

# Glossary

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

**A.D.**—Anno Domini, “in the year of the Lord.”

**adaptive resource management (ARM)**—The rigorous application of management, research, and monitoring to gain information and experience necessary to assess and change management activities. It is a process that uses feedback from research, monitoring, and evaluation of management actions to support or change objectives and strategies at all planning levels. It is also a process in which the Service carries out policy decisions within a framework of scientifically driven experiments to test predictions and assumptions inherent in management plans. Analysis of results helps managers decide whether current management should continue as is or whether it should be modified to achieve desired conditions.

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

**amphibian**—Class of cold-blooded vertebrates that includes frogs, toads, and salamanders.

**annual**—Plant that flowers and dies within 1 year of germination.

**baseline**—Set of critical observations, data, or information used for comparison or a control.

**biological control**—Organisms or viruses used to control invasive plants or other pests.

**biological diversity, biodiversity**—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 (“Fish and Wildlife Service Manual” 052 FW 1.12B). The National Wildlife Refuge System’s focus is on indigenous species, biotic communities, and ecological processes.

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

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

**canopy**—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.

**CO<sub>2</sub>**—Carbon dioxide.

**Code of Federal Regulations (CFR)**—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.

**compact**—Montana House bill 717—Bill to Ratify Water Rights Compact.

**compatibility determination**—See compatible use.

**compatible use**—Wildlife-dependent recreational use or any other use of a refuge or district 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 or district (“Draft Fish and Wildlife Service Manual” 603 FW 3.6). A compatibility determination supports the selection of compatible uses and identified stipulations or limits necessary to make sure there is compatibility.

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

**concern**—See issue.

**cool-season grasses**—Grasses that begin growth earlier in the season and often become dormant in summer; grasses that germinate at lower temperatures. Examples of cool-season grasses in the refuge complex are western wheatgrass, needle and thread, and green needlegrass.

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

**conservation easement**—Perpetual agreement entered into by a landowner and the Service by which a landowner gives up or sells one or more of the rights on their property for conservation purposes, with terms set by the Service. In return for a single lump-sum payment, the landowner agrees not to drain, burn, level, or fill habitats covered by the easement. Conservation easements generally prohibit the cultivation of grassland and wetland habitats while still permitting the landowner traditional grazing uses. A single-habitat conservation easement is often referred to as either a wetland easement or a grassland easement.

**coordination area**—Wildlife management area made available to a State by a “cooperative agreement between the United States Fish and Wildlife Service and the State fish and game agency pursuant to section 4 of the Fish and Wildlife Coordination Act (16 U.S.C. 664); or (B) by long-term leases or agreements pursuant to the Bankhead–Jones Farm Tenant Act (50 Stat. 525; 7 U.S.C. 1010 et seq.).” States manage coordination areas, but they are part of the National Wildlife Refuge System. CCPs are not required for coordination areas.

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

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

**dense nesting cover (DNC)**—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.

**district**—See wetland management district.

**district purpose**—See purpose of the refuge.

**disturbance**—Significant alteration of habitat structure or composition from natural causes such as wildfire or human-caused activities and development such as timber harvest and road building.

**DNC**—See dense nesting cover.

**drawdown**—A manipulated water level in an impoundment that allows 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**—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 eco-

systems covering the United States and its possessions. These ecosystems generally correspond with watershed boundaries and their sizes and ecological complexity vary.

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

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

**endangered species, Federal**—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 part of its range.

**endangered species, State**—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; species with a population at a critically low level or having habitat that has been degraded or depleted to a significant degree.

**environmental assessment (EA)**—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 that provides sufficient evidence and analysis of effects to determine whether to prepare an environmental impact statement or finding of no significant impact (40 CFR 1508.9).

**evapoconcentration**—Concentration of chemical constituents in a liquid due to evaporative processes.

**extinction**—Complete disappearance of a species from the earth; no longer existing.

**extirpation**—Extinction of a population; eradication of a species within a specified area.

**°F**—Temperature in degrees Fahrenheit.

**fauna**—Vertebrate and invertebrate animals in an area.

**Federal trust resource**—Resource 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 because 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**—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

- wildlife refuges, national forests, and national parks.
- flora**—Plant species in an area.
- forb**—Broad-leaved herbaceous plant; 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**—Alteration of a large block of habitat that creates isolated patches of the original habitat interspersed with a variety of other habitat types; process of reducing the size and connectivity of habitat patches, making movement of individuals or genetic information between parcels difficult or impossible.
- ft**—Feet, length measure.
- full-time equivalent (FTE)**—One or more job positions with tours of duty that, when combined, equate to one person employed for the standard Government work-year.
- FWS**—See U.S. Fish and Wildlife Service.
- Geographic Information System (GIS)**—Computer system capable of storing and manipulating spatial data; 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.
- glyphosate**—Glyphosate N-(phosphonomethyl) glycine; broad-spectrum systemic herbicide used to kill invasive plants, especially perennials. Glyphosate inhibits an enzyme involved in the synthesis of the amino acids tyrosine, tryptophan, and phenylalanine; absorbed through foliage and translocated to growing points, it is only effective on actively growing plants and is not effective as a preemergence herbicide.
- goal**—Descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose but does not define measurable units (“Draft Fish and Wildlife Service Manual” 620 FW 1.5).
- gpm**—Gallons per minute, waterflow.
- grassland tract**—Contiguous area of grassland that is not fragmented.
- GS**—General schedule pay rate schedule for certain Federal positions.
- habitat**—Suite of existing environmental conditions required by an organism for survival and reproduction; place where an organism typically lives and grows.
- habitat type, vegetation type, cover type**—Land classification system based on the concept of distinct plant associations.
- hemimars**—Emergent phase of a seasonal or semi-permanent 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.
- hydroperiod**—Period during which soils, waterbodies, and sites are wet.
- impoundment**—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**—National Wildlife Refuge System Improvement Act of 1997.
- in**—Inch.
- indigenous**—Originating or occurring naturally in a particular place.
- integrated pest management (IPM)**—Methods of managing undesirable species such as invasive plants; education, prevention, physical or mechanical methods of control, biological control, responsible chemical use, and cultural methods.
- “interseed”**—Mechanical seeding of one or several plant species into existing stands of established vegetation.
- introduced species**—Species present in an area due to intentional or unintentional escape, release, dissemination, or placement into an ecosystem because of human activity.
- invasive species**—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.
- 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 Fish and Wildlife Service Manual” 602 FW 1.5).
- lek**—An elevated patch of grassland used by male grouse to display and challenge one another to attract females; the elevation not only provides a clear view to interested female grouse, but it also enables the males to spot predators at a distance.
- management alternative**—See alternative.
- management plan**—Plan that guides future land management practices on a tract of land.
- migration**—Regular extensive, seasonal movements of animals between their breeding regions and wintering regions; to pass periodically from one region or climate to another for feeding or breeding.
- migratory bird**—Bird species that follows a seasonal movement from its breeding grounds to its wintering grounds; includes waterfowl, shorebirds, raptors, and songbirds.
- mission**—Succinct statement of purpose or reason for being.

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

**mixed-grass prairie**—Transition zone between tall-grass prairie and shortgrass prairie dominated by grasses of medium height that are about 2–4 feet tall; soils are not as rich as in the tallgrass prairie and moisture levels are less.

**monitoring**—Collecting information to track changes of selected parameters over time.

**national wildlife refuge (NWR)**—Designated area of land, water, or an interest in land or water within the National Wildlife Refuge System but does not include coordination areas; 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)**—Set administrative policy for all refuges and units in the National Wildlife Refuge System; defined a unifying mission for the Refuge System; established the legitimacy and appropriateness of the six priority public uses (hunting, fishing, wildlife observation, photography, environmental education, and interpretation); established a formal process for determining appropriateness and compatibility; established the responsibilities of the Secretary of the Interior for managing and protecting the Refuge System; required a comprehensive conservation plan for each unit by the year 2012; amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

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

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

**NEPA**—National Environmental Policy Act.

**nest success**—Chance that a nest will hatch at least one egg.

**nongovernmental organization**—Group that is not comprised of Federal, State, tribal, county, city, town, local, or other governmental entities.

**North American Waterfowl Management Plan**—Recognized that the recovery and perpetuation of waterfowl populations depends on restoring wetlands and associated ecosystems throughout the United States and Canada; 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**—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.

**NRCS**—Natural Resources Conservation Service.

**NWR**—See national wildlife refuge.

**objective**—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; should be attainable, time specific, and stated quantitatively to the extent possible (if cannot be stated quantitatively, may be stated qualitatively) (“Draft Fish and Wildlife Service Manual” 602 FW 1.5).

**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 many 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**—Area distinct from that around it; distinguished from its surroundings by environmental conditions.

**perennial**—Lasting or active through the year or through many years; waterbody that holds water year-round; plant species that has a lifespan of more than 2 years.

- planning team**—Group of individuals that prepares the comprehensive conservation plan; interdisciplinary in membership and function; generally consists of a team leader, refuge manager, biologist, staff specialists or other representatives of Service programs, ecosystems or regional offices, and State partner wildlife agencies as needed.
- planning team leader**—Professional planner or natural resource specialist knowledgeable of the requirements of National Environmental Policy Act and who has planning experience; manages the refuge planning process and makes sure that there is compliance with applicable regulatory and policy requirements.
- planning unit**—National wildlife refuge or wetland management district, or an ecologically or administratively related refuge complex, or a distinct unit of a refuge; may include lands outside refuge or district boundaries.
- plant community**—Assemblage of plant species unique in its composition that occurs in particular locations under particular influences; 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**—Alternative selected to become the final plan; it can be the proposed action, the no-action alternative, another alternative, or a combination of actions and alternatives described in the draft CCP and environmental analysis document.
- prescribed fire**—Skillful application of fire to natural fuel under specified conditions such as weather, fuel moisture, and soil moisture that allows 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 owned by a private individual, a group of individuals, or a nongovernmental organization.
- private landowner**—Individual, group of individuals, or nongovernmental organization that owns land.
- private organization**—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 or district's purposes; hunting, fishing, wildlife observation, photography, environmental education, and interpretation; also see wildlife-dependent recreational use.
- proposed action**—Alternative proposed to best achieve the purpose, vision, and goals of a refuge or district (contributes to the Refuge System mission, addresses the significant issues, and is consistent with principles of sound fish and wildlife management).
- protohistoric**—Pertaining to the transition period between prehistory and the earliest recorded history.
- public**—Individuals, organizations, and groups; officials of Federal, State, and local government agencies; Indian tribes; and foreign nations (may include anyone outside the core planning team); anyone who may or may not have shown an interest in Service issues and those who do or do not realize that Service decisions may affect them.
- public domain, reserved from**—See reserved from public domain.
- public involvement or scoping**—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 is given to public views when shaping decisions for refuge and district management.
- purpose of the refuge, district**—Reason for establishment and management of a national wildlife refuge or wetland management district that is specified in or derived from the law, proclamation, Executive order, agreement, public land order, donation document, or administrative memorandum establishing authorization or expansion of a refuge, refuge unit, refuge subunit, or district (“Draft Fish and Wildlife Service Manual” 602 FW 1.5).
- raptor**—Carnivorous bird such as a hawk, falcon, or vulture that feeds wholly or chiefly on meat taken by hunting or on carrion (dead carcasses).
- Reclamation**—Bureau of Reclamation.
- redd**—The spawning area or nest of trout or salmon.
- refuge**—See national wildlife refuge.
- Refuge Operations Needs System**—National database that contains the unfunded operational needs of each refuge and district; projects included are those required to carry out approved plans and meet goals, objectives, and legal mandates.
- refuge purpose**—See purpose of the refuge.
- Refuge System**—See National Wildlife Refuge System.
- refuge use**—Activity on a refuge, except administrative or law enforcement activity, carried out by or under the direction of an authorized Service employee.
- reserved from public domain**—Public land placed into permanent reserved status, such as a national

wildlife refuge, that is not held in private ownership.

**resident species or wildlife**—Species inhabiting a given locality throughout the year; nonmigratory species.

**resilience**—the ability of system to recover from a disturbance or change without significant loss and return to a given ecological state

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

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

**riparian area, habitat, corridor**—Area that transitions from a terrestrial to aquatic ecosystem including streams, lakes, wet areas, and adjacent plant communities and their associated soils that have free water at or near the surface; land and its vegetation immediately adjoining and directly influenced by a stream.

**RLGIS**—Refuge Lands Geographic Information System.

**RONs**—See Refuge Operations Needs System.

**“round-outs”**—Odd shapes and holes of non-Federal land within the boundary of Refuge System units that are straightened, or made whole, by the purchase of land tracts.

**runoff**—Water from rain, melted snow, or agricultural or landscape irrigation that flows over the land surface into a waterbody.

**SAMMS**—See Service Asset Maintenance Management System.

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

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

**senior water rights**—Rights to water that were legally filed earlier than junior (more recent) water rights, having precedence.

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

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

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

**shorebird**—Suborder of birds (Charadrii) such as a plover or snipe that frequents the seashore or mudflat areas.

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

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

**species of concern**—Species, while not falling under the definition of special status species, that is of management interest by virtue of being Federal trust species such as migratory birds, important game species, or significant keystone species; species that has a documented or clear population decline, a small or restricted population, or dependence on restricted or vulnerable habitats.

**stand**—Homogenous area of vegetation with more or less uniform soils, landform, and vegetation.

**stepdown management plan**—Specific plan that provides the details necessary to carry out management strategies identified in the comprehensive conservation plan (“Draft Fish and Wildlife Service Manual” 602 FW 1.5).

**strategy**—Specific action, tool, or technique or combination of actions, tools, and techniques used to meet unit objectives (“Draft Fish and Wildlife Service Manual” 602 FW 1.5).

**submergent**—Vascular or nonvascular plant adapted to grow in water, either rooted or nonrooted, that lies entirely beneath the water surface except for flowering parts in some species.

**System**—See National Wildlife Refuge System.

**threatened species, Federal**—Species listed under the Endangered Species Act of 1973, as amended, that is likely to become endangered within the foreseeable future throughout all or a significant part of its range.

**threatened species, State**—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.

**trust resource**—See Federal trust resource.

**trust species**—See Federal trust species.

**U.S.C.**—United States Code.

**USDA**—United States Department of Agriculture.

**U.S. Fish and Wildlife Service (Service, FWS)**—Part of U.S. Department of the Interior; 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 National Wildlife Refuge System comprised of national wildlife refuges and waterfowl production areas. The Service runs national fish hatcheries and ecological service field stations, enforces Federal wildlife laws, manages migratory bird populations, restores national significant fisheries, conserves and restores wildlife habitat such as wetlands, administers the Endangered Spe-

cies Act, oversees the Federal aid program that distributes millions of dollars in excise taxes on fishing and hunting equipment to State wildlife agencies, and helps foreign governments with their conservation efforts.

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

**ungulate**—Hoofed mammal.

**vision statement**—Concise statement of the desired future condition of a planning unit, based primarily on the Refuge System mission, specific refuge or district purposes, and other relevant mandates (“Draft Fish and Wildlife Service Manual” 602 FW 1.5).

**volatilize**—To cause a solid or liquid to be changed into a vapor. This is the means by which selenium is transferred from sediment to the air, thereby reducing levels in the wetland

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

**waterbird**—Birds that depend on aquatic habitats to complete portions of their life cycles.

**waterfowl**—Category of birds that groups ducks, geese, and swans.

**watershed**—Geographic area within which water drains into a particular river, stream, or waterbody.

**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.

**wetland management district**—Land that the Refuge System acquires with Federal Duck Stamp money for restoration and management, primarily as prairie wetland habitat critical to waterfowl and other wetland birds.

**WG**—Wage grade schedule, pay rate schedule for certain Federal positions.

**wildfire**—Free-burning fire requiring a suppression response; all fire other than prescribed fire that occurs on wildlands.

**wildland fire**—Wildfire or prescribed fire that occurs in undeveloped land.

**wildlife-dependent recreational use**—Use of a refuge or district involving hunting, fishing, wildlife observation, photography, environmental education, or interpretation; also see priority public use.

**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.

**WPA**—Waterfowl production area.



# 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 Benton Lake National Wildlife Refuge Complex.

*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)*

### A.1 Goals of the National Wildlife Refuge System

- Conserve a diversity of fish, wildlife, and plants and their habitats, including species that are endangered or threatened with becoming endangered.
- Develop and support a network of habitats for migratory birds, anadromous and interjurisdictional fish, and marine mammal populations that is strategically distributed and carefully managed to meet important life history needs of these species across their ranges.
- Conserve those ecosystems, plant communities, wetlands of national or international significance, and landscapes and seascapes that are unique, rare, declining, or underrepresented in existing protection efforts.
- Provide and enhance opportunities to take part in compatible wildlife-dependent recreation (hunting, fishing, wildlife observation and photography, and environmental education and interpretation).

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

### A.2 Guiding Principles

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

- *Public Use*—The Refuge System provides important opportunities for compatible wildlife-dependent recreational activities involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation.
- *Habitat*—Fish and wildlife will not prosper without 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.3 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 proper 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—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 EPA 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 help 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 LWCF 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 EPA 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 5228 (1929)**—Established Benton Lake National Wildlife Refuge “as a refuge and breeding ground for birds.”

**Executive Order 11644, Use of Off-road Vehicles on Public Lands (1972)**—Provided policy and procedures for regulating off-road vehicles.

**Executive Order 11988, Floodplain Management (1977)**—Required Federal agencies to provide leadership and take action to reduce the risk of flood loss, reduce the effect 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 reduce the effect of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains.”

**Executive Order 11990, Protection of Wetlands (1977)**—Directed Federal agencies to (1) reduce 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 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 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, support the confidentiality of sacred sites.

**Executive Order 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.

**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.

**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.

**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.

**Mineral Leasing Act** (1920), as amended—Authorized and governed leasing of public lands for development of deposits of coal, oil, gas and other hydrocarbons, sulphur, phosphate, potassium and sodium. Section 185 provided for granting of rights-of-way over Federal lands for pipelines.

**National Environmental Policy Act (1969)**—Required all agencies including the Service to examine the environmental effects 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 allow 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.

**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 make sure that any person could take part in any program.

**Salt Cedar and Russian Olive Control Demonstration Act (2006)**—Furthered the purposes of the Reclamation Projects Authorization and Adjustment Act of 1992 by directing the Secretary of the Interior, acting through the Commissioner of Reclamation, to carry out an assessment and demonstration program to control saltcedar and Russian olive and for other purposes.

**Transfer of Certain Real Property for Wildlife Conservation Purposes Act of 1948**—Provided that, on determination 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 Number 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

## *Preparers and Contributors*

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>
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Kathy Burchett	Project leader	USFWS, Benton Lake National Wildlife Refuge Complex, Great Falls, Montana
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Jim Lange	Wetland district manager	USFWS, Benton Lake National Wildlife Refuge Complex, Great Falls, Montana
John Takala	Former refuge manager	USFWS, Lost Trail Refuge, Marion, Montana
Lynn Verlanic	Wildlife biologist	USFWS, Lost Trail Refuge, Marion, Montana
Mitch Werner	Writer–editor	USFWS, Region 6, Division of Refuge Planning, Lakewood, Colorado

Many organizations, agencies, and individuals provided invaluable help 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.

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Brant Lofin	Zone archaeologist	USFWS, Spearfish, South Dakota
Murray Laubhan	Inventory and monitoring zone biologist	USFWS, Quivira Refuge, Stafford, Kansas
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Meg Van Ness	Regional archaeologist	USFWS, Region 6, Lakewood, Colorado

# Appendix C

## *Public Involvement*

A notice of intent to prepare the draft comprehensive conservation plan and EA was published in the Federal Register on August 18, 2008. The Service compiled a mailing list of more than 700 names during preplanning. The list includes private citizens; local, regional, and State government representatives and legislators; other Federal agencies; and interested organizations. Public scoping began immediately after publication of the notice of intent and was announced through news releases and issuance of the first planning update to the mailing list.

The planning update provided information on the history of the refuge complex and the CCP process, along with an invitation and schedule to upcoming public open houses to be held throughout the planning area. Each planning update included a comment form to give the public an opportunity to provide written comments. Emails were also accepted at the refuge complex's email address: bentonlake@fws.gov.

Open houses were announced to local newspapers, radio, and television stations. Flyers were posted, and announcements were made via email and at meetings of local organizations.

Four public open houses were held in local communities in the refuge complex area including Great Falls, Choteau, Ovando, and Kalispell, Montana, September 2–4, 2008. At the meetings informational posters, maps, and handouts, along with a power point presentation provided a history of the Refuge System, orientation to the planning area, and an overview of the CCP and NEPA processes. The draft vision statement developed for the refuge complex was also presented at the open houses. Service staff was available to answer questions on a variety of topics about refuge management and the CCP process. Attendees were encouraged to ask questions and offer comments. Verbal comments were recorded and each attendee was given a comment form to submit thoughts or questions in writing. The turnout was low, with 5–10 people attending each meeting.

All written comments were due September 15, 2008. Sixty comments were received during the scoping effort. Input obtained from public meetings, letters, emails, and comment forms was considered in developing the draft CCP. These comments identi-

fied biological, social, and economic concerns about refuge management.

The planning team's response to public comments will be completed before final approval of the CCP. The mailing list for the CCP and EA follows.

### **C.1 Federal Officials**

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

### **C.2 Federal Agencies**

BLM, Billings, Montana  
BLM, Lewistown, Montana  
Bureau of Reclamation, Billings, Montana  
Department Natural Resources Conservation,  
Helena, Montana  
Farm Service Agency, Bozeman, Montana  
USDA National Resources Conservation Service,  
Bozeman, Montana  
USDA Forest Service, Choteau, Montana  
USDA Forest Service, Great Falls, Montana  
USDA Forest Service, Libby, Montana  
USDA Forest Service, Rocky Mountain Research  
Station, Missoula, Montana  
USFWS, Air Quality Branch, Lakewood, Colorado  
USFWS, Creston Fish and Wildlife Center,  
Creston, Montana  
USFWS, Ecological Services, Helena, Montana  
USFWS, Education and Visitor Services,  
Helena, Montana  
USFWS, the Swan River Refuge, Bigfork, Montana  
USGS, Bozeman, Montana  
USGS, Biological Resources Division,  
Missoula, Montana

### **C.3 Tribal Officials**

Blackfeet Tribal Business Council,  
Browning, Montana  
Blood Tribes, Cardston, Alberta, Canada

Confederated Salish Kootenai Tribes,  
Pablo, Montana  
Fort Belknap Community Council,  
Harlem, Montana  
Peigan Tribe, Brocket, Alberta, Canada

## C.4 State Officials

Governor Brian D. Schweitzer, Helena, Montana  
Representative Shannon Augare,  
Browning, Montana  
Representative Bill Beck, Whitefish, Montana  
Representative Bob Bergren, Havre, Montana  
Representative Jerry Black, Shelby, Montana  
Representative Mark Blasdel, Somers, Montana  
Representative John Brueggeman, Polson, Montana  
Representative Edith Clark, Sweetgrass, Montana  
Representative John Cobb, Augusta, Montana  
Representative Douglas Cordier,  
Columbia Falls, Montana  
Representative Aubyn Curtiss, Fortine, Montana  
Representative Ken Hansen, Harlem, Montana  
Representative Robin Hamilton, Missoula, Montana  
Representative Ralph Heinart, Libby, Montana  
Representative Joey Jayne, Arlee, Montana  
Representative Mike Jopek, Whitefish, Montana  
Representative Llew Jones, Conrad, Montana  
Representative William Jones, Bigfork, Montana  
Representative Carol Juneau, Browning, Montana  
Representative Mike Milburn, Cascade, Montana  
Representative Jerry O'Neil,  
Columbia Falls, Montana  
Representative Rick Ripley, Wolf Creek, Montana  
Representative Don Ryan, Great Falls, Montana  
Representative Janna Taylor, Dayton, Montana  
Representative Chas Vincent, Libby, Montana  
Representative Dan Weinberg, Whitefish, Montana

## C.5 State Agencies

Montana Department of Environmental Quality,  
Helena, Montana  
Montana Department of Natural Resources and  
Conservation, Conrad, Montana  
Montana Department of Natural Resources and  
Conservation, Helena, Montana  
Montana Department of Natural Resources and  
Conservation, Missoula, Montana  
Montana Fish, Wildlife & Parks, Helena, Montana  
Montana Fish, Wildlife & Parks, Billings, Montana  
Montana Natural Heritage Program,  
Helena, Montana

Montana Historical Society and Preservation Office,  
Helena, Montana  
Montana State Lands, Helena, Montana

## C.6 Local Government

Bigfork County Water and Sewer, Bigfork, Montana  
Cascade County Mosquito Management District,  
Great Falls, Montana  
City of Bigfork, Roadside Vegetation Program,  
Bigfork, Montana  
City of Havre, Havre, Montana  
Hill County Government, Havre, Montana  
Hill County, Mosquito Management District,  
Havre, Montana  
Teton County Commission, Choteau, Montana  
Pondera County Commission, Conrad, Montana

## C.7 Local Fire Departments

Marion Volunteer Fire Department,  
Marion, Montana

## C.8 Local Businesses

AAA Weed and Pasture, Columbia Falls, Montana  
American Public Lands Exchange,  
Missoula, Montana  
Benton Lake Land Company, Great Falls, Montana  
Bignell Ranch Company, Helmville, Montana  
Brown and Brown of Montana,  
Great Falls, Montana  
Glacier Colony, Cut Bank, Montana  
Golden Acres Farm, Brady, Montana  
Gollaher Ranch Company, Cascade, Montana  
Gumbo Incorporated, Choteau, Montana  
Harmon Properties LLC, Havre, Montana  
Heavirland Enterprises, Choteau, Montana  
Historical Research Associates Incorporated,  
Missoula, Montana  
Ish Incorporated, Chester, Montana  
Juedeman Grain Company, Geraldine, Montana  
Klabzuba Oil and Gas Incorporated,  
Fort Worth, Texas  
Klondike Ridge Farms, Sunburst, Montana  
KRA Corporation, Bethesda, Maryland  
Location Montana Incorporated, Bigfork, Montana  
Mannix Brothers Incorporated, Helmville, Montana  
McGinnis Meadows Guest Ranch, Libby, Montana  
McGregor Lake Resort, Marion, Montana  
Montana Power Company, Butte, Montana

Montana Salinity Control Associates,  
Conrad, Montana  
Muddy Creek Ranch, Choteau, Montana  
Neuman Land and Livestock, Great Falls, Montana  
Nevada Spring Creek Partners, Helena, Montana  
NR Recording and Communications,  
Great Falls, Montana  
Pernell Partners LP, Kalispell, Montana  
Plum Creek Land Company, Seattle, Washington  
Plum Creek Timber Company,  
Columbia Falls, Montana  
PPL Montana, Hydro Licensing, Butte, Montana  
Sheep Mountain Cattle Company,  
Geraldine, Montana  
Simmes Ranch Incorporated, Sunburst, Montana  
Sliters Incorporated, Somers, Montana  
Spring Coulee Ranch Incorporated,  
Highwood, Montana  
Springdate Colony Incorporated, Power, Montana  
Starshine, Great Falls, Montana  
Sveum Brothers Incorporated, Sunburst, Montana  
Talent Properties Incorporated, Clayton, California  
Tapper Lite LLC, Bigfork, Montana  
Top Notch Land Company, Kalispell, Montana  
Tungsten Holdings Incorporated, Libby, Montana  
Twin Springs Incorporated, Kevin, Montana  
White Swan Properties LLC, Bigfork, Montana  
4M Farms Incorporated, Highwood, Montana

## C.9 Organizations

American Wildlands, Bozeman, Montana  
Bethel Cemetery Association, Somers, Montana  
Big Meadows Grazing Association,  
Hot Springs, Montana  
Born Free, Sacramento, CA  
Chain of Lakes Homeowner's Association,  
Libby, Montana  
Defenders of Wildlife, Missoula, Montana  
Eagle Bend Homeowners Association,  
Bigfork, Montana  
Five Valley Audubon Society, Missoula, Montana  
Friends of the Rocky Mountain Front,  
Choteau, Montana  
Glacier Natural History Association,  
West Glacier, Montana  
Mission Mountain Audubon, Polson, Montana  
Montana Audubon, Helena, Montana  
Montana Chapter of the Wildlife Society,  
Bozeman, Montana  
Montana Historical Society, Helena, Montana  
Montana Land Reliance, Bigfork, Montana  
Montana Stockgrowers Association,  
Helena, Montana

Montana Wilderness Association,  
Great Falls, Montana  
Montana Wildlife Federation, Helena, Montana  
National Wildlife Federation, Missoula, Montana  
National Wildlife Refuge Association,  
Colorado Springs, Colorado  
Rocky Mountain Elk Foundation,  
Missoula, Montana  
Russell Country Sportsmen's Association,  
Great Falls, Montana  
Sands Memorial Foundation, Havre, Montana  
Sonoran Institute, Choteau, Montana  
Swan River Wildlife Protection Association,  
Great Falls, Montana  
TNC, Helena, Montana

## C.10 Libraries

Columbia Falls Library, Columbia Falls, Montana  
Lincoln County Library, Libby, Montana  
Whitefish City Library, Whitefish, Montana

## C.11 Universities and Schools

Helmville Elementary School, Helmville, Montana  
Kila School District, Kila, Montana  
Montana Academy, Marion, Montana  
Montana State University, Research Center,  
Bozeman, Montana  
Pleasant Valley School Superintendent,  
Marion, Montana  
Skyline Education Center, Great Falls, Montana  
University of Alaska,  
Biology and Wildlife Department,  
Fairbanks, AK  
University of Great Falls, Great Falls, Montana  
University of Illinois, Department of Geology,  
Urbana, IL  
University of Montana,  
Department of Biological Sciences,  
Missoula, Montana  
University of Montana,  
Grizzly Bear Recovery Office,  
Missoula, Montana  
University of Montana, Wildlife Biology Program,  
Missoula, Montana  
University of Washington, Department of Zoology,  
Seattle, Washington

## **C.12 Media**

Choteau Acantha, Choteau, Montana  
Hungry Horse News, Columbia Falls, Montana

## **C.13 Individuals**

540 private individuals

# Appendix D

## Species Lists

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
<b>MAMMALS</b>		
American Mink	<i>Mustela vison</i>	
Badger	<i>Taxidea taxus</i>	
Beaver	<i>Castor canadensis</i>	
Big Brown Bat	<i>Eptesicus fuscus</i>	
Bighorn Sheep	<i>Ovis canadensis</i>	
Bison	<i>Bison bison</i>	
Black Bear	<i>Ursus americanus</i>	
Black-tailed Prairie Dog	<i>Cynomys ludovicianus</i>	Species of concern
Bobcat	<i>Lynx rufus</i>	
Bushy-tailed Woodrat	<i>Neotoma cinerea</i>	
California Myotis	<i>Myotis californicus</i>	
Canada Lynx	<i>Lynx canadensis</i>	Threatened
Columbian Ground Squirrel	<i>Spermophilus columbianus</i>	
Coyote	<i>Canis latrans</i>	
Deer Mouse	<i>Peromyscus maniculatus</i>	
Dusky or Montane Shrew	<i>Sorex monticolus</i>	
Dwarf Shrew	<i>Sorex nanus</i>	Species of concern
Eastern Red Bat	<i>Lasiurus borealis</i>	Species of concern
Elk or Wapiti	<i>Cervus canadensis</i>	
Fisher	<i>Martes pennanti</i>	Species of concern
Fringed Myotis	<i>Myotis thysanodes</i>	Species of concern
Golden-mantled Ground Squirrel	<i>Spermophilus lateralis</i>	
Gray Wolf	<i>Canis lupus</i>	
Grizzly Bear	<i>Ursus arctos</i>	Threatened
Ground squirrel	<i>Spermophilus elegans</i>	
Heather Vole	<i>Phenacomys intermedius</i>	
Hoary Bat	<i>Lasiurus cinereus</i>	Species of concern
Hoary Marmot	<i>Marmota caligata</i>	Potential species of concern
Little Brown Myotis	<i>Myotis lucifugus</i>	
Long-eared Myotis	<i>Myotis evotis</i>	
Long-legged Myotis	<i>Myotis volans</i>	
Long-tailed Vole	<i>Microtus longicaudus</i>	
Long-tailed Weasel	<i>Mustela frenata</i>	
Marten	<i>Martes americana</i>	
Masked Shrew	<i>Sorex cinereus</i>	

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
Meadow Vole	<i>Microtus pennsylvanicus</i>	
Merriam's Shrew	<i>Sorex merriami</i>	<i>Species of concern</i>
Mice	<i>Onychomys spp.</i> <i>Peromyscus spp.</i> <i>Reithrodontomys spp.</i>	
Mink	<i>Mustela vison</i>	
Montane Vole	<i>Microtus montanus</i>	
Moose	<i>Alces americanus</i>	
Mountain Cottontail	<i>Sylvilagus nuttallii</i>	
Mountain Lion	<i>Puma concolor</i>	
Mule Deer	<i>Odocoileus hemionus</i>	
Muskrat	<i>Ondatra zibethicus</i>	
northern Bog Lemming	<i>Synaptomys borealis</i>	<i>Species of concern</i>
northern Flying Squirrel	<i>Glaucomys sabrinus</i>	
northern Pocket Gopher	<i>Thomomys talpoides</i>	
northern river Otter	<i>Lontra canadensis</i>	
Pika	<i>Ochotona princeps</i>	
Porcupine	<i>Erethizon dorsatum</i>	
Preble's Shrew	<i>Sorex preblei</i>	<i>Species of concern</i>
Pronghorn	<i>Antilocapra americana</i>	
Pygmy Shrew	<i>Sorex hoyi</i>	
Raccoon	<i>Procyon lotor</i>	
Red Fox	<i>Vulpes vulpes</i>	
Red Squirrel	<i>Tamiasciurus hudsonicus</i>	
Red-tailed Chipmunk	<i>Tamias ruficaudus</i>	
river Otter	<i>Lutra canadensis</i>	
Short-tailed Weasel	<i>Mustela erminea</i>	
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	<i>Potential species of concern</i>
Snowshoe Hare	<i>Lepus americanus</i>	
Spotted Bat	<i>Euderma maculatum</i>	<i>Species of concern</i>
Southern Red-backed Vole	<i>Myodes gapperi</i>	
Striped Skunk	<i>Mephitis mephitis</i>	
Swift Fox	<i>Vulpes velox</i>	
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	<i>Species of concern</i>
Vagrant Shrew	<i>Sorex vagrans</i>	
Water Shrew	<i>Sorex palustris</i>	
Water Vole	<i>Microtus richardsoni</i>	
Western Jumping Mouse	<i>Zapus princeps</i>	
Western Small-footed Myotis	<i>Myotis ciliolabrum</i>	
White-tailed Deer	<i>Odocoileus virginianus</i>	
White-tailed Jackrabbit	<i>Lepus townsendii</i>	
Wolverine	<i>Gulo gulo</i>	<i>Species of concern</i>
Yellow-bellied Marmot	<i>Marmota flaviventris</i>	

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
Yellow-pine Chipmunk	<i>Tamias amoenus</i>	
Yuma Myotis	<i>Myotis yumanensis</i>	Potential species of concern
<b>BIRDS</b>		
Alder Flycatcher	<i>Empidonax alnorum</i>	Species of concern
American Avocet	<i>Recurvirostra americana</i>	
American Bittern	<i>Botaurus lentiginosus</i>	Species of concern
American Coot	<i>Fulica americana</i>	
American Crow	<i>Corvus brachyrhynchos</i>	
American Dipper	<i>Cinclus mexicanus</i>	
American Goldfinch	<i>Spinus tristis</i>	
American Kestrel	<i>Falco sparverius</i>	
American Pipit	<i>Anthus rubescens</i>	
American Redstart	<i>Setophaga ruticilla</i>	
American Robin	<i>Turdus migratorius</i>	
American Three-toed Woodpecker	<i>Picoides dorsalis</i>	
American Tree Sparrow	<i>Spizella arborea</i>	
American White Pelican	<i>Pelecanus erythrorhynchos</i>	Species of concern
American Wigeon	<i>Anas americana</i>	
Anna's Hummingbird	<i>Calypte anna</i>	
Audubon's Warbler	<i>Dendroica coronata auduboni</i>	
Baird's Sparrow	<i>Ammodramus bairdii</i>	
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Species of concern
Band-tailed Pigeon	<i>Patagioenas fasciata</i>	
Bank Swallow	<i>Riparia riparia</i>	
Barn Swallow	<i>Hirundo rustica</i>	
Barred Owl	<i>Strix varia</i>	
Barrow's Goldeneye	<i>Bucephala islandica</i>	Potential species of concern
Belted Kingfisher	<i>Megaceryle alcyon</i>	
Black Rosy-Finch	<i>Leucosticte atrata</i>	Species of concern
Black Swift	<i>Cypseloides niger</i>	Species of concern
Black Tern	<i>Chlidonias niger</i>	Species of concern
Black-backed Woodpecker	<i>Picoides arcticus</i>	Species of concern
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	Species of concern
Black-billed Magpie	<i>Pica hudsonia</i>	
Black-capped Chickadee	<i>Poecile atricapillus</i>	
Black-chinned Hummingbird	<i>Archilochus alexandri</i>	
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	Species of concern
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	
Black-necked Stilt	<i>Himantopus mexicanus</i>	Species of concern
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	
Black-throated Sparrow	<i>Amphispiza bilineata</i>	
Blue Jay	<i>Cyanocitta cristata</i>	
Blue-winged Teal	<i>Anas discors</i>	

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
Bobolink	<i>Dolichonyx oryzivorus</i>	<i>Species of concern</i>
Bohemian Waxwing	<i>Bombycilla garrulus</i>	
Boreal Chickadee	<i>Poecile hudsonicus</i>	<i>Species of concern</i>
Boreal Owl	<i>Aegolius funereus</i>	
Brambling	<i>Fringilla montifringilla</i>	
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	
Brewer's Sparrow	<i>Spizella breweri</i>	<i>Species of concern</i>
Brown Creeper	<i>Certhia americana</i>	<i>Species of concern</i>
Brown Thrasher	<i>Toxostoma rufum</i>	
Brown-headed Cowbird	<i>Molothrus ater</i>	
Bufflehead	<i>Bucephala albeola</i>	
Bullock's Oriole	<i>Icterus bullockii</i>	
Burrowing Owl	<i>Athene cunicularia</i>	
California Gull	<i>Larus californicus</i>	
Calliope Hummingbird	<i>Stellula calliope</i>	
Canada Goose	<i>Branta canadensis</i>	
Canvasback	<i>Aythya valisineria</i>	
Canyon Wren	<i>Catherpes mexicanus</i>	
Caspian Tern	<i>Hydroprogne caspia</i>	<i>Species of concern</i>
Cassin's Finch	<i>Carpodacus cassinii</i>	<i>Species of concern</i>
Cassin's Vireo	<i>Vireo cassinii</i>	
Cedar Waxwing	<i>Bombycilla cedrorum</i>	
Chestnut-backed Chickadee	<i>Poecile rufescens</i>	
Chestnut-collared Longspur	<i>Calcarius ornatus</i>	
Chipping Sparrow	<i>Spizella passerina</i>	
Cinnamon Teal	<i>Anas cyanoptera</i>	
Clark's Grebe	<i>Aechmophorus clarkii</i>	<i>Species of concern</i>
Clark's Nutcracker	<i>Nucifraga columbiana</i>	<i>Species of concern</i>
Clay-colored Sparrow	<i>Spizella pallida</i>	
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	
Common Goldeneye	<i>Bucephala clangula</i>	
Common Grackle	<i>Quiscalus quiscula</i>	
Common Loon	<i>Gavia immer</i>	<i>Species of concern</i>
Common Merganser	<i>Mergus merganser</i>	
Common Moorhen	<i>Gallinula chloropus</i>	
Common Nighthawk	<i>Chordeiles minor</i>	
Common Raven	<i>Corvus corax</i>	
Common Redpoll	<i>Acanthis flammea</i>	
Common Tern	<i>Sterna hirundo</i>	<i>Species of concern</i>
Common Yellowthroat	<i>Geothlypis trichas</i>	
Cooper's Hawk	<i>Accipiter cooperii</i>	
Cordilleran Flycatcher	<i>Empidonax occidentalis</i>	
Dark-eyed Junco	<i>Junco hyemalis</i>	
Dark-eyed Junco (Gray-headed)	<i>Junco hyemalis caniceps</i>	

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
Dark-eyed Junco (Montana Junco)	<i>Junco hyemalis montanus</i>	
Dark-eyed Junco (Pink-sided)	<i>Junco hyemalis mearnsi</i>	
Dark-eyed Junco (Slate-colored)	<i>Junco hyemalis cismontanus</i>	
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	
Downy Woodpecker	<i>Picoides pubescens</i>	
Dusky Flycatcher	<i>Empidonax oberholseri</i>	
Dusky Grouse	<i>Dendragapus obscurus</i>	
Eared Grebe	<i>Podiceps nigricollis</i>	
Eastern Phoebe	<i>Sayornis phoebe</i>	
Eastern Kingbird	<i>Tyrannus tyrannus</i>	
Eurasian Wigeon	<i>Anas penelope</i>	
European Starling	<i>Sturnus vulgaris</i>	<i>Exotic species (not native to Montana)</i>
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	
Ferruginous Hawk	<i>Buteo regalis</i>	<i>Species of concern</i>
Field Sparrow	<i>Spizella pusilla</i>	
Flammulated Owl	<i>Otus flammeolus</i>	<i>Species of concern</i>
Forster's Tern	<i>Sterna forsteri</i>	<i>Species of concern</i>
Fox Sparrow	<i>Passerella iliaca</i>	
Franklin's Gull	<i>Leucophaeus pipixcan</i>	<i>Species of concern</i>
Gadwall	<i>Anas strepera</i>	
Golden Eagle	<i>Aquila chrysaetos</i>	<i>Species of concern</i>
Golden-crowned Kinglet	<i>Regulus satrapa</i>	
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	<i>Species of concern</i>
Gray Catbird	<i>Dumetella carolinensis</i>	
Gray Jay	<i>Perisoreus canadensis</i>	
Gray Partridge	<i>Perdix perdix</i>	<i>Exotic species (not native to Montana)</i>
Gray-crowned Rosy-Finch	<i>Leucosticte tephrocotis</i>	<i>Species of concern</i>
Great Blue Heron	<i>Ardea herodias</i>	<i>Species of concern</i>
Great Egret	<i>Ardea alba</i>	
Great Gray Owl	<i>Strix nebulosa</i>	<i>Species of concern</i>
Great Horned Owl	<i>Bubo virginianus</i>	
greater sage-grouse	<i>Centrocercus urophasianus</i>	<i>Species of concern</i>
greater Yellowlegs	<i>Tringa melanoleuca</i>	
Green-tailed Towhee	<i>Pipilo chlorurus</i>	
Green-winged Teal	<i>Anas crecca</i>	
Hairy Woodpecker	<i>Picoides villosus</i>	
Hammond's Flycatcher	<i>Empidonax hammondi</i>	
Harlequin Duck	<i>Histrionicus histrionicus</i>	<i>Species of concern</i>
Harris's Sparrow	<i>Zonotrichia querula</i>	
Hermit Thrush	<i>Catharus guttatus</i>	
Hoary Redpoll	<i>Acanthis hornemanni</i>	
Hooded Merganser	<i>Lophodytes cucullatus</i>	<i>Potential species of concern</i>
Horned Grebe	<i>Podiceps auritus</i>	<i>Species of concern</i>

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
Horned Lark	<i>Eremophila alpestris</i>	
House Finch	<i>Carpodacus mexicanus</i>	
House Sparrow	<i>Passer domesticus</i>	
House Wren	<i>Troglodytes aedon</i>	
Killdeer	<i>Charadrius vociferus</i>	
Lark Bunting	<i>Calamospiza melanocorys</i>	
Lark Sparrow	<i>Chondestes grammacus</i>	
lazuli Bunting	<i>Passerina amoena</i>	
Least Flycatcher	<i>Empidonax minimus</i>	
Least Sandpiper	<i>Calidris minutilla</i>	
Le Conte's Sparrow	<i>Ammodramus leconteii</i>	
Lesser Scaup	<i>Aythya affinis</i>	
Lesser Yellowlegs	<i>Tringa flavipes</i>	
Lewis's Woodpecker	<i>Melanerpes lewis</i>	<i>Species of concern</i>
Lincoln's Sparrow	<i>Melospiza lincolnii</i>	
Loggerhead Shrike	<i>Lanius ludovicianus</i>	<i>Species of concern</i>
Long-billed Curlew	<i>Numenius americanus</i>	<i>Species of concern</i>
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>	
Long-eared Owl	<i>Asio otus</i>	
MacGillivray's Warbler	<i>Oporornis tolmiei</i>	
Magnolia Warbler	<i>Dendroica magnolia</i>	
Mallard	<i>Anas platyrhynchos</i>	
Marbled Godwit	<i>Limosa fedoa</i>	
Marsh Wren	<i>Cistothorus palustris</i>	
McCown's Longspur	<i>Rhynchophanes mccownii</i>	<i>Species of concern</i>
Merlin	<i>Falco columbarius</i>	
Mountain Bluebird	<i>Sialia currucoides</i>	
Mountain Chickadee	<i>Poecile gambeli</i>	
Mountain Plover	<i>Charadrius montanus</i>	<i>Species of concern</i>
Mourning Dove	<i>Zenaida macroura</i>	
Myrtle Warbler	<i>Dendroica coronata coronata</i>	
Nashville Warbler	<i>Vermivora ruficapilla</i>	
northern Flicker	<i>Colaptes auratus</i>	
northern Flicker (Red-shafted)	<i>Colaptes auratus cafer</i>	
northern Goshawk	<i>Accipiter gentilis</i>	<i>Species of concern</i>
northern Harrier	<i>Circus cyaneus</i>	
northern Hawk Owl	<i>Surnia ulula</i>	<i>Potential species of concern</i>
northern Oriole	<i>Icterus galbula</i>	
northern Pintail	<i>Anas acuta</i>	
northern Pygmy-Owl	<i>Glaucidium gnoma</i>	
northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	
northern Saw-whet Owl	<i>Aegolius acadicus</i>	
northern Shoveler	<i>Anas clypeata</i>	

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
northern Shrike	<i>Lanius excubitor</i>	
northern Waterthrush	<i>Seiurus noveboracensis</i>	
Olive-sided Flycatcher	<i>Contopus cooperi</i>	
Orange-crowned Warbler	<i>Vermivora celata</i>	
Osprey	<i>Pandion haliaetus</i>	
Ovenbird	<i>Seiurus aurocapilla</i>	<i>Potential species of concern</i>
Pacific Loon	<i>Gavia pacifica</i>	
Pacific Wren	<i>Troglodytes pacificus</i>	<i>Species of concern</i>
Painted Redstart	<i>Myioborus pictus</i>	
Peregrine Falcon	<i>Falco peregrinus</i>	<i>Species of concern</i>
Pied-billed Grebe	<i>Podilymbus podiceps</i>	
Pileated Woodpecker	<i>Dryocopus pileatus</i>	<i>Species of concern</i>
Pine Grosbeak	<i>Pinicola enucleator</i>	
Pine Siskin	<i>Spinus pinus</i>	
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	<i>Species of concern</i>
Piping Plover	<i>Charadrius melodus</i>	<i>Threatened</i>
Prairie Falcon	<i>Falco mexicanus</i>	
Pygmy Nuthatch	<i>Sitta pygmaea</i>	
Red Crossbill	<i>Loxia curvirostra</i>	
Red-breasted Merganser	<i>Mergus serrator</i>	
Red-breasted Nuthatch	<i>Sitta canadensis</i>	
Red-eyed Vireo	<i>Vireo olivaceus</i>	
Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>	
Red-necked Grebe	<i>Podiceps grisegena</i>	
Red-necked Phalarope	<i>Phalaropus lobatus</i>	
Red-tailed Hawk	<i>Buteo jamaicensis</i>	
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	
Redhead	<i>Aythya americana</i>	
Ring-billed Gull	<i>Larus delawarensis</i>	
Ring-necked Duck	<i>Aythya collaris</i>	
Ring-necked pheasant	<i>Phasianus colchicus</i>	<i>Exotic species (not native to Montana)</i>
Rock Pigeon	<i>Columba livia</i>	<i>Exotic species (not native to Montana)</i>
Rock Wren	<i>Salpinctes obsoletus</i>	
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	
Ross's Goose	<i>Chen rossii</i>	
Rough-legged Hawk	<i>Buteo lagopus</i>	
Ruby-crowned Kinglet	<i>Regulus calendula</i>	
Ruddy Duck	<i>Oxyura jamaicensis</i>	
Ruffed Grouse	<i>Bonasa umbellus</i>	
Rufous Hummingbird	<i>Selasphorus rufus</i>	<i>Potential species of concern</i>
Sabine's Gull	<i>Xema sabini</i>	
Sage Thrasher	<i>Oreoscoptes montanus</i>	<i>Species of concern</i>
Sandhill Crane	<i>Grus canadensis</i>	

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
Say's Phoebe	<i>Sayornis saya</i>	
Savannah Sparrow	<i>Passerculus sandwichensis</i>	
Scissor-tailed Flycatcher	<i>Tyrannus forficatus</i>	
Semipalmated Plover	<i>Charadrius semipalmatus</i>	
Sharp-shinned Hawk	<i>Accipiter striatus</i>	
Sharp-tailed Grouse	<i>Tympanuchus phasianellus</i>	<i>Species of concern</i>
Short-eared Owl	<i>Asio flammeus</i>	<i>Potential species of concern</i>
Snow Bunting	<i>Plectrophenax nivalis</i>	
Snow Goose	<i>Chen caerulescens</i>	
Snowy Owl	<i>Bubo scandiacus</i>	
Solitary Sandpiper	<i>Tringa solitaria</i>	
Solitary Vireo	<i>Vireo solitarius</i>	
Song Sparrow	<i>Melospiza melodia</i>	
Sora	<i>Porzana carolina</i>	
Spotted Sandpiper	<i>Actitis macularius</i>	
Spotted Towhee	<i>Pipilo maculatus</i>	
Sprague's Pipit	<i>Anthus spragueii</i>	
Spruce Grouse	<i>Falcapennis canadensis</i>	
Steller's Jay	<i>Cyanocitta stelleri</i>	
Surf Scoter	<i>Melanitta perspicillata</i>	
Swainson's Hawk	<i>Buteo swainsoni</i>	<i>Potential species of concern</i>
Swainson's Thrush	<i>Catharus ustulatus</i>	
Tennessee Warbler	<i>Vermivora peregrina</i>	<i>Potential species of concern</i>
Townsend's Solitaire	<i>Myadestes townsendi</i>	
Townsend's Warbler	<i>Dendroica townsendi</i>	
Tree Swallow	<i>Tachycineta bicolor</i>	
Trumpeter Swan	<i>Cygnus buccinator</i>	<i>Species of concern</i>
Tundra Swan	<i>Cygnus columbianus</i>	
Turkey Vulture	<i>Cathartes aura</i>	
Varied Thrush	<i>Ixoreus naevius</i>	
Vaux's Swift	<i>Chaetura vauxi</i>	
Veery	<i>Catharus fuscescens</i>	<i>Species of concern</i>
Vesper Sparrow	<i>Poocetes gramineus</i>	
Violet-green Swallow	<i>Tachycineta thalassina</i>	
Virginia Rail	<i>Rallus limicola</i>	
Warbling Vireo	<i>Vireo gilvus</i>	
Western Bluebird	<i>Sialia mexicana</i>	
Western Grebe	<i>Aechmophorus occidentalis</i>	
Western Kingbird	<i>Tyrannus verticalis</i>	
Western Meadowlark	<i>Sturnella neglecta</i>	
Western Screech-Owl	<i>Megascops kennicottii</i>	<i>Potential species of concern</i>
Western Tanager	<i>Piranga ludoviciana</i>	
Western Wood-Pewee	<i>Contopus sordidulus</i>	
White-breasted Nuthatch	<i>Sitta carolinensis</i>	

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	
White-faced Ibis	<i>Plegadis chihi</i>	<i>Species of concern</i>
White-tailed Ptarmigan	<i>Lagopus leucura</i>	<i>Species of concern</i>
White-throated Sparrow	<i>Zonotrichia albicollis</i>	
White-throated Swift	<i>Aeronautes saxatalis</i>	
White-winged Crossbill	<i>Loxia leucoptera</i>	
White-winged Scoter	<i>Melanitta fusca</i>	
Wild Turkey	<i>Meleagris gallopavo</i>	<i>Exotic species (not native to Montana)</i>
Willet	<i>Tringa semipalmata</i>	
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	
Willow Flycatcher	<i>Empidonax traillii</i>	
Wilson's Phalarope	<i>Phalaropus tricolor</i>	
Wilson's Snipe	<i>Gallinago delicata</i>	
Wilson's Warbler	<i>Wilsonia pusilla</i>	
Winter Wren	<i>Troglodytes troglodytes</i>	<i>Species of concern</i>
Wood Duck	<i>Aix sponsa</i>	
Yellow Warbler	<i>Dendroica petechia</i>	
Yellow-breasted Chat	<i>Icteria virens</i>	
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>	
Yellow-rumped Warbler	<i>Dendroica coronata</i>	
<b>REPTILES</b>		
Common Garter Snake	<i>Thamnophis sirtalis</i>	
Common Sagebrush Lizard	<i>Sceloporus graciosus</i>	<i>Species of concern</i>
Eastern Racer	<i>Coluber constrictor</i>	
greater Short-horned Lizard	<i>Phrynosoma hernandesi</i>	<i>Species of concern</i>
northern Alligator Lizard	<i>Elgaria coerulea</i>	<i>Species of concern</i>
Painted Turtle	<i>Chrysemys picta</i>	
Plains Garter Snake	<i>Thamnophis radix</i>	
Rubber Boa	<i>Charina bottae</i>	
Spiny Softshell	<i>Apalone spinifera</i>	<i>Species of concern</i>
Terrestrial Garter Snake	<i>Thamnophis elegans</i>	
Western Hog-nosed Snake	<i>Heterodon nasicus</i>	<i>Species of concern</i>
Western Rattlesnake	<i>Crotalus viridus</i>	
<b>AMPHIBIANS</b>		
Boreal Chorus Frog	<i>Pseudacris maculata</i>	
Columbia Spotted Frog	<i>Rana luteiventris</i>	
Great Plains Toad	<i>Bufo cognatus</i>	<i>Species of concern</i>
Long-toed Salamander	<i>Ambystoma macrodactylum</i>	
northern Leopard Frog	<i>Rana pipiens</i>	<i>Species of concern</i>
Pacific Treefrog	<i>Pseudacris regilla</i>	
Plains Spadefoot	<i>Spea bombifrons</i>	
Rocky Mountain Tailed Frog	<i>Ascaphus montanus</i>	
Tiger Salamander	<i>Ambystoma tigrinum</i>	
Western Toad	<i>Bufo boreas</i>	<i>Species of concern</i>

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
<b>FISH</b>		
Arctic Grayling	<i>Thymallus arcticus</i>	
Blue Sucker	<i>Cycleptus elongatus</i>	Species of concern
Brook Stickleback	<i>Culaea inconstans</i>	Potential species of concern
bull trout	<i>Salvelinus confluentus</i>	Threatened
Columbia River Redband Trout	<i>Oncorhynchus mykiss gairdneri</i>	Species of concern
Deepwater Sculpin	<i>Myoxocephalus thompsonii</i>	Species of concern
Iowa Darter	<i>Etheostoma exile</i>	Species of concern
Longnose Sucker	<i>Catostomus catostomus</i>	
Mottled Sculpin	<i>Cottus bairdi</i>	
northern Pikeminnow	<i>Ptychocheilus oregonensis</i>	
northern Redbelly Dace	<i>Phoxinus eos</i>	
northern redbelly x finescale dace	<i>Phoxinus eos x phoxinus neogaeus</i>	Species of concern
Paddlefish	<i>Polyodon spathula</i>	Species of concern
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Species of concern
Pearl Dace	<i>Margariscus margarita</i>	Species of concern
Pygmy Whitefish	<i>Prosopium coulteri</i>	Species of concern
Sauger	<i>Sander canadensis</i>	Species of concern
Slimy Sculpin	<i>Cottus cognatus</i>	
Spoonhead Scalpin	<i>Cottus ricei</i>	Species of concern
Sturgeon Chub	<i>Macrhybopsis gelida</i>	Species of concern
Torrent Sculpin	<i>Cottus rhotheus</i>	Species of concern
Trout-perch	<i>Percopsis omiscomaycus</i>	Species of concern
Westslope Cutthroat Trout	<i>Oncorhynchus clarkii lewisi</i>	Species of concern
Yellowstone Cutthroat Trout	<i>Oncorhynchus clarkii bowieri</i>	Species of concern
<b>INVERTEBRATES</b>		
caddisfly	<i>Anagapetus debilis</i>	
caddisfly	<i>Arctopsyche grandis</i>	
caddisfly	<i>Brachycentrus americanus</i>	
caddisfly	<i>Brachycentrus occidentalis</i>	
caddisfly	<i>Chyrandra centralis</i>	
caddisfly	<i>Dicosmoecus atripes</i>	
caddisfly	<i>Dicosmoecus gilvipes</i>	
caddisfly	<i>Helicopsyche borealis</i>	
caddisfly	<i>Hesperophylax designatus</i>	
caddisfly	<i>Hydropsyche confusa</i>	
caddisfly	<i>Lepidostoma cascadenense</i>	
caddisfly	<i>Lepidostoma unicolor</i>	
caddisfly	<i>Micrasema bactro</i>	
caddisfly	<i>Neophylax rickeri</i>	
caddisfly	<i>Neophylax splendens</i>	
caddisfly	<i>Neothremma alicia</i>	
caddisfly	<i>Onocosmoecus unicolor</i>	

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
caddisfly	<i>Rhyacophila betteni</i>	
Cave-obligate Isopod	<i>Salmasellus steganothrix</i>	Species of concern
Eukiefferiellan Chironomid	<i>Eukiefferiella brehmi</i>	
Eukiefferiellan Chironomid	<i>Eukiefferiella devonica</i>	
Eukiefferiellan Chironomid	<i>Eukiefferiella gracei</i>	
Freshwater Sponge	<i>Ephydatia cooperensis</i>	Species of concern
Leech	<i>Helobdella stagnalis</i>	
Limnephilid Caddisfly	<i>Nemotaulius hostilis</i>	
mayfly	<i>Acentrella turbida</i>	
mayfly	<i>Attenella margarita</i>	
mayfly	<i>Baetis bicaudatus</i>	
mayfly	<i>Baetis tricaudatus</i>	
mayfly	<i>Caenis youngi</i>	Species of concern
mayfly	<i>Caudatella hystrix</i>	
mayfly	<i>Drunella coloradensis</i>	
mayfly	<i>Drunella doddsi</i>	
mayfly	<i>Drunella grandis</i>	
mayfly	<i>Drunella spinifera</i>	
mayfly	<i>Epeorus longimanus</i>	
mayfly	<i>Ephemerella excrucians</i>	
mayfly	<i>Parameletus columbiae</i>	Species of concern
mayfly	<i>Plauditus punctiventris</i>	
mayfly	<i>Serratella tibialis</i>	
mayfly	<i>Timpanoga hecuba</i>	
millipede	<i>Endopus parvipes</i>	Species of concern
millipede	<i>Ergodesmus compactus</i>	
millipede	<i>Lophomus larius</i>	Species of concern
millipede	<i>Orophe cabinetus</i>	Species of concern
rhyacophilan Caddisfly	<i>Rhyacophila alberta</i>	
rhyacophilan Caddisfly	<i>Rhyacophila brunnea</i>	
rhyacophilan Caddisfly	<i>Rhyacophila ebria</i>	Species of concern
rhyacophilan Caddisfly	<i>Rhyacophila glaciera</i>	Species of concern
rhyacophilan Caddisfly	<i>Rhyacophila narvae</i>	
rhyacophilan Caddisfly	<i>Rhyacophila potteri</i>	Species of concern
rhyacophilan Caddisfly	<i>Rhyacophila verrula</i>	
riffle Beetle	<i>Cleptelmis addenda</i>	
riffle Beetle	<i>Heterlimnius corpulentus</i>	
riffle Beetle	<i>Lara avara</i>	
riffle Beetle	<i>Narpus concolor</i>	
riffle Beetle	<i>Optioservus quadrimaculatus</i>	
riffle Beetle	<i>Ordobrevia nubifera</i>	
riffle Beetle	<i>Zaitzevia parvula</i>	
sand-dwelling mayfly	<i>Lachlania saskatchewanensis</i>	Species of concern

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
stonefly	<i>Amphinemura banksi</i>	
stonefly	<i>Claassenia sabulosa</i>	<i>Claassenia sabulosa</i>
stonefly	<i>Despaxia augusta</i>	
stonefly	<i>Doroneuria theodora</i>	
stonefly	<i>Hesperoperla pacifica</i>	
stonefly	<i>Isocapnia crinita</i>	<i>Species of concern</i>
stonefly	<i>Isoperla petersoni</i>	<i>Species of concern</i>
stonefly	<i>Kogotus modestus</i>	
stonefly	<i>Prostoia besametsa</i>	
stonefly	<i>Setvena bradleyi</i>	
stonefly	<i>Yoraperla brevis</i>	
stonefly	<i>Zapada cinctipes</i>	
stonefly	<i>Zapada columbiana</i>	
stonefly	<i>Zapada cordillera</i>	<i>Species of concern</i>
stonefly	<i>Zapada oregonensis</i>	
true fly	<i>Atherix pachypus</i>	
Tvetenian Chironomid	<i>Tvetenia bavarica</i>	
Afranius Duskywing	<i>Erynnis alfranius</i>	
Alexander's Rhyacophilan Caddisfly	<i>Rhyacophila alexanderi</i>	<i>Species of concern</i>
Alpine Mountainsnail	<i>Oreohelix alpina</i>	<i>Species of concern</i>
Amber Glass	<i>Nesovitrea electrina</i>	
American Emerald	<i>Cordulia shurtleffii</i>	
American Salmonfly	<i>Pteronarcys dorsata</i>	
Agapetus Caddisfly	<i>Agapetus montanus</i>	<i>Potential species of concern</i>
amphipod	<i>Hyalella azteca</i>	<i>Exotic species (not native to Montana)</i>
Anicia Checkerspot	<i>Euphydryas anicia</i>	
Anise Swallowtail	<i>Papilio zelicaon</i>	
Artic Blue	<i>Plebejus glandon</i>	
Banded Tigersnail	<i>Anguispira kochi</i>	
Band-winged Meadowhawk	<i>Sympetrum semicinctum</i>	
Belted Whiteface	<i>Leucorrhinia proxima</i>	
Black Meadowhawk	<i>Sympetrum danae</i>	
Blue-eyed Darner	<i>Rhionaeschna multicolor</i>	<i>Potential species of concern</i>
Blue Glass	<i>Nesovitrea binneyana</i>	
Boreal Whiteface	<i>Leucorrhinia borealis</i>	<i>Species of concern</i>
Brown Hive	<i>Euconulus fulvus</i>	
Brush-tipped Emerald	<i>Somatochlora walshii</i>	<i>Species of concern</i>
California Darner	<i>Rhionaeschna californica</i>	<i>Potential species of concern</i>
California Tortoiseshell	<i>Nymphalis californica</i>	
Callippe Fritillary	<i>Speyeria callippe</i>	
Canada Darner	<i>Aeshna canadensis</i>	
Carinate Mountainsnail	<i>Oreohelix elrod</i>	<i>Species of concern</i>
Chalk-fronted Corporal	<i>Ladona julia</i>	<i>Potential species of concern</i>

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
Checkered White	<i>Pontia protodice</i>	
Cherry-faced Meadowhawk	<i>Sympetrum internum</i>	
Chocolate Arion	<i>Arion rufus</i>	
Common Green Darner	<i>Anax junius</i>	
Common Whitetail	<i>Plathemis lydia</i>	
Coeur d'Alene Oregonian	<i>Crytomastix mullani</i>	
Crimson-ringed Whiteface	<i>Leucorrhinia glacialis</i>	<i>Potential species of concern</i>
Cross Vertigo	<i>Vertigo modesta</i>	
Cuneate Arches	<i>Lacinipolia cuneata</i>	
Depressed Rocky Mountainsnail	<i>Oreohelix stringosa depressa</i>	
Dot-tailed Whiteface	<i>Leucorrhinia intacta</i>	
Eight-spotted Skimmer	<i>Libellula forensis</i>	
Emerald Spreadwing	<i>Lestes dryas</i>	
Ethologist Fairy Shrimp	<i>Eubbranchipus serratus</i>	
Fir Pinwheel	<i>Radiodiscus abietum</i>	<i>Potential species of concern</i>
Forest Disc	<i>Discus whitneyi</i>	
Four-spotted Skimmer	<i>Libellula quadrimaculata</i>	
Gillette's Checkerspot	<i>Euphydryas gillettii</i>	<i>Species of concern</i>
Glacier Amphipod	<i>Stygobromus glacialis</i>	<i>Species of concern</i>
Green Comma	<i>Polygonia faunus</i>	
Grooved Fingernailclam	<i>Sphaerium simile</i>	
Hagen's Small Minnow Mayfly	<i>Dipheter hageni</i>	
Herrington Fingernailclam	<i>Sphaerium occidentale</i>	
Hudsonian Whiteface	<i>Leucorrhinia hudsonica</i>	
Idaho Forestsnail	<i>Allogona ptychophora</i>	
Keeled Mountainsnail	<i>Oreohelix carinifera</i>	<i>Species of concern</i>
Lake Darner	<i>Aeshna eremita</i>	<i>Potential species of concern</i>
Lake Disc	<i>Discus brunsoni</i>	<i>Species of concern</i>
Lance-tipped Darner	<i>Aeshna constricta</i>	<i>Potential species of concern</i>
Large-mantle Physa	<i>Physa megalochlamys</i>	<i>Species of concern</i>
Lorquin's Admiral	<i>Limenitis lorquini</i>	
Lustrous Copper	<i>Lycaena cupreus</i>	
Lyre Mantleslug	<i>Udosarx lyrata</i>	<i>Species of concern</i>
Magnum Mantleslug	<i>Magnipelta mycophaga</i>	<i>Species of concern</i>
Meadow Slug	<i>Deroceras laeve</i>	<i>Exotic species (not native to Montana)</i>
Meltwater Lednian Stonefly	<i>Lednia tumana</i>	<i>Species of concern</i>
Milbert's Tortoiseshell	<i>Aglais milberti</i>	
Mountain Emerald	<i>Somatochlora semicircularis</i>	<i>Potential species of concern</i>
Mourning Cloak	<i>Nymphalis antiopa</i>	
northern Bluet	<i>Enallagma annexum</i>	
northern Checkerspot	<i>Chlosyne palla</i>	
northern Rocky Mountains refugium caddisfly	<i>Goereilla baumanni</i>	<i>Species of concern</i>

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
northern Rocky Mountains refugium mayfly	<i>Caudatella edmundsi</i>	<i>Potential species of concern</i>
northern Spreadwing	<i>Lestes disjunctus</i>	
Orange-banded Arion	<i>Arion fasciatus</i>	
Pacific Forktail	<i>Ischnura cervula</i>	
Pacific Spiketail	<i>Cordulegaster dorsalis</i>	
Paddle-tailed Darner	<i>Aeshna palmata</i>	
Pale Snaketail	<i>Ophiogomphus severus</i>	
Pale Swallowtail	<i>Papilio eurymedon</i>	
Police Car Moth	<i>Gnophaela vermiculata</i>	
Quick Gloss	<i>Zonitoides arboreus</i>	
Ranchman's tiger Moth	<i>Platyprepia virginalis</i>	
Red-veined Meadowhawk	<i>Sympetrum madidum</i>	<i>Potential species of concern</i>
Red-winged Wave	<i>Dasyfidonia avuncularia</i>	
Reticulate Taidropper	<i>Prophysaon andersoni</i>	<i>Species of concern</i>
Ribbed Spot	<i>Punctum californicum</i>	
river Jewelwing	<i>Calopteryx aequabilis</i>	
Rocky Mountain Capshell	<i>Acroloxus coloradensis</i>	<i>Species of concern</i>
Rocky Mountain Dusksnail	<i>Colligyrus greggi</i>	<i>Species of concern</i>
Rocky Mountainsnail	<i>Oreohelix strigosa</i>	
Saffron-winged Meadowhawk	<i>Sympetrum costiferum</i>	
Salmonfly	<i>Pteronarcys californica</i>	
Sandhill Skipper	<i>Polites sabuleti</i>	
Sedge Darner	<i>Aeshna juncea</i>	<i>Potential species of concern</i>
Shadow Darner	<i>Aeshna umbrosa</i>	
Sheathed Slug	<i>Zacoleus idahoensis</i>	<i>Species of concern</i>
Shiny Tightcoil	<i>Pristiloma wascoense</i>	<i>Species of concern</i>
Signal Crayfish	<i>Pacifastacus leniusculus</i>	
Silky Vallonia	<i>Vallonia cyclophorella</i>	
Sinuuous Snaketail	<i>Ophiogomphus occidentis</i>	<i>Potential species of concern</i>
Smoky Taidropper	<i>Prophysaon humile</i>	<i>Species of concern</i>
Spiny Baskettail	<i>Epithea spinigera</i>	<i>Potential species of concern</i>
Spotted Spreadwing	<i>Lestes congener</i>	
Spruce Snail	<i>Microphysula ingersolli</i>	
Spurge Hawkmoth	<i>Hyles euphorbiae</i>	<i>Exotic species (not native to Montana)</i>
Striate Disc	<i>Discus shimckii</i>	<i>Species of concern</i>
Striped Meadowhawk	<i>Sympetrum pallipes</i>	
Subalpine Mountainsnail	<i>Oreohelix subrudis</i>	
Subarctic Bluet	<i>Coenagrion interrogatum</i>	<i>Species of concern</i>
Taiga Bluet	<i>Coenagrion resolutum</i>	
Tapered Vertigo	<i>Vertigo elatior</i>	
Twelve-spotted Skimmer	<i>Libellula pulchella</i>	
Two-ridge Rams-horn	<i>Helisoma anceps</i>	
Variable Darner	<i>Aeshna interrupta</i>	

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
Variegated Meadowhawk	<i>Sympetrum corruptum</i>	
Western Glacier Stonefly	<i>Zapada glacier</i>	Species of concern
Western Glass-snail	<i>Vitrina pellucida</i>	
Western Pearlshell	<i>Margaritifera falcata</i>	Species of concern
Western Red Damsel	<i>Amphiagrion abbreviatum</i>	
Western Tailed Blue	<i>Cupido (Everes) amyntula</i>	
White-faced Meadowhawk	<i>Sympetrum obtrusum</i>	
Wrinkled Marshsnail	<i>Stagnicola caperata</i>	
Zigzag Darner	<i>Aeshna sitchensis</i>	Potential species of concern
<b>VASCULAR PLANTS</b>		
Adder's Tongue	<i>Ophioglossum pusillum</i>	Species of concern
Aspen		<i>Populus tremuloides</i>
Austin's Knotweed	<i>Polygonum austiniiae</i>	Species of concern
Beaked Spikerush	<i>Eleocharis rostellata</i>	Species of concern
Beck Water-marigold	<i>Bidens beckii</i>	Species of concern
Blunt-leaved Pondweed	<i>Potamogeton obtusifolius</i>	Species of concern
Chaffweed	<i>Centunculus minimus</i>	Species of concern
Cliff Toothwort	<i>Cardamine rupicola</i>	Species of concern
Clustered Lady's-slipper	<i>Cypripedium fasciculatum</i>	Species of concern
Crawe's Sedge	<i>Carex crawei</i>	Species of concern
Creeping Sedge	<i>Carex chordorrhiza</i>	Species of concern
Crested Shieldfern	<i>Dryopteris cristata</i>	Species of concern
Deer Indian Paintbrush	<i>Castilleja cervina</i>	Species of concern
Douglas-fir	<i>Pseudotsuga menziesii</i>	
English Sundew	<i>Drosera anglica</i>	Species of concern
Flexible Collomia	<i>Collomia debilis var. camporum</i>	Species of concern
Giant Helleborine	<i>Epipactis gigantea</i>	Species of concern
Glaucus Beaked Sedge	<i>Carex rostrata</i>	Species of concern
Hall's Rush	<i>Juncus hallii</i>	Species of concern
Howell's Gumweed	<i>Grindelia howellii</i>	Species of concern
Hutchinsia	<i>Hutchinsia procumbens</i>	Species of concern
Idaho fescue	<i>Festuca idahoensis</i>	
Keeled Bladderpod	<i>Physaria carinata</i>	Species of concern
Lake-bank Sedge	<i>Carex lacustris</i>	Species of concern
Limber pine	<i>Pinus flexilis</i>	
Linearleaf Moonwort	<i>Botrychium lineare</i>	Species of concern
Linear-leaved Sundew	<i>Drosera linearis</i>	Species of concern
Loesel's Twayblade	<i>Liparis loeselii</i>	Species of concern
Lyall Phacelia	<i>Phacelia lyallii</i>	
Mingan Island Moonwort	<i>Botrychium minganense</i>	Potential species of concern
Mission Mountain Kittenails	<i>Synthyris canbyi</i>	Species of concern
Missoula Phlox	<i>Phlox kelseyi var. missoulensis</i>	Species of concern
Moonwort Grape-fern	<i>Botrychium lunaria</i>	Potential species of concern
Mountain Moonwort	<i>Botrychium montanum</i>	Species of concern

<i>Common Name</i>	<i>Scientific Name</i>	<i>Designation</i>
northern Bog Clubmoss	<i>Lycopodium inundatum</i>	<i>Species of concern</i>
northern Moonwort	<i>Botrychium pinnatum</i>	<i>Status under review</i>
Pale Sedge	<i>Carex livida</i>	<i>Potential species of concern</i>
Pod Grass	<i>Scheuchzeria palustris</i>	<i>Species of concern</i>
Ponderosa pine	<i>Pinus ponderosa</i>	
Pygmy Water-lily	<i>Nymphaea leibergii</i>	<i>Species of concern</i>
Round-leaved Orchis	<i>Amerorchis rotundifolia</i>	<i>Species of concern</i>
Short-flowered Monkeyflower	<i>Mimulus breviflorus</i>	<i>Species of concern</i>
Slender Cottongrass	<i>Eriophorum gracile</i>	<i>Species of concern</i>
Small Yellow Lady's-slipper	<i>Cypripedium parviflorum</i>	<i>Potential species of concern</i>
Sparrow's-egg Lady's-slipper	<i>Cypripedium passerinum</i>	<i>Species of concern</i>
Spoon-leaf Moonwort	<i>Botrychium spathulatum</i>	<i>Species of concern</i>
Stalk-leaved Monkeyflower	<i>Mimulus ampliatus</i>	<i>Species of concern</i>
Stalked Moonwort	<i>Botrychium pedunculosum</i>	<i>Species of concern</i>
Thinsepel monkeyflower	<i>Mimulus hymenophyllus</i>	<i>Status under review</i>
Tufted Club-rush	<i>Trichophorum cespitosum</i>	<i>Species of concern</i>
Upward-lobed Moonwort	<i>Botrychium ascendens</i>	<i>Species of concern</i>
Water Bulrush	<i>Schoenoplectus subterminalis</i>	<i>Species of concern</i>
Watershield	<i>Brasenia schreberi</i>	<i>Species of concern</i>
Water Howellia	<i>Howellia aquatilis</i>	<i>Threatened</i>
Wavy Moonwort	<i>Botrychium crenulatum</i>	<i>Species of concern</i>
Western Moonwort	<i>Botrychium hesperium</i>	<i>Species of concern</i>
<b>NONVASCULAR PLANTS</b>		
Barnes' eurhynchium moss	<i>Eurhynchium pulchellum</i> <i>var. barnesii</i>	<i>Status under review</i>
Brick-spored Firedot Lichen	<i>Brigantiaea praetermissa</i>	<i>Potential species of concern</i>
Bryum moss	<i>Bryum calobryoides</i>	
Chocolate Chip Lichen	<i>Solorina bispora</i>	<i>Species of concern</i>
Douglas' neckera moss	<i>Neckera douglasii</i>	<i>Species of concern</i>
Gray Lungwort Lichen	<i>Lobaria hallii</i>	<i>Species of concern</i>
Hooded Ramalina Lichen	<i>Ramalina obtusata</i>	<i>Species of concern</i>
Jelly Lichen	<i>Collema curtisporum</i>	<i>Species of concern</i>
Lead Lichen	<i>Parmeliella triptophylla</i>	<i>Species of concern</i>
Magellan's Peatmoss	<i>Sphagnum magellanicum</i>	<i>Species of concern</i>
Mountain Oakmoss Lichen	<i>Evernia divaricata</i>	<i>Potential species of concern</i>
Netted Specklebelly Lichen	<i>Pseudocyphellaria anomala</i>	<i>Species of concern</i>
Powdery Twig Lichen	<i>Ramalina pollinaria</i>	<i>Species of concern</i>
Speck Lichen	<i>Verrucaria kootenaica</i>	<i>Species of concern</i>

# Appendix E

## *Draft Compatibility Determinations*

### E.1 Refuge Complex Name and Dates Established

Benton Lake National Wildlife Refuge Complex:

- Benton Lake National Wildlife Refuge—November 21, 1929
- Benton Lake Wetland Management District—1975
- Swan River National Wildlife Refuge—May 14, 1973

Establishing and Acquisition Authorities

- 16 U.S.C. § 715(d),  
Migratory Bird Conservation Act 1929
- 16 U.S.C. § 718(c),  
Migratory Bird Hunting and Conservation Stamp of 1934
- 16 U.S.C. § 661–667e,  
Fish and Wildlife Coordination Act of 1934
- 16 U.S.C. § 742(a–j),  
Fish and Wildlife Act of 1956
- 16 U.S.C. § 718d(b),  
Small Wetlands Acquisition Program 1958
- 25 U.S.C. § 488,  
Consolidated Farm and Rural Development Act of 1985

### E.2 Refuge Complex Purposes

The establishing and acquisition authorities set out the purposes for each unit of the refuge complex, as described below.

#### Benton Lake National Wildlife Refuge

- As “a refuge and breeding ground for migratory birds.”
- Executive Order 5228, November 21, 1929

- For “use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”
- Migratory Bird Conservation Act

#### Benton Lake Wetland Management District

- As “Waterfowl Production Areas subject to [...] all of the provisions of such Act [Migratory Bird Conservation Act] [...] except the inviolate sanctuary provisions.”
- Migratory Bird Hunting and Conservation Stamp
- For “any other management purpose, for migratory birds.”
- Migratory Bird Conservation Act
- For “conservation purposes.”
- Consolidated Farm and Rural Development Act

#### Swan River National Wildlife Refuge

- For “use as an inviolate sanctuary, or for any other management purpose, for migratory birds”
- Migratory Bird Conservation Act

#### National Wildlife Refuge System Mission

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

### E.3 Description of Uses

The following uses are evaluated for compatibility within the refuge complex:

- Hunting

- Fishing
- Wildlife observation and photography
- Environmental education and interpretation
- Cooperative farming, haying, and grazing
- Commercial filming, audio recordings, and still photography
- Research and monitoring
- Special one-time events
- Virtual geocaching
- Dry lot for up to 4 horses

## Hunting

The refuge complex's hunting program will be driven by its compatibility with wildlife population objectives and the availability of water during the hunting season. In addition to the site-specific regulations mentioned below, the State hunting regulations apply to all Service-owned lands in the refuge complex. Hunters may only possess and use Service-approved, nontoxic shot loads on Service-owned lands, and vehicle travel and parking is restricted to public roads, pullouts, and parking areas. The refuge complex Web site and public use brochures provide guidance onsite-specific regulations. The general hunting regulations are available from MFWP.

The CCP proposes to continue the hunting uses described for each unit below. In addition, the Service will increase regulatory hunting signage (for example, closed to hunting area signs, nontoxic shot required signs) and interpretive materials (for example, an updated and more comprehensive refuge complex hunting leaflet, hunting factsheets) to reduce unintentional hunting violations throughout the refuge complex.

### Benton Lake National Wildlife Refuge

Public hunting of migratory gamebirds including ducks, geese, coot, swan (by permit only) and upland gamebirds including pheasant, sharp-tailed grouse, and gray partridge is permitted in designated areas of the refuge.

Big game hunting and hunting rabbits or any other wildlife species, including furbearers is not be permitted on Benton Lake Refuge.

### Benton Lake Wetland Management District

Except for the Sands WPA in Hill County and H2-O WPA in Powell County, all waterfowl production areas within the district are open to hunting of migratory gamebirds, upland game, and big game. Approximately 14,127 acres of upland and wetland habitat are available for hunting. Unless otherwise

noted, all Service lands open to hunting are subject to State hunting regulations and seasons.

### Swan River National Wildlife Refuge

Hunting of migratory gamebirds including ducks, geese, swans (by permit only), and coots is permitted in designated areas of the refuge.

Upland gamebird hunting, big game hunting, and guided hunting is not permitted on the refuge.

### Availability of Resources

Existing programs such as current refuge directional signs and brochures are occasionally updated with available resources. Maintenance of access roads, parking, hunting and information kiosks, and public use signs is closely tied to Service Asset Maintenance Management System funding. The refuge complex's base money would fund the update and printing of existing and new brochures.

More law enforcement staff and resources would be required (1) to manage significant changes to the hunting program to reduce disturbance to wildlife and habitat, (2) carry out and encourage preventative law enforcement efforts, and (3) to check compliance with public use and hunting regulations.

### Anticipated Impacts of Use

The hunting program on Service lands in the refuge complex will continue to provide hunters ample quality hunting opportunities without materially detracting from the mission of the Refuge System or the establishing purposes of the refuge complex lands. Public use brochures and the refuge complex's Web site will be kept up to date and made readily available to hunters. Hunter success and satisfaction will continue to be monitored through random contacts with hunters in the field and in the refuge complex 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. As practiced on the refuge complex, hunting does not pose a threat to the wildlife populations. By its very nature, hunting creates a disturbance to wildlife and directly affects the individual animals being hunted. Hunting will 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 species and may indirectly disturb other species, limits on harvest and access for recreational hunting would make sure that populations do not fall to unsustain-

able levels. Closed areas on the refuge complex provide sanctuary to migratory birds during the hunting season.

Other effects from hunting activity include conflicts with individuals participating in wildlife-dependent, priority public uses such as wildlife observation and photography. This could decrease the visitors' satisfaction during the hunting season.

## Public Review and Comment

This Compatibility Determination is presented for public review and comment as part of the 30-day public comment period for the Draft Comprehensive Conservation Plan and Environmental Assessment for the Benton Lake National Wildlife Refuge Complex.

## Determination

Hunting is a compatible use on the refuge complex.

## Stipulations Necessary for Compatibility

- Hunters will be required to use approved non-toxic shot for migratory bird and upland game-bird hunting on Service-owned lands.
- Vehicles will be restricted to county and public roads and parking areas in the refuge complex.
- Signage, news releases, open-houses, and brochures will be used to provide hunters information on where and how to hunt on the refuge complex to make sure there is compliance with public use regulations.

## Justification

Hunting is a form of wildlife-dependent recreation and is identified as a priority public use in the Improvement Act. Based on anticipated biological effects described above and in the EA, the Service has found that hunting within the refuge complex would not interfere with the purposes for which the refuges and district were established. Limiting access and monitoring the use could help limit any adverse effects. Except for the H2–O and Sands WPAs, all lands and waters within the wetland management district would be open to hunting in accordance with the Migratory Bird Hunting and Conservation Stamp Act, under which they were acquired.

## Mandatory 15-year Reevaluation Date: 2027

### Fishing

This use will be a continuation of the historic activity of noncommercial fishing. Public use areas such as parking and fishing areas, as well as interpretive panels, signs, kiosks, and other structures may be installed and supported to facilitate this program. Areas on the refuge complex that are seasonally sensitive to migratory birds will remain closed to public entry and use. Only selected areas of the refuge complex will be open to fishing. Special refuge regulations governing fishing will be available in refuge brochures.

The CCP proposes the fishing uses described for each unit below in accordance with State regulations. The CCP does not call for the implementation of any new fishing programs; however, opportunities may be expanded with more purchases of waterfowl production areas within the district.

### Benton Lake National Wildlife Refuge

The main part of the refuge offers no fishing opportunities due to a lack of sport fish. The Pump House Unit of the refuge is open for fishing.

### Benton Lake Wetland Management District

Lands acquired as waterfowl production areas are open to fishing subject to the provisions of State laws and regulations. Fishing or entry on all or any part of individual areas may be temporarily suspended by posting on occasions of unusual or critical conditions of, or affecting, land, water, vegetation or fish and wildlife populations.

Fishing on waterfowl production areas throughout the district is permitted. Known game fish populations exist at the Arod Lakes, H2–O, proposed acquisition at Upsata Lake, and Blackfoot WPAs. At the Arod Lakes and Upsata Lake WPAs, walk-in access would be permitted year-round. On Arod Lakes WPA, vehicle access to Middle and Round Lakes is permitted January 2 until April 1.

### Swan River National Wildlife Refuge

Fishing is permitted on portions of the Swan River that flow through the refuge year-round. Walk-in access for fishing from Bog Road may occur throughout the year.

## Availability of Resources

The refuge complex has adequate administrative and management staff to support its fishing program.

## Anticipated Impacts of Use

Temporary disturbance of wildlife may occur near fishing activity. Fishing will temporarily decrease the fish population until natural reproduction or stocking replenishes the population. Frequency of use is directly dependent upon fish populations and their feeding activity. When fish populations are high and active, public use will increase. Minimal disturbance to ground nesting birds may occur from anglers walking along rivers and streams. Littering can also become a problem. No long-term negative impacts to resources are anticipated.

## Public Review and Comment

This Compatibility Determination is presented for public review and comment as part of the 30-day public comment period for the Draft Comprehensive Conservation Plan and Environmental Assessment for Benton Lake National Wildlife Refuge Complex.

## Determination

Fishing is a compatible use on the Benton Lake and Swan River Refuges and waterfowl production areas in the district in accordance with State regulations.

## Stipulations Necessary for Compatibility

- Vehicles will be restricted to county and public roads and parking areas on the waterfowl production areas.
- Use of motorized boats is prohibited on the Benton Lake Refuge, except the Swan River where no-wake regulations are in effect.
- Boats, fishing equipment, and all other personal property must be removed at the end of each day.

## Justification

Fishing is a form of wildlife-dependent recreations and is identified as a priority public use in the Improvement Act. Based on the biological effects addressed above and in the EA, the Service has found that fishing would not interfere with the purposes for establishment of the refuges and waterfowl pro-

duction areas within the refuge complex. Current staffing levels and monetary resources are adequate. Special refuge regulations are in place to reduce negative impacts to refuge habitat and wildlife.

## Mandatory 15-year Reevaluation Date: 2027

## Wildlife Observation and Photography

A variety of habitats and many species of wildlife throughout the refuge complex provide observation and photography opportunities year-round. The Benton Lake Refuge received most of the visitation.

Wildlife observation and photography opportunities would continue to be provided throughout the refuge complex, and would be supported by providing observation blinds, supporting an up-to-date bird species list for the refuges in the refuge complex, and allowing the public the opportunity to use portable viewing and photography blinds through the issuance of special use permits. These activities may take place on foot, bicycle, automobile, horse, cross-country skis and snowshoes.

Facilities exist on the Benton Lake and Swan River Refuges that support these activities by bringing visitors closer to wildlife: Boardwalk Nature Trail, Swan River Overlook, Sharp-tailed Grouse Observation Blind, Benton Lake Refuge photography blind, and Prairie Marsh Wildlife Drive. Modifications and relocations may occur to the existing facilities and auto tour routes to accommodate restoration activities to the wetland basin at the Benton Lake Refuge. New facilities for observing and photographing wildlife (such as observation decks, trails, auto tour routes, and photography blinds) may be developed.

The CCP proposes to continue wildlife observation and photography on the following units of the refuge complex as described below.

## Benton Lake National Wildlife Refuge

The Prairie Marsh Wildlife Drive would provide year-round wildlife-viewing and photography opportunities via auto, foot, cycling, snowshoes, or cross-country skis. Hazardous road conditions would occasionally require periodic closures.

Lower Marsh Road would continue to be available to vehicles, hiking, and bicycling for wildlife-viewing and photography opportunities from July 15 until the opening day of waterfowl-hunting season. Rough road conditions prevent the use of recre-

ational vehicles, vehicles towing trailers, and large vehicles.

Facilities providing more opportunities for wildlife observation and photography include the Unit 1 Photographic Blind and the Boardwalk Nature Trail with spotting scope and interpretive panels. More opportunities for wildlife observation and photography by means of temporary blinds year-round on Prairie Marsh Wildlife Drive would be provided. Blinds in other selected areas may be provided as well through SUP.

The Sharp-Tailed Grouse Blind would continue to be available to the public by reservation on weekends during April and May. The grouse blind provides a highly sought-after opportunity for visitors to observe and photograph the courting rituals of sharp-tailed grouse. Another blind may be installed at another lek location due to extreme interest in this opportunity exceeding current availability.

Foot traffic, including hiking, cross country skiing, and snowshoeing, for wildlife observation and photography is also permitted throughout the hunt area during hunting season. At other times of the year, public use is limited to the designated roads and trails described above.

All facilities and infrastructure may be altered in location or experience periodic closures to accommodate modifications to existing infrastructure in support of basin wide restoration efforts.

## Benton Lake Wetland Management District

Wildlife observation and photography opportunities are available year-round on 22 waterfowl production areas. Most visitors view wildlife from public roads.

## Swan River National Wildlife Refuge

Swan River Refuge is a popular destination point for visitors traveling through the Swan Valley. The existing observation platform, kiosk, and interpretive panels would continue to be supported and provide opportunity for wildlife observation and photography. Bog Road, which provides access to the interior of the refuge, will be supported as a walking trail which will allow foot traffic, including hiking, cross country skiing, and snowshoeing.

## Availability of Resources

Sufficient resources are available to administer, manage and check the use. Infrastructure exists on the refuge complex to support these activities. Observation areas are placed in areas that provide consistent wildlife viewing opportunity with minimum disturbance to wildlife. The construction and main-

tenance of roadways, kiosks, observation platforms, and trails, as well as law enforcement activities to make sure that visitors comply with refuge regulations while conducting these activities, are the principle expenses associated with wildlife observation and photography. Resources are available within the existing staffing and budget allocations of the refuge complex. An extra park ranger, law enforcement officer, and maintenance worker, as proposed in the comprehensive conservation plan, will enhance public opportunities for these uses and improve quality and quantity of opportunities.

## Anticipated Impacts of the Use

Short-term effects may include the temporary displacement of birds and other wildlife to adjacent habitats during the initial positioning and removal of portable blinds, cameras, and other equipment. Some birds will be flushed from foraging or resting habitats by the approach of people on trails. However, the area impacted by these disturbances is small compared to the overall habitat area available. Disturbance caused by these uses is not anticipated to cause wildlife to leave or abandon the refuge, and all areas are available to wildlife for undisturbed use during closed hours.

Winter activities, such as cross-country skiing, and snowshoeing, would have no effect on nesting birds and little effect on vegetation. Winter disturbance to resident wildlife is temporary and minor. Hiking during the breeding season, when confined to open trails and roads would have little or no effect on wildlife. Equestrian use on the Benton Lake Refuge is restricted to roadways to prevent spread of weeds, erosion from hoof action, and trampling disturbance to wildlife. Bicycling is restricted to roadways open to vehicular traffic to reduce disturbance to wildlife.

Disturbance resulting from wildlife observation and photography programs is deemed to be biologically insignificant. No long-term effects are expected if recommended stipulations are followed. The proposed uses, including development of facilities to support those uses, will foster public appreciation and understanding of the prairie ecosystem and the importance of refuge and district habitats for wildlife conservation.

## Public Review and Comment

This Compatibility Determination is presented for public review and comment as part of the 30-day public comment period for the Draft Comprehensive Conservation Plan and Environmental Assessment for Benton Lake National Wildlife Refuge Complex.

## Determination

Wildlife observation and noncommercial photography are compatible uses on the Benton Lake and Swan River Refuges and waterfowl production areas in the district.

## Stipulations Necessary for Compatibility

- A special use permit will be issued to all individuals using blinds for photography and observation within the complex.. A total of five special use permits would be issued in any given year on any unit of the refuge complex for the use of small observation blinds on a first-come-first-served basis. If the number of requests for blinds exceeds five, the permitting process would be revisited and modified as necessary. Visitors using permanent or portable observation and photography blinds will be provided with information on proper use and etiquette of these structures to reduce disturbance to wildlife and their natural environments and other refuge complex visitors.
- Blinds will be erected and removed daily.
- Blind location will be decided by complex staff and may be limited to areas next to public access roads.
- Refuge complex staff must be notified before arrival at the refuge for observation and photography.
- Refuge complex staff will decide if, when, where and for how long access may be allowed to photograph at individual areas.
- Seasonal closures to protect sensitive wildlife areas and reduce disturbance to fish and wildlife will be supported.
- Non-Service vehicles will be restricted to county and public access roads in the refuge complex.
- Viewing areas will be designed to reduce disturbance effects on wildlife and all refuge resources while providing a good opportunity to view wildlife in their natural environments.
- On the Benton Lake and Swan River Refuges, foot traffic (hiking, cross-country skiing and snowshoeing) will be permitted only on designated trails, roads open to motorized vehicles,

and in the refuge hunt area during the refuge hunting season.

- On the Benton Lake Refuge, equestrian use will be restricted to roadways open to motorized vehicles year-round and prohibited on all other units of the refuge complex.
- On the Benton Lake Refuge and the district, bicycling will be restricted to roadways open to motorized vehicles year-round.

## Justification

Wildlife observation and photography are a form of wildlife-dependent recreation and are identified as priority public uses in the Improvement Act. These uses, including existing and future enhanced programs as prescribed in the Comprehensive Conservation Plan for the Benton Lake National Wildlife Refuge Complex are compatible with the purposes, and with the mission of the Refuge System. These uses are not only justified but are encouraged by the National Wildlife Refuge Improvement Act of 1997. Wildlife observation and photography can instill, in citizens of all ages, a greater appreciation for wildlife and its habitat. This appreciation may extend to the Refuge System and other conservation agencies.

Disturbance from wildlife observation and photography is not expected to adversely impact wildlife populations. Most wildlife observation is confined to within a set distance from existing roadways, and in some locations, the infrastructure helps to concentrate public use in areas that can allow wildlife observation and photography opportunities at safe distances that reduce disturbance to wildlife.

Based on anticipated biological effects described above and in the EA, the Service has found that wildlife observation and noncommercial photography within the refuge complex would not interfere with the purposes for which the refuges and district were established. Limiting access and monitoring the uses could help limit any adverse effects.

## Mandatory 15-year Reevaluation Date: 2027

## Environmental Education and Interpretation

The refuge complex provides opportunity for student field trips on an “as-arranged” basis. Temporary and impromptu outdoor classrooms may be

established or used in wetland and riparian habitats; however, seasonal closures may occur to avoid impacts to threatened and endangered species or sensitive habitats.

Interpretive panels and auto tour brochures provide users on Benton Lake and Swan River Refuges information about habitat, wildlife, management actions, and activities along the Boardwalk Nature Trail, the Swan River Overlook, and other interpretive kiosks is passive in nature from self-guided opportunities, interpretive panels, brochures, Web sites, and tear-sheets.

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

- The Service would expand the opportunities for environmental education and interpretation to foster appreciation and understanding of the Refuge System and the resources of the refuge complex.
- More interpretive panels may be developed for the refuge complex.
- More accessible observation sites will be developed in the refuge complex.
- The mammal, reptile and amphibian lists will be updated for the refuge complex and a brochure will be developed.
- Refuge complex staff may take part in offsite special events and activities to bring the refuge complex message to large numbers of people as time and staff allow.
- Interpretive panels, brochures, tear-sheets, Web sites, and maps will be updated..
- Many of the proposed actions are contingent on hiring a visitor services park ranger to develop and carry out these programs.

## Benton Lake National Wildlife Refuge

The refuge offers joint-sponsored outdoor education courses with the MFWP, including a Youth Waterfowl Hunting Clinic and the Becoming an Outdoor Woman series.

Partnership with the Great Falls Public School provides the opportunity for all third graders in the Great Falls Public School system to come to the refuge and learn about natural resources. This highly popular activity includes more than 850 students annually. Refuge staff provides information about

the refuge and education specialists from the GFPS perform onsite activities and learning modules.

Refuge staff takes part in the annual Montana Envirothon Event in Lewistown, Montana. The event attracts student teams from all across Montana while they compete for the opportunity to represent Montana at the National Envirothon Competition. Refuge staff helps students learn about fish and wildlife resources and the habitat they depend on. More than 200 students and teachers take part in the annual event. As time allows, the refuge would continue to collaborate with other school groups to provide tours, teach science, and work together on monitoring projects.

Refuge staff recently took part in the STEM Expo hosted in Great Falls, Montana. This annual event invigorates the community and students in the areas of science, technology, engineering, and math. Staff have the opportunity to reach more than 550 children, teachers, and parents.

Greater emphasis would occur with interpretive panels and maps to explain (1) the purpose and importance of conserving, managing, and restoring healthy functioning ecosystems, (2) the importance of natural hydroperiods in wetlands, and (3) changes to public use regulations and access areas to accommodate changes in wetland and water management. In addition, environmental education curriculum may be adapted to reflect changes in habitat from restoration efforts as well.

## Benton Lake Wetland Management District

The waterfowl production areas would remain open for environmental education and interpretation. Staff will provide occasional onsite educational visits on the waterfowl production areas. A facility exists on the H2-O WPA to provide onsite education within the Blackfoot Valley. Interpretive displays would continue to be available on the north and south parking areas of the Blackfoot WPA.

The proposed acquisition of Upsata Lake WPA may offer more onsite interpretive and environmental education opportunities. In addition, cooperative efforts with University of Montana in Missoula may further develop opportunities.

## Swan River National Wildlife Refuge

An interpretive kiosk is located on the refuge.

## Availability of Resources

Environmental education and interpretation activities, directional signs, and brochures would be mainly supported by annual operations money and

other sources such as grants, regional project proposals, and challenge cost-share agreements to enhance programming.

New facilities and maintenance of existing facilities will occur as visitor facility enhancement projects.

## Anticipated Impacts of the Use

The use of the refuge complex for onsite activities for environmental education or interpretation may impose a short-term, low-level effect on the immediate and surrounding area. Effects may include trampling of vegetation and temporary disturbance to nearby wildlife species during the activities. Development and implementation of interpretive and education programs will have minimal and biologically insignificant impacts on refuge complex resources.

Refuge complex brochures, interpretive panels, and other educational materials will continue to be updated as needed. Features such as the auto tour route and accessible observation sites will continue to provide access to the many sights and sounds of the refuge complex.

The Service will continue to promote a greater public understanding and appreciation of the refuge complex resources, programs, and issues through interpretive, outreach, and environmental educational programs. Establishing and engaging with a Friends group and other local groups, the Service will continue to provide environmental education and interpretation both on and off Service lands. Presentations, both on and off Service lands, will be provided to refuge visitors, school groups, and organizations, allowing the Service to reach a broader audience. Onsite presentations will be managed to reduce disturbance to wildlife, habitat, and cultural resources.

## Public Review and Comment

This Compatibility Determination is presented for public review and comment as part of the 30-day public comment period for the Draft Comprehensive Conservation Plan and Environmental Assessment for Benton Lake National Wildlife Refuge Complex.

## Determination

Environmental education and interpretation are compatible uses on the Benton Lake and Swan River Refuges and waterfowl production areas in the district.

## Stipulations Necessary for Compatibility

- Onsite activities will be held where minimal effect on wildlife and habitats will occur.
- The Service will review new environmental education and interpretation activities to make sure these activities meet program objectives and are compatible.
- All motor vehicles associated with these uses will remain on designated roads open to vehicular traffic.
- Staff will check use patterns and would make adjustments in timing, location, and duration of activities as needed to limit disturbance to wildlife and habitat.

## Justification

Environmental education and interpretation are forms of wildlife-dependent recreation and are priority public uses of the National Wildlife Refuge System. Environmental Education and interpretation will increase public awareness and appreciation of the significant wildlife and habitat values of the refuge complex, and the Refuge System. It is anticipated that such appreciation and understanding will foster increased public support for the Refuge System and conservation of America's wildlife resources.

Based on anticipated biological effects described above and in the EA, the Service has found that environmental education and interpretation on the refuge complex would not interfere with the purposes for which the refuges and district were established. Limiting access and monitoring the uses could help limit any adverse effects.

## Mandatory 15-year Reevaluation Date: 2027

## Cooperative Farming, Haying, and Grazing

The Service would continue to use cooperative farming and prescriptive livestock grazing and haying as management tools throughout the refuge complex. These tools would be used to meet habitat objectives, control vegetative litter, promote native plant production and diversity, control the spread of in-

vasive plant species, and help convert disturbed grasslands back to native plant species.

The district currently uses cooperative farming and haying as tools to manage upland habitats, including control of invasive plant species and cat-tails. In the past, these techniques were also used on Benton Lake Refuge. The draft CCP proposes to use cooperative farming and haying to manage habitats. Furthermore, the draft CCP establishes goals and objectives for specific habitat types where cooperative farming and haying may be used. The refuge complex would improve the monitoring and research programs for vegetation and wildlife to assess habitat and wildlife population responses to cooperative farming and haying.

The refuge complex currently uses prescriptive livestock grazing as a tool to manage a variety of uplands and seasonal wetlands. 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 make sure that sensitive habitats or refuge complex assets are protected. Temporary electric fencing is used. Current forage conditions, habitat objectives, and available water would decide stocking rates in each grazing unit. The draft CCP proposes to continue using prescriptive livestock grazing to meet habitat objectives. Furthermore, the draft CCP establishes goals and objectives for specific habitat types where prescriptive livestock grazing may be used. The refuge complex would improve the monitoring and research programs for vegetation and wildlife to assess habitat and wildlife population responses to prescriptive livestock grazing. Different grazing rates and management strategies would be investigated to figure out the best methods for meeting the habitat goals and objectives.

## Availability of Resources

Existing resources would be sufficient to administer the farming, haying, and grazing programs at current levels. These programs would continue to be conducted through special use permits or cooperative farming agreements, which reduce the need for staff time and Service assets to complete work.

## Anticipated Impacts of the Use

The cooperative farming and haying program and prescriptive livestock-grazing program would be used to meet habitat- and species-specific goals and objectives identified in the draft CCP. These programs are intended to support and enhance habitat conditions to help a wide variety of migratory

birds and other wildlife that use the refuge complex. Minimal negative effects are expected. Control of invasive plant species through these programs would be a long-term benefit.

Some wildlife disturbance may occur during farming operations 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 cropland or other poor-quality habitat converted to native grasses or DNC. In addition, restoration of cropland to grassland cover would prevent soil erosion, improve water quality, and the need for chemical use.

Some trampling of areas by livestock may occur around watering areas or mineral licks. If fences are not supported, it may be difficult to meet habitat objectives. It is anticipated that grazing would be in a mosaic pattern with some areas more intensively grazed than others in certain years. 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 mats of clubmoss and allow native plant seeds to become established. Cattle grazing may also increase the risk of invasive plants getting established. In addition, the presence of livestock may be disturbing to some wildlife species and some public users. The long-term benefits of this habitat management tool should outweigh the short-term negative effects.

## Public Review and Comment

This Compatibility Determination is presented for public review and comment as part of the 30-day public comment period for the Draft Comprehensive Conservation Plan and Environmental Assessment for Benton Lake National Wildlife Refuge Complex.

## Determination

Cooperative farming, haying, and grazing as a habitat management tools would be compatible uses on the Benton Lake and Swan River Refuges and waterfowl production areas in the district.

## Stipulations Necessary for Compatibility

- To make sure there is consistency with management objectives, the Service will require general and specific conditions for each farming, haying, or grazing permit.
- Only areas that have a prior crop history, an invasive plant problem, or decadent DNC will be

included in the farming and haying program. To reduce effects on nesting birds and other wildlife, the staff will determine and incorporate any needed timing constraints on the permitted activity into the cooperative farming agreement or special use permit. For example, haying will not be permitted on Service lands until after July 15 to avoid destroying bird nests on the management unit unless the complex staff deems it necessary to hay earlier to control invasive plants or restore grasslands.

- The cooperative farming agreement or special use permit will specify the type of crop to be planted. Farming permittees will 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 will decide where fences, water tanks, and livestock supplements would be placed within the management unit. Temporary electric fence may be used to keep livestock within grazing cells as well as to protect sensitive habitat areas and refuge complex assets such as water control structures. Cooperators would be required to remove fences at the end of the grazing season.

## Justification

Some habitat management needs to occur to support and enhance habitat for migratory birds and other wildlife. When properly managed and monitored, prescriptive farming and haying are options that can be used to improve wildlife cover and restore disturbed habitats to desirable grassland cover. Prescriptive livestock grazing can rejuvenate native grasses and help control the spread of some invasive plant species. Each of these tools can be controlled and the results would be monitored (for example, vegetation monitoring) so that adjustments in the programs can be made to meet habitat goals and objectives.

Using local cooperators to accomplish the work is a cost-effective method to accomplish the habitat objectives. The long-term benefits of habitat restoration and management far outweigh the short-term effects caused by cooperative farming, haying, and grazing.

## Mandatory 10-year Reevaluation Date: 2022

### Commercial Filming, Audio Recording, and Still Photography

Commercial motion pictures and audio recordings are defined as the digital or film recording of a visual image or sound recording by a person, business, or other entity for a market audience, such as for a documentary, television, feature film, advertisement, or similar project. It does not include news coverage or amateur/visitor use. Commercial photography is defined a visual recording (motion or still) by firms or individuals (other than news media representatives) who intend to distribute their photographic content for money or other consideration. This includes the creation of educational, entertainment, or commercial enterprises as well as advertising audio-visuals for the purpose of paid product or services, publicity, and commercially oriented photo contests.

Benton Lake National Wildlife Refuge Complex provides tremendous opportunities for commercial filming and photography of migratory birds and other wildlife. Each year, the refuge complex staff receives an average of two requests to conduct commercial filming or photography on Service lands. Refuge complex staff review requests for commercial photography, motion pictures, and audio recordings, and issue a special use permit if the request is approved. Each request is evaluated on an individual basis, using several DOI, USFWS, and National Wildlife Refuge System policies (for example, 43 CFR Part 5, 50 CFR 27.71, 8 RM 16).

Evaluation criteria will include, but not be limited to, the following:

- Commercial photography, motion pictures, and audio recordings must (1) show a means to increase public appreciation and understanding of wildlife or natural habitats, (2) enhance public knowledge, appreciation, and understanding of the Refuge System, or (3) facilitate outreach and education goals of the refuge complex. Failure to show any of these criteria results in a special use permit being denied.
- Activities that cause undue disturbance to wildlife or their habitat are not approved. The degree and type of disturbance are carefully weighed when evaluating a request.

- Requests that will conflict with other management programs or will impair existing wildlife-dependent recreational uses are not approved.
- If staffing or logistics make it impossible for the refuge complex to check the activity, this may cause the request to be denied, depending on the specific circumstances.

## Availability of Resources

The commercial filming, audio recording, and still photography uses are administered with current resources. Administrative costs for review of applications, issuance of special use permits, and staff time to conduct compliance checks may be offset by a fee system designated for the agencies within the DOI.

## 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 the animals (Klein 1993). Even a slow approach by photographers tends to have behavioral consequences to wildlife (Klein 1993). Photographers often remain close to wildlife for extended periods 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 prohibited on Service lands.

Issuance of special use permits with strict guidelines and follow-up by refuge complex staff for compliance help to reduce or avoid these effects. 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 complex lands would be denied.

## Public Review and Comment

This Compatibility Determination is presented for public review and comment as part of the 30-day public comment period for the Draft Comprehensive Conservation Plan and Environmental Assessment for Benton Lake National Wildlife Refuge Complex.

## Determination

Commercial filming, audio recording, and still photography would be compatible uses on the Benton Lake and Swan River Refuges and waterfowl production areas in the district.

## Stipulations Necessary for Compatibility

- Commercial filming or still photography must (1) show a means to extend public appreciation and understanding of wildlife or natural habitats, (2) enhance education, appreciation, and understanding of the Refuge System, or (3) facilitate outreach and education goals of the refuge complex. Failure to show any of these criteria will result in a special use permit being denied.
- All commercial filming requires a special use permit that would (1) describe conditions that protect the refuge complex's values, purposes, resources, and public health and safety, and (2) prevent unreasonable disruption of the public's use and enjoyment of the refuge complex. Such conditions may be, but are not limited to: specifying road conditions when access would not be allowed, establishing time limitations, and identifying routes of access. These conditions are identified to prevent excessive disturbance to wildlife, damage to habitat or refuge complex infrastructure, or conflicts with other visitor services or management activities.
- The special use permit stipulates that imagery produced on refuge complex lands will be made available for use in environmental education and interpretation, outreach, internal documents, or other suitable uses. In addition, any commercial products must include proper credits to the refuge complex, the Refuge System, and the 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 when members of the public are not allowed
  - it uses models, sets, or prop that are not part of the location's natural or cultural resources or administrative facilities
  - the Service incurs added administrative costs to check the activity

- the Service needs to provide management and oversight to avoid impairment of the resources and values of the site, limit resource damage, or decrease 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 reduce the impact on Service lands and resources, the refuge complex staff will make sure that all commercial filmmakers and commercial still photographers (regardless of whether a special use permit is issued) comply with policies, rules, and regulations. The staff will watch and assess the activities of all filmmakers, audio recorders, and still photographers.

## Justification

Commercial filming, audio recording, and still photography are economic uses that must contribute to the achievement of the refuge complex purposes, mission of the National Wildlife Refuge System, or the mission of the Service. Providing opportunities for these uses should result in an increased public awareness of the refuge complex'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 make sure that these wildlife-dependent activities occur with minimal adverse effects to resources or visitors.

## Mandatory 10-year reevaluation date: 2022

## Research and Monitoring

The refuge complex allows research and monitoring on a variety of biological, physical, and social issues and concerns to address management information needs or other issues. Studies are conducted by federal, state, and private entities, including the USGS, state and private universities such as the University of Montana, and independent researchers and contractors.

Each year, the refuge complex issues special use permits for biological and physical research studies. Five to ten requests are received each year. Priority is given to studies that contribute to the

enhancement, protection, preservation, and management of the refuge complex's native plant, fish, and wildlife populations and their habitats. Research applicants must submit a proposal that outlines the objectives of the study; justification for the study; detailed study methods and schedule; and potential impacts on wildlife and habitat, including short and long-term disturbance, injury, or mortality. This includes a description of measures the researcher will take to reduce disturbances or impacts; a personnel required and their qualifications and experience; status of necessary permits (scientific collecting permits, endangered species permits, etc.); costs to the refuge complex and refuge complex staff time requested, if any; and anticipated progress reports and end products, such as reports or publications. Refuge staff will review research permit applications and issue special use permits if approved.

Evaluation criteria for the issuance of special use permits will include, but not be limited to, the following:

- Research that will contribute to specific management issues, the purposes of the refuge complex, or the mission of the National Wildlife Refuge System will be given higher priority over other requests.
- Research that will conflict with other ongoing research, monitoring, or management programs will not be approved.
- Research projects that can be conducted off-complex lands are less likely to be approved.
- Research that causes undue disturbance or is intrusive are likely not to be approved. The degree and type of disturbance will be carefully weighed when evaluating a research request.
- Research evaluation will determine if any effort has been made to reduce disturbance through study design, including adjusting location, timing, number of permittees, study methods, and number of study sites.
- If staffing or logistics make it impossible for staff to check researcher activity in a sensitive area, the request will likely be denied.
- Length of the project will be considered and agreed-upon before approval. Projects will be reviewed annually and an annual progress report will be required.
- To reduce disturbance to wildlife, researchers will not be permitted in closed areas, unless spe-

cifically authorized. Vehicular access will only be permitted on roads and trails normally open to the public.

## Availability of Resources

The refuge complex uses existing staff to issue special use permits for research projects that occur on the complex. Currently, staff resources are deemed adequate to manage this use at anticipated levels. Review of the permit application, drafting and issuing the special use permit, and compliance assessments use an average of 3 hours of staff time per permit. Access points, vehicles, miscellaneous equipment, and limited logistical support may be available at the refuge complex at the refuge complex manager's discretion. Temporary housing located on the refuge complex may be available for use by researchers while studying refuge complex resources, at the refuge complex manager's discretion.

## Anticipated Impacts of Use

Some degree of disturbance is expected with all research activities, since researchers may use Service roads or enter areas that are closed to the public; in addition, some research may require collection of samples or handling of wildlife. Research activities may disturb fish and wildlife and their habitats. For example, the presence of researchers can cause waterfowl to flush from resting and feeding areas, cause disruption of birds and other wildlife on nests or breeding areas, or increase predation on individual nests and individual animals as predators follow human scent or trails. Efforts to capture animals can cause disturbance, injury, or death to groups of wildlife or to individuals. To wildlife, the energy cost of disturbance may be appreciable in terms of disruption of feeding, displacement from preferred habitat, and the added energy expenditure to avoid disturbance. Sampling activities can cause compaction of soils and the trampling of vegetation, the establishment of temporary foot trails through vegetation beds, and disruption of bottom sediments in wetlands. The removal of vegetation or sediments by core sampling methods can cause increased localized turbidity and disrupt nontarget plants and animals. Installation of posts, equipment platforms, collection devices, and other research equipment may present a hazard to heavy equipment operators if these items are not adequately marked and removed at the right times or upon completion of the project. Minimal impact on refuge wildlife and habitats is expected with research studies on the refuge complex because special use permits will include conditions to make sure that impacts to wildlife and habitats are kept to a minimum.

## Public Review and Comment

This Compatibility Determination is presented for public review and comment as part of the 30-day public comment period for the Draft Comprehensive Conservation Plan and Environmental Assessment for Benton Lake National Wildlife Refuge Complex.

## Determination

Research and monitoring would be compatible uses on the Benton Lake and Swan River Refuges and waterfowl production areas in the district.

## Stipulations Necessary for Compatibility

- Extremely sensitive wildlife habitats and species will be sufficiently protected from disturbance by limiting research activities in these areas. All refuge complex rules and regulations will be followed unless otherwise exempted by refuge complex management. Projects will be reviewed annually and annual progress reports will be submitted.
- Refuge complex staff will use the above criteria for evaluating and determining whether to approve a proposed study. If research methods are found to have potential effects on habitat or wildlife, it must be shown that the research was necessary for conservation management of resources on the refuge complex. Measures to reduce potential effects will be developed and included as part of the study design; these measures would be conditions on the special use permit.
- Refuge complex staff will check research activities for compliance with conditions of the special use permit. At any time, refuge complex staff may accompany the researchers to determine potential effects. Staff may decide that approved research and special use permits be terminated due to observed effects. The refuge manager will also have the ability to cancel a special use permit if the researcher was out of compliance or to make sure there is wildlife and habitat protection.
- Before conducting investigations, researchers will obtain a special use permit from the refuge complex that contains specific stipulations related to when, where, and how the research will be conducted. The refuge complex manager keeps the choice to prohibit research which causes undo harm or disturbance or which does not contribute

to the purposes of the refuge complex or the mission of the Refuge System.

- Refuge staff will use the criteria for evaluating a special use permit application for research, as outlined above under “Description of Use”, when determining whether to approve a proposed study on the refuge. If proposed research methods are determined to have potential impacts on refuge complex resources, it must be shown that the research is necessary for refuge complex resource conservation management. Measures to reduce potential impacts will need to be developed and included as part of the study design. In addition these measures will be listed as conditions on the special use permit.
- Specific stipulations in the special use permit will vary by research project, but will be designed to reduce impacts to wildlife and their habitats and to make sure visitors, researchers, and refuge complex staff are safe.
- Refuge complex staff will check research activities for compliance with conditions of the special use permit. At any time, refuge complex staff may accompany the researchers. The refuge complex manager may decide that the approved research and special use permit be terminated due to noncompliance with permit conditions or due to observed disturbance to wildlife or habitat.
- Researchers must possess all applicable State and Federal permits for the capture and possession of protected species, for conducting regulated activities in wetlands, and for any other regulated activities.
- Researchers will promptly submit findings, such as annual status reports and a final report, to the refuge complex manager for inclusion in the decision-making and management process.
- To reduce potential safety hazards, researchers must clearly mark posts, equipment platforms, fencing materials, and other equipment left unattended. Such items shall be promptly removed upon completion of the research.
- Research involving collections will be extremely restricted. Collections will be limited to type or voucher specimens only and require preapproval by the refuge manager and include verification of compliance with all State and Federal collection permits and requirements.

## Justification

The Service discourages the granting of special privileges to employees; however, certain personal privileges may be authorized when circumstances and conditions warrant., such as when employees are required to live on station. According to the Service Manual policy 055 FW 4 persons living on Service lands may keep livestock, not to exceed five animals per family. The stipulations identified make sure that this activity is compatible under current circumstances.

## Mandatory 10-year Reevaluation Date

*(Based on date of final plan)*

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## D.8 Signatures

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### Submitted by:

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Kathleen A. Burchett, Project Leader                      Date  
Benton Lake National Wildlife Refuge Complex  
Great Falls, Montana

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### Reviewed by:

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Dean Rundle, Refuge Supervisor                      Date  
U.S. Fish and Wildlife Service  
Mountain–Prairie Region  
National Wildlife Refuge System  
Lakewood, Colorado

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### Approved by:

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Richard A. Coleman, Ph.D.                      Date  
Assistant Regional Director  
U.S. Fish and Wildlife Service  
Mountain–Prairie Region  
National Wildlife Refuge System  
Lakewood, Colorado



# Appendix F

## *Fire Management Program*

The Service has administrative responsibility for fire management at the Benton Lake National Wildlife Refuge Complex: Benton Lake National Wildlife Refuge, Benton Lake Wetland Management District, and the Swan River National Wildlife Refuge.

- Improve the quality and quantity of livestock forage
- Improve the quantity of water available for municipalities and activities that depend on wildlands for their water supply

### **F.1 The Role of Fire**

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

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

When fire or grazing is excluded from prairie landscapes, the fuel load increases due to the buildup of thatch and invasion of woody vegetation. This increase in fuel load leads to an increase in a fire's resistance to control, which threatens firefighter and public safety as well as Federal and private facilities. However, fire when properly used can do the following:

- Reduce hazardous fuel buildup in both wildland-urban interface and non-wildland-urban interface areas
- Improve wildlife habitats by reducing the density of vegetation or 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

### **F.2 Wildland Fire Management Policy and Guidance**

Based on Federal interagency policy (Fire Executive Council 2009), wildland fire is defined as any nonstructure 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 help the resource where possible or taking suppression action when those benefits are not attainable or there is a likely risk to important resources or adjacent lands.

Considerations, guidance, and direction for wildland fire management should be addressed in the land use resource plans (for example, this CCP). Fire management plans are stepdown processes from the land use plans and habitat plans and provide details about fire suppression, fire use, and fire management activities.

The 1995 Federal Fire Policy Wildland Fire Management Policy was updated in 2001. This revised policy directs Federal agencies to achieve a balance between fire suppression to protect life, property, and resources and fire use to regulate fuel and support healthy ecosystems. The following guiding principles and policy statements are excerpted from this document titled Review and Update of the 1995 Federal Wildland Fire Management Policy; these are the foundational principles for Federal wildland fire management policy.

## Guiding Principles

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, 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 gain in public benefit will be an important component of decisions.*
5. Fire management programs and activities are economically viable, based on 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 to effectively accomplish the overall mission, set short- and long-term priorities, and clarify management accountability.*
6. Fire management plans and activities are based on 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 workforces require that public agencies pool their human resources to successfully deal with the ever-increasing and more complex tasks of fire management. Full collaboration among Federal wildland-fire management agencies and between these agencies and international, State, tribal, and local governments and private entities results in a mobile fire management workforce 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 on which these agencies can cooperate, integrate fire activities across agency boundaries, and provide leadership for cooperation with State, tribal, and local fire management organizations.*

## F.3 Management Direction

The refuge complex will protect life, property, and other resources by safely suppressing all wildfires.

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. In addition, the Service would set priorities for fuel treatment based on guidance for prioritization established in the goals and strategies outlined in the following documents: (1) "U.S. Fish and Wildlife Service National Wildlife Refuge System Wildland Fire Management Program Strategic Plan 2003–2010"; and (2) "Region 6 Refuges Regional Priorities FY07–11." For wildland-urban interface treatments, areas with community wildfire protection plans and designated "communities at risk" would be the primary focus. All aspects of the fire management program would be conducted consistent with applicable laws, policies, and regulations. The refuge complex would support a fire management plan to accomplish the fire management goals described below. Prescribed fire and manual and mechanical fuel treatments would be applied in a scientific way under selected weather and environmental conditions.

## 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
- National Fire Plan direction
- The President’s Healthy Forest Initiative
- The 10-Year Comprehensive Strategy and Implementation Plan
- National Wildfire Coordinating Group Guidelines
- Initiatives of the Wildland Fire Leadership Council
- Interagency Standards for Fire and Aviation Operations

### Regional Fire Management Goals

The “Region 6 Refuges Regional Priorities FY07–11” are consistent with the refuges’ vision statement for the Mountain–Prairie Region, “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 Complex Fire Management Goals

The fire management goal for the refuge complex is to use prescribed fire and manual and mechanical treatments to (1) reduce the threat to life and property through hazardous-fuel reduction treatments, and (2) meet the habitat goals and objectives identified in this CCP.

## Fire Management Objective

Fire is an important natural component in the maintenance and restoration of native prairie ecosystems. The primary objective of the prescribed fire

management program is to reduce fuel loads while restoring and supporting native prairie habitats. Prescribed fire would be used to recycle nutrients, reduce or end invasive plants, increase the growth and production of native plants, improve wildlife habitat and nesting cover for migratory birds, and reduce the risk of wildfire.

Achieving this objective would require 500 acres to 2000 acres of upland, and wetland habitat annually, until every upland acre has been burned at least once. Thereafter, the Service would attempt to mimic a natural cycle of prescribed fire by retreating the same piece of native prairie every 6–8 years, or on whatever cycle is necessary for restoration.

## Strategies

Strategies and tactics that consider public and firefighter safety, as well as resource values at risk, would be used. Wildfire suppression, prescribed fire methods, manual and mechanical means, timing, and monitoring would be described in detail within the stepdown fire management plans for the refuge complex.

All fire management actions would use prescribed fire and manual or mechanical means to reduce hazardous fuel, restore and support desired habitat conditions, control nonnative vegetation, and control the spread of woody vegetation within the diverse ecosystem habitats. The fuel treatment program would be site specific and follow the most recent interagency template for burn plans.

A prescribed fire would temporarily decrease air quality by reducing visibility and releasing components through combustion. The refuge complex would meet the Clean Air Act emission standards by adhering to the Montana requirements during all prescribed fire activities..

## F.4 Fire Management Organization, Contacts, and Cooperation

Using the fire management district approach, Region 6 of the Service would establish qualified technical oversight of fire management for the refuge complex. Under this approach, the level of fire management staff would be determined by established modeling systems and be 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.

Depending on budgets, fire management staff and support equipment may be located at the headquarters of the refuge complex or at other refuges within the district and shared between all units. Fire management activities would be conducted in a coordinated and collaborative manner with Federal and non-Federal partners.

On approval of this CCP, one or more fire management plans would be developed for the refuge complex. The fire management plans may be prepared as (1) plans that cover each individual refuge and wetland management district, (2) a plan that covers the area identified within this CCP, (3) a plan that covers the fire management district, or (4) an interagency fire management plan.

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