranium	<i>Geranium bicknellii</i>

<i>Common name</i>	<i>Scientific name</i>
Small field geranium	<i>Geranium pusillum</i>
Sticky geranium	<i>Geranium viscosissimum</i>
Grossulariaceae (Gooseberry)	
Common current	<i>Ribes sativum</i>
Missouri gooseberry	<i>Ribes setosum</i>
Haloragaceae (Water-Milfoil)	
Northern water milfoil	<i>Myriophyllum sibiricum</i>
Hippuridaceae (Mares-Tail)	
Mares-tail	<i>Hippuris vulgaris</i>
Hydrophyllaceae (Waterleaf)	
Sand phacelia	<i>Phacelia linearis</i>
Hypericaceae (St. Johnswort)	
Western St. Johnswort	<i>Hypericum formosum</i> v. <i>scouleri</i>
Canada St. Johnswort	<i>Hypericum majus</i>
Goatweed/St. Johnswort‡	<i>Hypericum perforatum</i> ‡
Labiatae (Mint)	
Hemp nettle	<i>Galeopsis tetrahit</i>
Water horehound	<i>Lycopus americanus</i>
Rough bugleweed	<i>Lycopus asper</i>
Northern bugleweed	<i>Lycopus uniflorus</i>
Field mint	<i>Mentha arvensis</i>
Wild bergamot	<i>Monarda fistulosa</i>
Catnip	<i>Nepeta cataria</i>
Purple dragonhead	<i>Physostegia parviflora</i>
Self-heal	<i>Prunella vulgaris</i>
Marsh skullcap	<i>Scutellaria galericulata</i>
Hedge nettle	<i>Stachys palustris</i> v. <i>pilosa</i>
Leguminosae (Pea)	
Canada milkvetch	<i>Astragalus canadensis</i> v. <i>mortonii</i>
Weedy milkvetch	<i>Astragalus miser</i>
Wild licorice	<i>Glycyrrhiza lepidota</i>
Velvet lupine	<i>Lupinus leucophyllus</i>
Washington lupine	<i>Lupinus polyphyllus</i>
Blue-bonnet	<i>Lupinus sericeus</i>
Black medic	<i>Medicago lupulina</i>
Alfalfa	<i>Medicago sativa</i>
White sweet-clover	<i>Melilotus alba</i>
Yellow sweet-clover	<i>Melilotus officinalis</i>
Alsike clover	<i>Trifolium hybridum</i>
Wooly clover	<i>Trifolium microcephalum</i>
Red clover	<i>Trifolium pratense</i>
White clover	<i>Trifolium repens</i>
White-tip clover	<i>Trifolium variegatum</i>
American vetch	<i>Vicia americana</i>
Common vetch	<i>Vicia sativa</i>
Slender vetch	<i>Vicia tetrasperma</i>

<i>Common name</i>	<i>Scientific name</i>
Hairy vetch	<i>Vicia villosa</i>
Lentibulariaceae (Bladderwort)	
Little bladderwort	<i>Utricularia minor</i>
Common bladderwort	<i>Utricularia vulgaris</i>
Loranthaceae (Mistletoe)	
Dwarf mistletoe	<i>Arceuthobium</i> sp.
Malvaceae (Mallow)	
Common mallow	<i>Malva neglecta</i>
Cheese weed	<i>Malva parviflora</i>
Moraceae (Mulberry)	
Hops	<i>Humulus lupulus</i>
Nymphaeaceae (Water Lily)	
Indian pond lily	<i>Nuphar polysepalum</i>
Onagraceae (Evening Primrose)	
Enchanter's nightshade	<i>Circaea alpina</i>
Fireweed	<i>Epilobium angustifolium</i>
Swamp willow-herb	<i>Epilobium palustre</i>
Annual willow-herb	<i>Epilobium paniculatum</i>
Shrubby willow-herb	<i>Epilobium suffruticosum</i>
Watson's willow-herb	<i>Epilobium watsonii</i>
Yellow evening primrose	<i>Oenothera strigosa</i>
Oxalidaceae (Wood-Sorrel)	
Yellow wood-sorrel	<i>Oxalis corniculata</i>
Plantaginaceae (Plantain)	
Ribgrass	<i>Plantago lanceolata</i>
Common plantain	<i>Plantago major</i> v. <i>major</i>
Indian wheat	<i>Plantago patagonica</i>
Polemoniaceae (Phlox)	
Narrow-leaved collomia	<i>Collomia linearis</i>
Scarlet gillia	<i>Gilia aggregata</i>
Pink microsteris	<i>Microsteris gracilis</i>
Annual polemonium	<i>Polemonium micranthum</i>
Jacob's ladder	<i>Polemonium pulcherrimum</i> v. <i>calycinum</i>
Polygonaceae (Buckwheat)	
Umbrella plant	<i>Erigonum umbellatum</i> v. <i>subalpinum</i>
Knotweed	<i>Polygonum achoreum</i>
Water smartweed	<i>Polygonum amphibium</i>
Dooryard knotweed	<i>Polygonum aviculare</i>
Water smartweed	<i>Polygonum coccineum</i>
Ivy bindweed	<i>Polygonum convolvulus</i>
Douglas' knotweed	<i>Polygonum douglasii</i> v. <i>douglasii</i>
Marshpepper	<i>Polygonum hydropiper</i>
Smartweed	<i>Polygonum hydropiperoides</i>
Willow weed	<i>Polygonum lapathifolium</i>
Spotted ladysthumb	<i>Polygonum persicaria</i>
Dotted smartweed	<i>Polygonum punctatum</i>

<i>Common name</i>	<i>Scientific name</i>
Red sorrel	<i>Rumex acetosella</i>
Curly dock	<i>Rumex crispus</i>
Seaside dock	<i>Rumex maritimus</i>
Western dock	<i>Rumex occidentalis</i>
Willow dock	<i>Rumex salicifolius</i>
Portulacaceae (Purslane)	
Narrow-leaved miners lettuce	<i>Montia linearis</i>
Miner's lettuce	<i>Montia perfoliata</i>
Purslane	<i>Portulaca oleracea</i>
Bitterroot	<i>Lewisia rediviva</i>
Primulaceae (Primrose)	
Fairy candelabra	<i>Androsace occidentalis</i>
Woodland shooting star	<i>Dodecatheon pulchellum</i>
Fringed loosestrife	<i>Lysimachia ciliata</i>
Tufted loosestrife	<i>Lysimachia thrysiflora</i>
Ranunculaceae (Buttercup)	
Western clematis	<i>Clematis ligusticifolia</i>
Sedge mousetail	<i>Myosurus aristatus</i>
Kidney-leaved buttercup	<i>Ranunculus abortivus</i>
Tall buttercup‡	<i>Ranunculus acris‡</i>
Water buttercup	<i>Ranunculus aquatilis</i> v. <i>capillaceus</i>
Shore buttercup	<i>Ranunculus cymbalaria</i>
Yellow water buttercup	<i>Ranunculus flabellaris</i>
Creeping buttercup	<i>Ranunculus flammula</i>
Sagebrush buttercup	<i>Ranunculus glaberrimus</i> v. <i>glaberrimus</i>
Gmelins buttercup	<i>Ranunculus gmelinii</i> v. <i>limosus</i>
Long-beaked water-buttercup	<i>Ranunculus longirostris</i>
Macouns buttercup	<i>Ranunculus macounii</i>
Bristly buttercup	<i>Ranunculus pensylvanicus</i>
Creeping buttercup	<i>Ranunculus repens</i>
Celery-leaved buttercup	<i>Ranunculus sceleratus</i>
Stiff-leaf water buttercup	<i>Ranunculus subrigidus</i>
Little buttercup	<i>Ranunculus uncinatus</i> v. <i>uncinatus</i>
Tall meadowrue	<i>Thalictrum dasycarpum</i>
Western meadowrue	<i>Thalictrum occidentale</i>
Few-flowered meadowrue	<i>Thalictrum sparsiflorum</i>
Rosaceae (Rose)	
Serviceberry	<i>Amelanchier alnifolia</i>
River hawthorn	<i>Crataegus douglasii</i>
Woods strawberry	<i>Fragaria vesca</i>
Blueleaf strawberry	<i>Fragaria virginiana</i>
Large-leaved avens	<i>Geum macrophyllum</i>
Water avens	<i>Geum rivale</i>
Prairie smoke	<i>Geum triflorum</i>
Silverweed	<i>Potentilla anserina</i>

<i>Common name</i>	<i>Scientific name</i>
Silvery cinquefoil	<i>Potentilla argentia</i>
Biennial cinquefoil	<i>Potentilla biennis</i>
Sticky cinquefoil	<i>Potentilla glandulosa</i>
Elmer's cinquefoil	<i>Potentilla gracilis</i> v. <i>elmeri</i>
Marsh cinquefoil	<i>Potentilla palustris</i>
Sulfur cinquefoil‡	<i>Potentilla recta</i> ‡
Bitter cherry	<i>Prunus emarginata</i>
Chokecherry	<i>Prunus virginiana</i> v. <i>melanocarpa</i>
Woods rose	<i>Rosa woodsii</i>
Red raspberry	<i>Rubus idaeus</i>
Rubiaceae (Madder)	
Cleavers	<i>Galium aparine</i>
Thinleaf bedstraw	<i>Galium bifolium</i>
Northern bedstraw	<i>Galium boreale</i>
Small cleavers	<i>Galium trifidum</i>
Salicaceae (Wwillow)	
Lombardy poplar	<i>Populus nigra</i> v. <i>italica</i>
Quaking aspen	<i>Populus tremuloides</i>
Black cottonwood	<i>Populus trichocarpa</i>
Peach-leaf willow	<i>Salix amygdaloides</i>
Bebb willow	<i>Salix bebbiana</i>
Sandbar willow	<i>Salix exigua</i>
Geyer willow	<i>Salix geyeriana</i>
Whiplash willow	<i>Salix lasiandra</i>
Mackenzie willow	<i>Salix rigida</i>
Saxifragaceae (Saxifrage)	
Smooth fringe cup	<i>Lithophragma glabra</i>
Small-flowered fringe cup	<i>Lithophragma parviflora</i>
Scrophulariaceae (Figwort)	
Blue-eyed mary	<i>Collinsia parviflora</i>
Common hedge-hyssop	<i>Gratiola neglecta</i>
Dalmation toadflax‡	<i>Linaria dalmatica</i> ‡
Yellow toadflax‡	<i>Linaria vulgaris</i> ‡
Monkey flower	<i>Mimulus guttatus</i> v. <i>guttas</i>
Musk plant	<i>Mimulus moschatus</i>
Little penstemon	<i>Penstemon procerus</i>
Common mullein	<i>Verbascum thapsus</i>
American speedwell	<i>Veronica americana</i>
Water speedwell	<i>Veronica anagallis-aquatica</i>
Chain speedwell	<i>Veronica catenata</i>
Purslane speedwell	<i>Veronica peregrina</i>
Thyme-leaved speedwell	<i>Veronica serpyllifolia</i> v. <i>serpyllifolia</i>
Vernal speedwell	<i>Veronica verna</i>
Solanaceae (Nightshade)	
Henbane	<i>Hyoscyamus niger</i>

<i>Common name</i>	<i>Scientific name</i>
Bittersweet nightshade	<i>Solanum dulcamara</i>
Cut-leaved nightshade	<i>Solanum triflorum</i>
Umbelliferae (Parsley)	
Water hemlock	<i>Cicuta douglasii</i>
Cow-parsnip	<i>Heracleum lanatum</i>
Mountain sweet-cicely	<i>Osmorhiza chilensis</i>
Wild parsnip	<i>Pastinaca sativa</i>
Black snakeroot	<i>Sanicula marilandica</i>
Water parsnip	<i>Sium suave</i>
Urticaceae (Nettle)	
Stinging nettle	<i>Urtica dioica</i> spp. <i>Gracilis</i>
Verbenaceae (Vervain)	
Blue vervain	<i>Verbena hastata</i>
Violaceae (Violet)	
Early blue violet	<i>Viola adunca</i> v. <i>bellidifolia</i>
Marsh violet	<i>Viola palustris</i>
Bog violet	<i>Viola nephrophylla</i>

CLASS LILIOPSIDA

<i>Common name</i>	<i>Scientific name</i>
Alismataceae (Water-Plantain)	
America water-plantain	<i>Alisma plantago-aquatica</i> v. <i>americanum</i>
Narrowleaf water-plantain	<i>Alisma gramineum</i> v. <i>angustissimum</i>
Arumleaf arrowhead	<i>Sagittaria cuneata</i>
Cyperaceae (Sedge)	
Awned sedge	<i>Carex atherodes</i>
Water sedge	<i>Carex aquatilis</i>
Clustered sedge	<i>Carex arcta</i>
Slenderbeaked sedge	<i>Carex anthrostachya</i>
Golden sedge	<i>Carex aurea</i>
Bebb's sedge	<i>Carex bebbii</i>
Lesser panicled sedge	<i>Carex diandra</i>
Douglas' sedge	<i>Carex douglassii</i>
Wooly sedge	<i>Carex languinosa</i>
Slender sedge	<i>Carex lasiocarpa</i>
Kellog's sedge	<i>Carex lenticularis</i>
Nebraska sedge	<i>Carex nebrascensis</i>
Retrose sedge	<i>Carex retrosa</i>
Sawbeaked sedge	<i>Carex stipata</i>
Beaked sedge	<i>Carex utriculata</i> (c. <i>Rostrata</i>)
Inflated sedge	<i>Carex vesicaria</i>
Fox sedge	<i>Carex vulpinoidea</i>
Awned flatsedge	<i>Cyperus aristatus</i>
Shining flatsedge*	<i>Cyperus rivularis</i> *
Needle spike-rush	<i>Eleocharis acicularis</i>

<i>Common name</i>	<i>Scientific name</i>
Delicate spike-rush	<i>Eleocharis bella</i>
Common spike-rush	<i>Eleocharis palustris</i>
Hardstem bulrush	<i>Scirpus acutus</i>
Small-fruited bulrush	<i>Scirpus microcarpus</i>
Softstem bulrush	<i>Scirpus validus</i>
Poaceae (Gramineae) (Grass)	
Goat grass	<i>Aegilops cylindrica</i>
Bearded wheatgrass	<i>Agropyron canium</i> v. <i>andinum</i>
Crested wheatgrass	<i>Agropyron cristatum</i>
Thin spiked wheatgrass	<i>Agropyron dasystachyum</i>
Intermediate wheatgrass	<i>Agropyron intermedium</i>
Quack grass	<i>Agropyron repens</i>
Western wheatgrass	<i>Agropyron smithii</i>
Bluebunch wheatgrass	<i>Agropyron spicatum</i>
Redtop	<i>Agropyron alba</i> v. <i>alba</i>
Tickle-grass	<i>Agropyron scabra</i>
Shortawn foxtail	<i>Alopecurus aequalis</i>
Meadow foxtail	<i>Alopecurus partensis</i>
Common oats	<i>Avena sativa</i>
Slough grass	<i>Beckmania syzigachne</i>
Smooth brome-grass	<i>Bromus inermis</i> spp. <i>inermis</i>
Soft brome-grass	<i>Bromus mossi</i>
Cheatgrass‡	<i>Bromus tectorum</i> ‡
Bluejoint reedgrass	<i>Calamagrostis canadensis</i> v. <i>canadensis</i>
Slim reedgrass	<i>Calamagrostis neglecta</i>
Brook grass	<i>Catabrosa aquatica</i>
Woodreed	<i>Cina latifolia</i>
Orchard grass	<i>Dactylis glomerata</i>
Canada wildrye	<i>Elymus canadensis</i>
Great basin wildrye	<i>Elymus cinereus</i>
Stinkgrass	<i>Eragrostis cilienensis</i>
Tall fescue	<i>Festuca arundinacea</i>
Six weeks fescue	<i>Festuca octoflora</i>
Northern mannagrass	<i>Glyceria borealis</i>
Tall mannagrass	<i>Glyceria elata</i>
American mannagrass	<i>Glyceria grandis</i>
Fowl mannagrass	<i>Glyceria striata</i>
Foxtail barley	<i>Hordeum jubatum</i>
Junegrass	<i>Koeleria cristata</i>
Perennial ryegrass	<i>Lolium perenne</i>
Indian ricegrass	<i>Oryzopsis hymenoides</i>
Common witchgrass	<i>Panicum capillare</i>
Reed canarygrass	<i>Phalaris arundinacea</i>
Common timothy	<i>Phleum pratense</i>
Annual bluegrass	<i>Poa annua</i>

<i>Common name</i>	<i>Scientific name</i>
Viviparous bluegrass	<i>Poa bulbosa</i>
Canada bluegrass	<i>Poa compressa</i>
Fowl bluegrass	<i>Poa palustris</i>
Kentucky bluegrass	<i>Poa pratensis</i>
Sandbergs bluegrass	<i>Poa sandbergii</i>
Green bristlegrass	<i>Setaria viridis</i>
Sand dropseed	<i>Sporobolus cryptandrus</i>
Squirreltail	<i>Sitanion hystrix</i>
Needle and thread	<i>Stipa comata</i>
Green needlegrass	<i>Stipa viridula</i>
Canada waterweed	<i>Elodea canadensis</i>
Nuttalls waterweed	<i>Elodea nuttallii</i>
Yellow flag iris‡	<i>Iris pseudacorus‡</i>
Blue-eyed grass	<i>Sisyrinchium angustifolium</i>
Wire grass	<i>Juncus balticus</i>
Toad rush	<i>Juncus bufonius</i>
Soft rush	<i>Juncus effusus</i>
Dagger-leaf rush	<i>Juncus ensifolius</i>
Tuberous rush	<i>Juncus nodosus</i>
Slender rush	<i>Juncus tenuis</i> v. <i>tenuis</i>
Torrey's rush	<i>Juncus torrei</i>
Smooth rush	<i>Luzula hitchcockii</i>
Water lentil	<i>Lemna minor</i>
Star duckweed	<i>Lemna trisulca</i>
Great duckweed	<i>Spirodela polyrhiza</i>
Watermeal	<i>Wolffia punctata</i>
Nodding onion	<i>Allium cernuum</i>
Asparagus	<i>Asparagus officinalis</i>
Wild hyacinth	<i>Brodiaea douglasii</i>
Starry false solomon's seal	<i>Smilacina stellata</i>
Common death camas	<i>Zigadenus venenosus</i>
Guadalupe water-nymph*	<i>Najas guadalupensis*</i>
Reddish pondweed	<i>Potamogeton alpinus</i>
Large-leaved pondweed	<i>Potamogeton amplifolius</i>
Berchtold's pondweed	<i>Potamogeton berchtoldii</i>
Ribbon-leaved pondweed	<i>Potamogeton epihydrus</i>
Slender-leaved pondweed	<i>Potamogeton filiformis</i>
Illinois pondweed	<i>Potamogeton illinoensis</i>

<i>Common name</i>	<i>Scientific name</i>
Floating-leaved pondweed	<i>Potamogeton natans</i>
Fennel-leaved pondweed	<i>Potamogeton pectinatus</i>
Small pondweed	<i>Potamogeton pusillus</i>
Richardsons pondweed	<i>Potamogeton richardsonii</i>
Eel-grass pondweed	<i>Potamogeton zosteriformis</i>
Sparganiaceae (Bur-Reed)	
Narrow-leaved bur-reed	<i>Sparganium angustifolium</i>
Simple stem bur-reed	<i>Sparganium emersum</i> v. <i>multipedunculatum</i>
Typhaceae (Cat-Tail)	
Common cattail	<i>Typha latifolia</i>
Zannichelliaceae (Horned Pondweed)	
Horned pondweed	<i>Zannichellia palustris</i>

CLASS FILICOPSIDA

<i>Common name</i>	<i>Scientific name</i>
Polypodiaceae (Common Fern)	
Brittle bladder-fern	<i>Cystopteris fragilis</i>
Marsileaceae (Pepperwort)	
Pepperwort	<i>Marsilea vestita</i>

CLASS EUISETOPSIDA

<i>Common name</i>	<i>Scientific name</i>
Equisetaceae (Horsetail)	
Common horsetail	<i>Equisetum arvense</i>
Water horsetail	<i>Equisetum fluviatile</i>
Scouring rush	<i>Equisetum hyemale</i>
Smooth scouring rush	<i>Equisetum laevigatum</i>
Marsh horsetail	<i>Equisetum palustre</i>
Shady horsetail	<i>Equisetum pratense</i>

CLASS LYCOPODIOPSIDA

<i>Common name</i>	<i>Scientific name</i>
Selaginellaceae (Clubmoss)	
Compact clubmoss	<i>Selaginella densa</i> v. <i>densa</i>

CLASS MARCHANTIOSPIDA

<i>Common name</i>	<i>Scientific name</i>
Marchantiaceae	
—	<i>Marcantia polymorpha</i>
Ricciaceae	
—	<i>Riccio carpus natans</i>

CLASS CHLOROPHYCEAE

<i>Common name</i>	<i>Scientific name</i>
Characeae (Green Algae)	
—	<i>Nostoc</i> spp.
—	<i>Hydrodictyon reticulatum</i>
—	<i>Riccia fluitans</i>
—	<i>Nitella</i> spp.
—	<i>Chara</i> spp.
—	<i>Tolypella</i> spp.

CLASS INSECTA

<i>Common name</i>	<i>Scientific name</i>
Butterflies	
Two-tailed swallowtail	<i>Papilio multicaudata</i>
Western tiger swallowtail	<i>Papilio rutulus</i>
Pale swallowtail	<i>Papilio eurymedon</i>
Western white	<i>Pontia occidentalis</i>
Cabbage white†	<i>Pieris rapae</i> †
Beckers white	<i>Pontia beckerii</i>
Checkered white	<i>Pontia protodice</i>
Clouded sulphur	<i>Colias philodice</i>
Sara orangetip	<i>Anthocharis sara</i>
Orange sulfur	<i>Colias eurytheme</i>
Ediths copper	<i>Lycaena editha</i>
Purplish copper	<i>Lycaena helloides</i>
Bronze copper	<i>Lycaena hyllus</i>
Western pine elfin	<i>Callophrys eryphon</i>
Gray hairstreak	<i>Strymon melinus</i>
Melissa blue	<i>Lycaeides melissa</i>
Spring azure	<i>Celastrina ladon</i>
Arrowhead blue	<i>Glaucopsyche piasus</i>
Great spangled fritillary	<i>Speyeria cybele</i>
Silver-bordered fritillary	<i>Boloria selene</i>
Mormon fritillary	<i>Spreyeria mormonia</i>
Mylitta crescent	<i>Phyciodes mylitta</i>
Northern crescent	<i>Phyciodes cocyta</i>
Field crescent	<i>Phyciodes pratensis</i>
Ediths checkerspot	<i>Euphydryas editha</i>
Satyr anglewing	<i>Polytonia satyrus</i>
Oreas anglewing	<i>Polytonia oreas</i>
Zephyr anglewing	<i>Polytonia zephyrus</i>
Mourning cloak	<i>Nymphalis antiopa</i>
Milbert's tortoiseshell	<i>Nymphalis milberti</i>
California tortoiseshell	<i>Nymphalis californica</i>
Red admiral	<i>Vanessa atalanta</i>
West coast lady	<i>Vanessa annabella</i>

<i>Common name</i>	<i>Scientific name</i>
Painted lady	<i>Vanessa cardui</i>
Lorquins admiral	<i>Limenitis lorquini</i>
Viceroy	<i>Limenitis archippus</i>
Common wood nymph	<i>Cercyonis pegala</i>
Small wood nymph	<i>Cercyonis oetus</i>
Common alpine	<i>Eregia eipsoodea</i>
Common ringlet	<i>Coenonympha ampelos</i>
Pecks skipper	<i>Polites peckius</i>
Sandhill skipper	<i>Polites sabuleti</i>
Long dash	<i>Polites mystic</i>
Common branded skipper	<i>Hesperua comma</i>
Woodland skipper	<i>Ochlodes sylvanoides</i>
Arctic skipper	<i>Carterocephalus palaemon</i>
Garita skipperling	<i>Oarisma garita</i>
Roadside skipper	<i>Amblyscirtes vialis</i>
Common sootywing	<i>Pholisora catullus</i>
Common checkered skipper	<i>Pyrgus communis</i>
Dragonflies and Damselflies	
Spotted spreadwing	<i>Lestes congener</i>
Emerald spreadwing	<i>Lestes dryas</i>
Lyre-tipped spreadwing	<i>Lestes unguiculatus</i>
Northern spreadwing	<i>Lestes disjunctus</i>
Northern bluet	<i>Enallagma annexum</i>
Boreal bluet*	<i>Enallagma boreale*</i>
Marsh bluet	<i>Enallagma ebrium</i>
Pacific forktail	<i>Ischnura cervula</i>
Western forktail	<i>Ischnura perparva</i>
Western red damsel	<i>Amphiagrion abbreviatum</i>
Canada darner	<i>Aeshna canadensis</i>
Lance-tipped darner	<i>Aeshna constricta</i>
Paddle-tailed darner	<i>Aeshna palmata</i>
Shadow darner	<i>Aeshna umbrosa</i>
Common green darner	<i>Anax junius</i>
Variable darner	<i>Aeschna interrupta</i>
California darner	<i>Rhionaeschna californica</i>
Pale snaketail	<i>Ophiogomphus severus</i>
Sinuuous snaketail	<i>Ophiogomphus occidentis</i>
Common whitetail	<i>Plathemis lydia</i>
Four-spotted skimmer	<i>Libellula quadrimaculata</i>
Eight-spotted skimmer	<i>Libellula forensis</i>
Twelve-spotted skimmer	<i>Libellula pulchella</i>
Dot-tailed whiteface	<i>Leucorrhinia intacta</i>
Hudsonian whiteface	<i>Leucorrhinia hudsonica</i>
Variiegated meadowhawk	<i>Sympetrum corruptum</i>
White-faced meadowhawk	<i>Sympetrum obtrusum</i>
Cherry-faced meadowhawk	<i>Sympetrum internum</i>

<i>Common name</i>	<i>Scientific name</i>
Saffron-winged meadowhawk	<i>Sympetrum costiferum</i>
Band-winged meadowhawk	<i>Sympetrum semicinctum</i>
Striped meadowhawk	<i>Sympetrum pallipes</i>
Black meadowhawk	<i>Sympetrum vicinum</i>
Moths	
Isabella tiger moth	<i>Pyrrharctia isabella</i>
Carpenterworm moth	<i>Cossoidea</i> spp.
Big poplar sphinx	<i>Pachysphinx occidentalis</i>
Large yellow underwing	<i>Noctua pronuba</i>
One-eyed sphinx	<i>Smerinthus cerisyi</i>
Polyphemus moth	<i>Antheraea polyphemus</i>
Catocaline moth	<i>Catocala</i> spp.
Beetles	
Blister beetle	<i>Epicauta</i> spp.
Tiger beetle	<i>Cincidela oregona</i>
Leaf beetle	<i>Chrysomelidae latreille</i>
Rifle beetle	<i>Optioservus quadrimaculatus</i>
Beetle	<i>Troposternus latoralis</i>
Tumbling flower beetle	<i>Mordellidae latreille</i>
Carrion beetle	<i>Silphidae latreille</i>
Ground beetle	<i>Pterostichus</i> spp.
Leaf beetle	<i>Systema</i> spp.
Predaceous diving beetle	<i>Platambus</i> spp.
Weevil	<i>Larinus</i> spp.
Weevil	<i>Rhinocyllus conicus</i>
Flies	
Caddisfly	<i>Parapsyche almota</i>
Caddisfly	<i>Limnephelus</i> spp.
Caddisfly	<i>Hydropsyche californica</i>
Mayfly	<i>Baetis tricaudatus</i>
Mayfly	<i>Drunella coloradensis</i>
Mayfly	<i>Ephemerella excrucians</i>
Mayfly	<i>Siphonurus occidentalis</i>
Mayfly	<i>Callibaetis pictus</i>
Mayfly	<i>Rhithrogena robusta</i>
Mayfly	<i>Ameletus similior</i>
Mayfly	<i>Sweltsa</i> spp.
Mayfly	<i>Serratella tibialis</i>
Mayfly	<i>Drunella doddsi</i>
Stonefly	<i>Claassenia sabulosa</i>
Stonefly	<i>Hesperoperla pacifica</i>
Stonefly	<i>Kogotus modestus</i>
Stonefly	<i>Isoperla</i> spp.
Stonefly	<i>Pteronarcella</i>
Deerfly	<i>Chrysops</i> spp.

CLASS GASTROPODA

<i>Common name</i>	<i>Scientific name</i>
Snails and Slugs	
Forest disc	<i>Discus whitneyi</i>
Marsh pondsnail	<i>Stagnicola elodes</i>
Mountain marshsnail	<i>Stagnicola montanensis</i>
Coeur d'Alene Oregonian	<i>Cryptomastix mullani</i>
Brown hive	<i>Euconolus fulvus</i>
Garlic glass snail†	<i>Oxychilus alliarus</i> †
Two-ridge rams-horn snail	<i>Helisoma anceps</i>
Big-eared radix†	<i>Radix auricularia</i> †
Mimic lymnaea snail	<i>Pseudosuccinea columella</i>
Glossy pillar	<i>Cochlicopa lubrica</i>
Grey fieldslug†	<i>Derocerus reticulatum</i> †
Idaho forestsnail	<i>Allogona ptychophora</i>
Lovely vallonina	<i>Vallonia pulchella</i>
Meadow slug†	<i>Derocerus laeve</i> †
Quick gloss	<i>Zonitoides arboreus</i>
Dusky arion†	<i>Arion subfuscus</i> †

CLASS ARACHNIDA

<i>Common name</i>	<i>Scientific name</i>
Spiders	
Western black widow	<i>Latrodectus hesperus</i>

CLASS MALACOSTRACA

<i>Common name</i>	<i>Scientific name</i>
Scuds	
Scud†	<i>Hyalella azteca</i> †

* Species of concern

† Nonnative animal species

‡ Invasive plant species

Appendix F

Fire Management Program

The U.S. Fish and Wildlife Service (Service) has administrative responsibility for fire management at the Lee Metcalf National Wildlife Refuge, which covers 2,800 acres. This appendix describes the fire management plan that will be implemented on the refuge.

F.1 The Role of Fire

Vegetation in the Rocky Mountains evolved under periodic disturbance and defoliation from fire, drought, floods, large herbivores, insect outbreaks, and disease. These periodic disturbances kept the ecosystem diverse and healthy and maintained significant biodiversity for thousands of years.

Historically, wildland fire played an important role in many ecosystems by stimulating regeneration, cycling nutrients, providing a diversity of habitats for plants and wildlife, and decreasing the impacts of insects and diseases. When fire or grazing is excluded from a landscape, fuel loading occurs due to the buildup of thatch and dead or downed trees. Increased fuel loading intensifies a fire's resistance to control, increases the potential for large-scale severe wildfires, and threatens firefighter and public safety as well as Federal and private facilities. The return of fire in most ecosystems is essential for healthy vegetation for wildlife habitats in grasslands, wetlands, and forests.

When used properly, fire can accomplish the following:

- Reduce hazardous fuel buildup in both wildland–urban interface areas and non-wildland–urban interface areas.
- Improve wildlife habitats by reducing the density of vegetation, changing the plant species composition, or both.
- Sustain or increase biological diversity.
- Improve woodland and shrubland by reducing plant density.
- Reduce susceptibility of plants to insect and disease outbreaks.
- Increase the quantity of water available for municipalities and activities that depend on wildland water supplies.

F.2 Wildland Fire Management Policy and Guidance

Based on Federal interagency policy (Fire Executive Council 2009), wildland fire is defined as any non-structure fire that occurs in the wildland including wildfire and prescribed fire. Response to wildland fire is based on consideration of a full range of fire management actions—allowing the fire to benefit the resource where possible or taking suppression action when those benefits are not attainable or important resources or adjacent lands are likely threatened.

The 1995 Federal Wildland Fire Management Policy was updated in 2001. This revised policy directs Federal agencies to achieve a balance between suppressing fires to protect life, property, and resources and prescribing fires to regulate fuels and maintain healthy ecosystems. The following are the foundational principles for Federal Wildland Fire Management Policy and have been excerpted from “Review and Update of the 1995 Federal Wildland Fire Management Policy” (National Wildfire Coordinating Group 2001):

1. Firefighter and public safety is the first priority in every fire management activity.
2. The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process. Federal agency land and resource management plans set the objectives for the use and desired future condition of the various public lands.
3. Fire Management Plans (FMP), programs, and activities support land and resource management plans and their implementation.
4. Sound risk management is a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. Net gains to the public benefit will be an important component of decisions.
5. Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives. Federal agency administrators are adjusting

and reorganizing programs to reduce costs and increase efficiencies. As part of this process, investments in fire management activities must be evaluated against other agency programs in order to effectively accomplish the overall mission, set short- and long-term priorities, and clarify management accountability.

6. Fire Management Plans and activities are based upon the best available science. Knowledge and experience are developed among all federal wildland fire management agencies. An active fire research program combined with interagency collaboration provides the means to make these tools available to all fire managers.
7. Fire Management Plans and activities incorporate public health and environmental quality considerations.
8. Federal, State, tribal, local, interagency, and international coordination and cooperation are essential. Increasing costs and smaller work forces require that public agencies pool their human resources to successfully deal with the ever-increasing and more complex fire management tasks. Full collaboration among federal wildland fire management agencies and between the federal wildland fire management agencies and international, State, tribal, and local governments and private entities result in a mobile fire management work force available for the full range of public needs.
9. Standardization of policies and procedures among federal wildland fire management agencies is an ongoing objective. Consistency of plans and operations provides the fundamental platform upon which federal wildland fire management agencies can cooperate, integrate fire activities across agency boundaries, and provide leadership for cooperation with State, tribal, and local fire management organizations.

The 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 plans (for example, the comprehensive conservation plan [CCP]). Fire management plans are stepdown processes from the land use plans and habitat plans; they detail fire suppression, fire use, and fire management activities.

F.3 Management Direction

Lee Metcalf National Wildlife Refuge will suppress human-caused fires and wildfires that threaten life and property. Appropriate suppression actions—whether aggressive, high intensity, or low intensity—will be based on preplanned analysis, executed to minimize

costs and resource losses, and consistent with land management objectives.

Prescribed fire, as well as manual and mechanical fuel treatments, would be used in an ecosystem context to protect both Federal and private property and for habitat management purposes. Fuel reduction activities would be applied in collaboration with Federal, State, private, and nongovernmental partners. For wildland–urban interface treatments, focal areas would be those with community wildfire protection plans and designated communities at risk. The only community at risk near the refuge, as identified in the Federal Register, is the community of Stevensville, Montana. The State of Montana has developed a community wildfire protection plan for all communities in Ravalli County.

All aspects of the fire management program will be conducted in a manner consistent with applicable laws, Department of Interior and Service policies, and guidance established at national, regional, and local levels. Lee Metcalf National Wildlife Refuge will maintain a fire management plan to accomplish the fire management goals described below. Wildland fire, prescribed fire, and manual and mechanical fuel treatments will be applied under selected weather and environmental conditions, monitored using scientific techniques, and refined using adaptive management.

FIRE MANAGEMENT GOALS

Fire management goals are set at national, regional, and local levels.

National Fire Management Goals

The goals and strategies of the U.S. Fish and Wildlife Service National Wildlife Refuge System Wildland Fire Management Program Strategic Plan are consistent with the following guidance:

- policies of the Department of the Interior and the Service
- direction from the National Fire Plan
- the President’s Healthy Forest Initiative
- 10-Year Comprehensive Strategy and Implementation Plan
- guidelines of the National Wildfire Coordinating Group
- initiatives of the Wildland Fire Leadership Council
- “Interagency Standards for Fire and Aviation Operations”

Regional Fire Management Goals

Priorities stated in “The Region 6 Refuges Regional Priorities FY07–11” are consistent with the vision statement for Region 6: “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.”

Refuge Fire Management Goals and Objectives

Fire management goals and objectives are used in the planning process to help management determine which responses and activities are necessary to achieve National Fire Plan and land management goals and objectives.

The fire management goals and objectives for Lee Metcalf National Wildlife Refuge are as follows:

1. Provide for firefighter and public safety.
2. Suppress human-caused fires and wildfires that threaten life and property.
3. Reduce wildland fire risk to the community of Stevensville and other public structures and private lands through hazardous fuels reduction treatments.
4. Use wildland fire, manual treatment methods, and mechanical treatment methods to achieve habitat goals and objectives identified in this CCP using scientific techniques and adaptive resource management to monitor results.
5. Protect important migratory bird habitats and natural resource values.
6. All wildfires will receive a management response based on firefighter and public safety considerations, resource and cultural values at risk, and circumstances unique to the incident while providing for cost-effective management.
7. Prevent human-caused wildfires through public contact and education, monitoring, and hazard fuels mitigation.
8. Safely suppress all wildfires occurring within the refuge. Maintain an initial attack success rate of 95 percent or higher on wildfires occurring on Service lands.
9. Utilize Burned Area Emergency Response (BAER) or Burned Area Rehabilitation (BAR) funding as needed following wildfires.

10. Implement and monitor a rotational prescribed burn program over the life of the plan that supports the fire dependent communities within the refuge.

The refuge staff recognizes that fire can play an important role in habitat management. With an approved Fire Management Plan, the refuge staff may use wildland fire or prescribed fire in accordance with Federal, State, and local ordinances and laws to achieve hazardous fuels reduction and resource management objectives. Strategies and tactics that consider public and firefighter safety, as well as resource values at risk, will be used. Wildfire suppression, prescribed fire methods, manual and mechanical means, timing, and monitoring will be described in detail within the stepdown fire management plans for the refuge.

On approval of this CCP, the 2010 Fire Management Plan will be reviewed and updated as needed to meet the goals and objectives set forth by the CCP.

F.4 Fire Management Organization, Contacts, and Cooperation

Region 6 of the Service would establish a fire management organization to provide qualified technical oversight of fire management for the refuge. Fire management staffing levels would be determined by established modeling systems and based on the fire management workload of a group of refuges and possibly that of interagency partners. Workload is based on historical wildfire suppression activities as well as historical and planned fuel treatments. Fire management activities would be conducted in a coordinated and collaborative manner through the “Montana State Annual Operating Plan” and other agreements with Federal and non-Federal partners.

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