

# Glossary

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

**active management:** The direct manipulation of habitats or wildlife populations to achieve specific objectives. Actions could include planting food plots, managing water levels, prescribed grazing or fire, or wildlife relocations.

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

**Administration Act:** National Wildlife Refuge System Administration Act of 1966.

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

**amphibian:** A class of cold-blooded vertebrates including frogs, toads, or salamanders.

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

**appropriate management response:** The response to a wildfire based on an evaluation of risks to firefighter and public safety, the circumstances under which a fire occurs including weather and fuel conditions, natural and cultural resource management objectives, protection priorities, and values to be protected.

**appropriate use:** A proposed or existing uses on national wildlife refuges that meet at least one of the following: (1) is a wildlife-dependent recreational use; (2) contributes to fulfilling refuge purposes, the Refuge System mission, or goals and objectives outline in a CCP; or (3) the refuge manager has evaluated the use and found it to be appropriate.

**ATV:** All-terrain vehicle.

**AUM:** Animal-unit month.

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

**BCR:** Bird conservation region.

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

**biological diversity, also biodiversity:** The variety of life and its processes including the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur (The 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.

**biological integrity:** Biotic composition, structure, and function at genetic, organism, and community levels.

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

**BLM:** *See Bureau of Land Management.*

**Bureau of Land Management (BLM):** A Federal agency that was established in 1946 through consolidation of the General Land Office and U.S. Grazing Service. The agency has a multiple-use mandate is responsible for a variety of programs for managing and conserving surface and subsurface mineral estates, mostly in the western United States.

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

**CCP:** *See comprehensive conservation plan.*

**CFR:** *See Code of Federal Regulations.*

**cervid:** All members of the family Cervidae and hybrids including deer, elk, moose, caribous, reindeer, and related species.

**CFR:** *See Code of Federal Regulations.*

**cfs:** Cubic feet per second.

**CO<sub>2</sub>:** Carbon dioxide.

**Code of Federal Regulations (CFR):** The codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government. Each volume of the CFR is updated once each calendar year.

**compatibility determination:** *See compatible use.*

**compatible use:** A wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the Director of the U.S. Fish and Wildlife Service, will not materially interfere with or detract from the fulfillment of the mission of the Refuge System or the pur-

poses of the refuge (The 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 ensure compatibility.

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

**concern:** *See issue.*

**conservation district:** Organized in the 1930s as a response to the severe erosion problems, a district is often a political subdivision of a State. Money comes from assessments levied on real property within the boundaries of the district. It helps citizens in conserving renewable natural resources.

**conspecific:** An individual belonging to the same species as another.

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

**county road:** In general, means any public highway opened, established, constructed, maintained, abandoned in accordance with State law.

**cover, cover type, canopy cover:** Present vegetation.

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

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

**DNRC:** Montana Department of Natural Resources and Conservation.

**DOI:** Department of the Interior.

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

**EA:** *See environmental assessment.*

**ecological resilience:** The ability to absorb disturbances, to be changed, and then to reorganize and still have the same identity, that is, keep the same basic structure and ways of functioning. A resilient system is forgiving of external shocks; a disturbance is unlikely to affect the whole. A resilient habitat (1) sustains many species of plants and animals and a highly variable structural composition; (2) is asymmetric; (3) exemplifies biological integrity, biological diversity, and environmental health; and (4) adapts to climate change.

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

**ecosystem resilience:** *See ecological resilience.*

**EIS:** Environmental impact statement.

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

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

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

**Enhancement Act:** Title VIII of the Water Resources Development Act of 2000.

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

**environmental health:** Composition, structure, and functioning of soil, water, air, and other abiotic features.

**EPA:** Environmental Protection Agency.

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

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

**fauna:** All the vertebrate and invertebrate animals of an area.

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

**Federal trust species:** All species where the Federal Government has primary jurisdiction includ-

- ing federally endangered or threatened species, migratory birds, anadromous fish, and certain marine mammals.
- fire refugia:** Those places within the landscape that due to size, soils, or topography do not burn as often, as intensely, or at all with frequent light ground fire. In landscapes with frequent fire return intervals, respect for fire refugia is essential for protection of fire intolerant plant species.
- flora:** All the plant species of an area.
- fire management plan (FMP):** A plan that identifies and integrates all wildland fire management and related activities within the context of approved land and resource management plans. The plan defines a program to manage wildland fires (wildfire and prescribed fire).
- focal species:** A multispecies approach where the ecological needs of a suite of species are used to define an ideal landscape to maintain the range of habitat conditions and ecological processes required by landbirds or other species. Focal species are considered most sensitive to or limited by certain ecological processes (such as fire or nest predation) or habitat attributes (such as patch size or snags). The needs of a suite of focal species are then used to help guide management activities.
- forb:** A broad-leaved, herbaceous plant; a seed-producing annual, biennial, or perennial plant that does not develop persistent woody tissue but dies down at the end of the growing season.
- fragmentation:** The alteration of a large block of habitat that creates isolated patches of the original habitat that are interspersed with a variety of other habitat types; the process of reducing the size and connectivity of habitat patches, making movement of individuals or genetic information between parcels difficult or impossible.
- Friends group:** Any formal organization whose mission is to support the goals and purposes of its associated refuge and the National Wildlife Refuge Association overall; Friends organizations and cooperative and interpretive associations.
- FTE:** A full-time equivalent; one or more job positions with tours of duty that, when combined, equate to one person employed for the standard Government work-year.
- FWS:** See *U.S. Fish and Wildlife Service*.
- geocaching:** A high-technology scavenger hunt in which objects are hidden at secret outdoor locations for participants to find using Global Positioning System positions posted on the Internet.
- geographic information system (GIS):** A computer system capable of storing and manipulating spatial data; a set of computer hardware and software for analyzing and displaying spatially referenced features (such as points, lines and polygons) with nongeographic attributes such as species and age.
- GIS:** See *geographic information system*.
- Global Positioning System (GPS):** A navigational system involving satellites that allows a user with a receiver to determine precise coordinates for their location on the earth's surface.
- goal:** Descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose but does not define measurable units (The Fish and Wildlife Service Manual, 620 FW 1.5).
- GPS:** See *Global Positioning System*.
- grassland tract:** A contiguous area of grassland without fragmentation.
- GS:** General Schedule (pay rate schedule for certain Federal positions).
- habitat:** Suite of existing environmental conditions required by an organism for survival and reproduction; the place where an organism typically lives and grows.
- habitat disturbance:** Significant alteration of habitat structure or composition; may be natural (for example, wildfire) or human-caused events (for example, timber harvest and disking).
- habitat management plan (HMP):** A stepdown plan to a comprehensive conservation plan that identifies in detail how the objectives and strategies for uplands, riparian areas, river bottoms, and shorelines will be carried out.
- habitat type, also vegetation type, cover type:** A land classification system based on the concept of distinct plant associations.
- HDP:** See *height density plot*.
- height-density plot (HDP):** Methods used to record the height of visual obstruction of plant cover. A measuring pole is observed at points along a line transect from a set distance and angle. It provides information on the adequacy of nesting cover for sharp-tailed grouse.
- herbivory:** Grazing of grass and other plants by any animal.
- heterogeneity:** diversity or dissimilar species within a landscape
- HMP:** See *habitat management plan*.
- HUA:** Hydrologic unit area.
- hunnable:** A species that can be hunted on the refuge in accordance with Federal and State regulations.
- IMPLAN:** Impact Analysis for Planning.
- impoundment:** A body of water created by collection and confinement within a series of levees or dikes, creating separate management units although not always independent of one another.
- Improvement Act:** National Wildlife Refuge System Improvement Act of 1997.
- indigenous:** Originating or occurring naturally in a particular place.

**inholding:** Non-Service land owned by private, other agency, or other group landowners that is within the boundary of a national wildlife refuge.

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

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

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

**invertebrates:** An animal that lacks an internal skeleton or backbone such as insects, butterflies, and aquatic species like snails.

**inviolate sanctuary:** A 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 (The Fish and Wildlife Service Manual, 602 FW 1.5).

**lentic:** Still-water wetlands. These wetlands occur in basins and lack a defined channel and floodplain. Examples include perennial, intermittent bodies of water like lakes, reservoirs, stock ponds.

**long-distance animal movement:** The ability of a wildlife species to move greater distances in search of forage without fences.

**lotic:** Flowing water wetlands are associated with rivers, streams and drainage ways. These riparian wetlands contain a defined channel and floodplain.

**management alternative:** See *alternative*.

**MFWP:** Montana Department of Fish, Wildlife and Parks.

**MIAG:** Montana/Idaho Airshed Group.

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

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

**mission:** Succinct statement of purpose or reason for being.

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

**mixed-grass prairie:** A transition zone between the tallgrass prairie and the shortgrass prairie dominated by grasses of medium height that are approximately 2–4 feet tall. Soils are not as rich as the tallgrass prairie and moisture levels are less.

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

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

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

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

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

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

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

**nongovernmental organization:** Any group that is not a Federal, State, tribal, county, city, town, local, or other governmental entity.

**noxious weed, also invasive plant:** Any living stage (including seeds and reproductive parts) of a parasitic or other plant of a kind that is of foreign origin (new to or not widely prevalent in the United

States) and can directly or indirectly injure crops, other useful plants, livestock, poultry, other interests of agriculture including irrigation, navigation, fish and wildlife resources, or public health. According to the Federal Noxious Weed Act (Public Law 93–639), a noxious weed (such as invasive plant) is one that causes disease or has adverse effects on humans or the human environment and, therefore, is detrimental to the agriculture and commerce of the United States and to public health.

**NRCS:** Natural Resources Conservation Service of the U.S. Department of Agriculture.

**NWR:** National wildlife refuge.

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

**passive management:** This management approach allows for natural processes such as fire, grazing, and flooding to occur with little human assistance or funding, which conserves limited funds while increasing the likelihood of self-sustaining communities.

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

**patch burning:** The use of prescribed fire each year in a different location or patch within a larger fenced landscape. With an ecology-driven purpose, patch burning has high potential to increase biodiversity and wildlife habitat. This management practice creates a mosaic of heavily grazed and lightly grazed areas that provide a diverse vegetative structure and increase diversity in the same grazing unit.

**perennial:** Lasting or active through the year or through many years; a plant species that has a lifespan of more than 2 years.

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

**preferred alternative:** The Service's final selection (after analysis of alternatives in a draft NEPA document) of a management alternative to carry

out, which is documented in a "record of decision" for an EIS or a "finding of no significant impact" for an EA and published in the Federal Register. The decision is based on the legal responsibility of the Service including the missions of the Service and the Refuge System, other legal and policy mandates, the purpose of the refuge, and the vision and goals in the final CCP. In addition, the Service considers public, tribal, and agency input along with land uses in the ecosystem, environmental effects, and budget projections.

**prescribed fire:** A wildland fire originating from a planned ignition to meet specific objectives identified in a written, approved, prescribed fire plan for which NEPA requirements (where applicable) have been met before ignition. These objectives could be hazardous fuel reduction, habitat- or wildlife-oriented, or other objectives in the prescribed fire burn plan.

**prescriptive grazing:** The planned application of livestock grazing at a specified season, duration and intensity to accomplish specific vegetation management objectives. The objectives are designed to achieve the broader habitat and wildlife goals.

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

**properly functioning condition:** Qualitative method for assessing the condition of riparian-wetland areas. It describes both the assessment and the conditions of the wetland area. It evaluates how well the physical processes are functioning through use of a checklist.

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

**public:** Individuals, organizations, and groups; officials of Federal, State, and local government agencies; Native American tribes; and foreign nations. It may include anyone outside the core planning team. It includes those 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:** Lands that were not under private or State ownership during the 18th and 19th centuries in the United States, as the country was expanding. These lands were obtained from the 13 colonies, Native American tribes, or purchases from other counties. The domain was con-

trolled by the Federal Government and sold to States or private interests through the General Land Office, which would eventually become the Bureau of Land Management.

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

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

**pyric herbivory:** Grazing promoted through fire. The fire-grazing interaction is critical in maintaining heterogeneity (dissimilar species resulting in variety) of grassland ecosystems.

**quality wildlife-dependent recreation:** Programs are based on 11 criteria that defined under 605 FW1, "General Guidelines for Wildlife-Dependent Recreation." Quality programs include the following: safety of participants and compliance with laws and regulations; minimized conflicts with other goals or users; accessibility, stewardship, and availability to a broad spectrum of the American people; public understanding and appreciation of the natural resources; reliable and reasonable opportunities to experience wildlife; accessible facilities that blend in with the natural setting; and visitor satisfaction to help define and evaluate programs.

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

**R.S. 2477:** Revised Statute 2477. Section 2477 of the Revised Statutes emerged from section 8 of the Mining Act of 1866, which provided rights-of-way for the construction of highways over public lands, not reserved for public uses. It was repealed on October 21, 1976, under the Federal Land Policy and Management Act.

**refuge purpose:** *See purpose of the refuge.*

**Refuge System:** *See National Wildlife Refuge System.*

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

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

**resilience:** The ability to absorb disturbances, to be changed and then to reorganize and still have the same identity (keep the same basic structure and ways of functioning).

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

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

**Riparian and Wetland Research Program:** A program through the University of Montana's Department of Forestry that the Service contracted with in 1999–2000 to look at water quality on the refuge.

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

**RLGIS:** Refuge land geographic information system.

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

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

**seasonally flooded:** Surface water is present for extended periods in the growing season, but is absent by the end of the season in most years.

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

**sentinel plant species:** Plant species that vanish first when the ecological processes that occur within an ecosystem are out of balance (refer to appendix F).

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

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

**shorebird:** Any of a suborder (Charadrii) of birds such as a plover or a snipe that frequent the seashore or mudflats.

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

**special status species:** Plants or animals that have been identified through Federal law, State law, or agency policy as requiring special protection

- of monitoring. Examples include federally listed endangered, threatened, proposed, or candidate species; State-listed endangered, threatened, candidate, or monitor species; Service's species of management concern; or species identified by the Partners in Flight Program as being of extreme or moderately high conservation concern.
- special use permit:** A permit for special authorization from the refuge manager required for any refuge service, facility, privilege, or product of the soil provided at refuge expense and not usually available to the public through authorizations in Title 50 CFR or other public regulations (Refuge Manual, 5 RM 17.6).
- species of concern:** Those plant and animal species, while not falling under the definition of special status species, that are of management interest by virtue of being Federal trust species such as migratory birds, important game species, or significant keystone species; species that have documented or apparent populations declines, small or restricted populations, or dependence on restricted or vulnerable habitats.
- stepdown management plan:** A plan that provides the details necessary to carry out management strategies identified in the comprehensive conservation plan (The Fish and Wildlife Service Manual, 602 FW 1.5).
- strategy:** A specific action, tool, or technique or combination of actions, tools, and techniques used to meet unit objectives (The Fish and Wildlife Service Manual, 602 FW 1.5).
- suppression:** All the work of extinguishing a fire or confining fire spread.
- target species:** A species selected, because of specific biological or social reasons, for management and monitoring. A target species could be a focal, endangered, big game, or other species.
- TEA-21:** 1998 Transportation Equity Act for the 21st Century.
- TES:** Threatened and endangered species.
- threatened species, Federal:** Species listed under the Endangered Species Act of 1973, as amended, that are likely to become endangered within the foreseeable future throughout all or a significant part of their range.
- threatened species, State:** A plant or animal species likely to become endangered in a particular State within the near future if factors contributing to population decline or habitat degradation or loss continue.
- travel corridor:** A landscape feature that facilitates the biologically effective transport of animals between larger patches of habitat dedicated to conservation functions. Such corridors may facilitate several kinds of traffic including frequent foraging movement, seasonal migration, or the once in a lifetime dispersal of juvenile animals. These are transition habitats and need not contain all the habitat elements required for long-term survival or reproduction of its migrants.
- trust resource:** See *Federal trust resource*.
- trust species:** See *Federal trust species*.
- ungulate:** A hoofed mammal such as horses, cattle, deer, pronghorn, and bighorn sheep.
- USACE:** See *U.S. Army Corps of Engineers*.
- U.S. Army Corps of Engineers (USACE):** The Federal agency whose mission is to provide vital public engineering services in peace and war to strengthen the Nation's security, energize the economy, and reduce risks from disasters.
- U.S.C.:** United States Code.
- USDA:** U.S. Department of Agriculture.
- U.S. Fish and Wildlife Service (Service, USFWS, FWS):** The principal Federal agency responsible for conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people. The Service manages the 93-million-acre National Wildlife Refuge System comprised of more than 530 national wildlife refuges and thousands of waterfowl production areas. It also runs 65 national fish hatcheries and 78 ecological service field stations, the agency enforces Federal wildlife laws, manages migratory bird populations, restores national significant fisheries, conserves and restores wildlife habitat such as wetlands, administers the Endangered Species Act, and helps foreign Governments with their conservation efforts. It also oversees the Federal aid program that distributes millions of dollars in excise taxes on fishing and hunting equipment to State wildlife agencies.
- USFS:** USDA Forest Service.
- USFWS:** See *U.S. Fish and Wildlife Service*.
- U.S. Geological Survey (USGS):** A Federal agency whose mission is to provide reliable scientific information to describe and understand the earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.
- USGS:** See *U.S. Geological Survey*.
- UWA:** Unified watershed assessment.
- viability:** Ability to survive and developing adequately. For a plant, the ability to survive and bear fruits or seeds without being fenced.
- vision statement:** A concise statement of the desired future condition of the planning unit, based primarily on the Refuge System mission, specific refuge purposes, and other relevant mandates (The Fish and Wildlife Service Manual, 602 FW 1.5).
- visual obstruction:** Pertaining to the density of a plant community; the height of vegetation that blocks the view of predators and conspecifics to a nest.

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

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

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

**WG:** Wage grade schedule (pay rate schedule for certain Federal positions).

**wild bison:** In Montana, wild buffalo are defined as buffalo or bison that have not been reduced to captivity per Montana Code Ann. §87-2-101(16). Bison that are free roaming and held in public trust are classified as a game species in Montana. The State of Montana's legal classification of bison changes based on whether they are found on commercial farms or in private conservation herds or whether they are found in the wild.

**wildfire:** An unplanned ignition of a wildland fire (such as a fire caused by lightning, volcanoes, and unauthorized and accidental human causes) and any escaped prescribed fire.

**wildland fire:** Any nonstructure fire that occurs in the wildland including wildfire and prescribed fire.

**wildland-urban interface:** The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland and vegetative fuel.

**wilderness review:** The process used to identify and recommend for congressional designation Refuge

System lands and waters that merit inclusion in the National Wilderness Preservation System. It is a required element of a CCP and includes three phases: inventory, study, and recommendation.

**wilderness, also designated wilderness:** An area designated in legislation and administered as part of the National Wilderness Preservation System.

**wilderness, proposed:** An area of the Refuge System that the Secretary of the Interior has recommended to the President for inclusion in the National Wilderness Preservation System.

**wilderness, recommended:** An area of the Refuge System that the Director of the Service has recommended to the Secretary of the Interior, through the Assistant Secretary for Fish and Wildlife and Parks, for inclusion in the National Wilderness Preservation System.

**wilderness study area (WSA):** An area the Service is considering for wilderness designation, which has been identified and established through the inventory component of a wilderness review.

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

**woodland:** Open stands of trees with crowns not usually touching, generally forming 25-60 percent cover.

**WSA:** Wilderness study area.

# Appendix A

## List of Preparers and Contributors

This document is the result of the extensive, collaborative, and enthusiastic efforts by the members of the planning team, cooperating agencies, and other Service or agency contributors listed below.

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<i>Name</i>	<i>Agency, position, and location</i>	<i>Education and experience</i>	<i>Contribution</i>
Laurie Shannon	USFWS region 6 planning team leader; Lakewood, Colorado	B.S. recreation resources management; 27 years	Project coordination, organization, writing and review
Barron Crawford	Charles M. Russell Refuge project leader until 2010; Lewistown, Montana	B.S. and M.S. wildlife and fisheries science; 18 years	Project oversight, writing and review
Rick Potts	Charles M. Russell Refuge project leader from 2010; Lewistown, Montana	B.S. animal science, M.S. animal nutrition and wildlife management; 33 years	Project oversight and review
Bill Berg	Charles M. Russell Refuge deputy project leader; Lewistown, Montana	B.S. wildlife management and zoology; 29 years	Writing, review, and oversight
Trina Brennan	Charles M. Russell Refuge wildlife refuge specialist; Lewistown, Montana	B.S. fisheries and wildlife management; 5 years	Help with project coordination, organization and writing
Matt Derosier	Charles M. Russell Refuge, Sand Creek Field Station manager; Lewistown, Montana	B.S. wildlife management; 21 years	Writing and review
JoAnn Dullum	Charles M. Russell Refuge wildlife biologist; Lewistown, Montana	B.S. zoology, M.S. wildlife biology; 15 years	Writing and review
Mike Granger	Charles M. Russell Refuge fire management officer; Lewistown, Montana	B.S. and M.S. wildlife biology; 25 years	Writing and review
Paula Gouse	Charles M. Russell Refuge, Fort Peck Field Station wildlife refuge specialist; Fort Peck, Montana	B.S. biology; 13 years	Writing and review
Dan Harrell	Charles M. Russell Refuge habitat biologist; Lewistown, Montana	B.S. fish and wildlife management; 18 years	Writing and review
Nathan Hawkaluk	Charles M. Russell Refuge, Jordan Field Station manager; Jordan, Montana	B.S. fish and wildlife management; 7 years	Writing and review
Aaron Johnson	Charles M. Russell Refuge, Fort Peck Field Station manager; Fort Peck, Montana	B.S. wildlife management; 12 years	Writing and review

## U.S. FISH AND WILDLIFE SERVICE STAFF on the PLANNING TEAM

<i>Name</i>	<i>Agency, position, and location</i>	<i>Education and experience</i>	<i>Contribution</i>
Neil Kadrmas	Charles M. Russell Refuge wildlife biologist; Lewistown, Montana	B.S. and M.S. wildlife and fisheries science; 5 years	Writing and review
Danielle Kepford	Charles M. Russell Refuge realty specialist; Lewistown, Montana	B.S. wildlife and fisheries sciences; 10 years	Realty and land acquisition review
Randy Matchett	Charles M. Russell Refuge senior wildlife biologist; Lewistown, Montana	B.S. and M.S. wildlife biology; 27 years	Writing and review
Beverly Roedner Skinner	Charles M. Russell Refuge; wildlife refuge specialist, Lewistown, Montana	B.S. and M.S. wildlife management; B.S. agriculture and horticulture; teacher certificate (science for grades 5–12); 20 years	Writing and review
Bob Skinner	Charles M. Russell Refuge habitat biologist; Lewistown, Montana	B.S. zoology, M.S. wildlife management, Ph.D. wildlife management; 30 years	Writing and review

## COOPERATING AGENCY MEMBERS

<i>Name</i>	<i>Agency, position, and location</i>	<i>Education and experience</i>	<i>Contribution*</i>
Rich Adams	BLM HiLine district field manager; Malta, Montana	B.S. range and forest management; 31 years	Planning team member
Gary Benes	BLM district manager, Central Montana; Lewistown, Montana	B.A. geography and history, B.S. natural resource conservation	Planning team member
John Daggett	USACE operations project manager; Fort Peck, Montana	B.S. civil engineering; 20 years at Fort Peck	Planning team member
Lee Iverson	Petroleum County commissioner; Winnett, Montana	B.S. animal husbandry; 12 years	Planning team member
Vicki Marquis	Missouri River Conservation District Council coordinator; Great Falls, Montana	B.A. chemistry; 5 years on council	Planning team member
Darin McMurry	USACE lake manager; Fort Peck, Montana	B.S. wildlife science; 23 years	Planning team member
Chris Pileski**	DNRC, Eastern Land Office, acting area manager; Miles City, Montana	B.S. forestry; 14 years	Planning team member
Laurie Riley	Missouri River Conservation District Council coordinator; Great Falls, Montana	2 years on council	Planning team member
Lesley Robinson	Phillips County commissioner; Malta, Montana	5 years	Planning team member

## COOPERATING AGENCY MEMBERS

<i>Name</i>	<i>Agency, position, and location</i>	<i>Education and experience</i>	<i>Contribution*</i>
Clive Rooney	DNRC, Northeastern Land Office, area manager; Lewistown, Montana	B.A. business administration; 20 years	Planning team member
Tom Stivers	MFWP wildlife biologist; Lewistown, Montana	B.S. wildlife biology, M.S. fish and wildlife management; 30 years	Planning team member
Mark Sullivan	MFWP region 6 wildlife program manager; Glasgow, Montana	B.S. biology, M.S. fish and wildlife management; 20 years	Planning team member

\*Primary representative of respective agency at meetings; participated on planning team; helped identify issues; provided input on alternatives, objectives, and strategies; reviewed planning documents; and provided information as requested.

\*\*Replaced Rick Strohmeyer.

## OTHER SERVICE or AGENCY CONTRIBUTORS

<i>Name</i>	<i>Agency, position, and location</i>	<i>Contribution</i>
John Chaffin	DOI Office of the Solicitor attorney advisor; Billings, Montana	Legal advisor to the Service
Erin Clark	Charles M. Russell Refuge wilderness fellow; Lewistown, Montana	Writing and review of the wilderness review
Richard Coleman, Ph.D.	USFWS region 6 assistant regional director; Lakewood, Colorado	Refuge System policy guidance
Mark Ely	USFWS region 6 GIS specialist; Lakewood, Colorado	GIS map preparation for document
Patti Fielder	USFWS region 6 hydrologist; Lakewood, Colorado	Help with writing water resources section
Jackie Fox	Charles M. Russell Refuge biological science technician; Lewistown, Montana	Help with document preparation
Shannon Heath	USFWS region 6 outdoor recreation planner; Helena, Montana	Help with developing public use objectives and overview of visitor services
Wayne King	USFWS region 6 wildlife biologist; Lakewood, Colorado	Review of region 6 fish and wildlife priorities
Dean Rundle	USFWS region 6 refuge supervisor (Montana, Wyoming, Utah, Colorado); Lakewood, Colorado	Refuge System policy guidance
Michael Spratt	USFWS region 6 chief, division of refuge planning (retired); Lakewood, Colorado	Planning guidance
Meg Van Ness	USFWS region 6 archaeologist; Lakewood, Colorado	Help with cultural resources objectives
Brant Loflin	USFWS region 6 zone archaeologist; Bozeman, Montana	Help with cultural resources and paleontology information

## OTHER CONSULTANTS

<i>Name</i>	<i>Agency and position</i>	<i>Contribution</i>
Roxanne Bash	Federal Highways Administration, Western Federal Lands Office; Vancouver, Washington	Help with transportation planning
Jessica Clement	Colorado State University; Fort Collins, Colorado	Help in facilitation of public use objectives workshop
George Fekaris	Federal Highways Administration, Western Lands Office; Vancouver, Washington	Help with transportation planning
Lynne Koontz Ph.D.	USGS Fort Collins Science Center economist; Fort Collins, Colorado	Analysis of socioeconomic impacts
Mimi Mather	Shapins–Belt Collins planner; Boulder, Colorado	Facilitation of planning team and public meetings; help with document preparation
Bill Mangle	ERO Resources natural resources planner; Denver, Colorado	Help with analysis and research for reasonably foreseeable activities and cumulative impacts, and other environmental analysis documentation
Natalie Sexton	USGS Fort Collins Science Center wildlife biologist (human dimensions); Fort Collins, Colorado	Facilitation and help with public use objectives and analysis of socioeconomic impacts
Rick Schroeder	USGS Fort Collins Science Center biologist (retired); Fort Collins, Colorado	Help with vision and goals; provided input on writing biological objectives

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

- Mark Albers, BLM field manager; Malta, Montana
- Mary Bloom, BLM assistant field manager; Miles City, Montana
- Katie Butts, Charles M. Russell Refuge; Lewistown, Montana
- Clayton Christensen, Charles M. Russell Refuge; Lewistown, Montana
- John Esperance, USFWS region 6 planning branch chief (retired); Lakewood, Colorado
- Jim Forsythe, Charles M. Russell Refuge; Lewistown, Montana
- Kim Greenwood, USFWS region 6 tribal liaison; Lakewood, Colorado
- Glenn Guenther, Charles M. Russell Refuge; Fort Peck, Montana
- Pat Gunderson, MFWP; Glasgow, Montana
- Scott Haight, BLM assistant field manager; Lewistown, Montana
- Brian Haugen, Charles M. Russell Refuge; Lewistown, Montana
- Asuka Ishizaki, formerly with USGS Fort Collins Science Center; Fort Collins, Colorado
- Jody Jones, Charles M. Russell Refuge; Lewistown, Montana
- Bob King, Charles M. Russell Refuge; Lewistown, Montana
- Chris King, Petroleum County commissioner; Winnett, Montana
- Gerry Majerus, BLM; Lewistown, Montana
- Paul Pallas, Charles M. Russell Refuge; Lewistown, Montana
- Margaret Raper, BLM field manager; Miles City, Montana
- John Ritten, Ph.D., University of Wyoming professor; Laramie, Wyoming (helped USGS with the socioeconomic analysis)

- Carl Seilstad, Fergus County commissioner; Lewistown, Montana
- David Taylor, Ph.D., University of Wyoming professor; Laramie, Wyoming (helped USGS with the socioeconomic analysis)
- Dale Tribby, BLM; Miles City, Montana



# Appendix B

## *Public Involvement Summary*

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Following the guidance found in the National Environmental Policy Act, the Improvement Act, and the Service's planning policy, the planning team has made sure all that all interested groups and the public have had an opportunity to be involved in the planning process. The term "stakeholder" is commonly used to refer to individual citizens; organizations; businesses; Native American tribes; Federal, State, and local governmental agencies; and others who have expressed an interest in the issues and outcomes of the planning process.

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### **B.1 PUBLIC SCOPING ACTIVITIES**

The formal scoping period began on December 4, 2007, with the publication of a notice of intent in the Federal Register (FR-23467). The notice of intent notified the public of the Service's intent to begin the CCP and EIS process and solicited public comments.

#### **OUTREACH ACTIVITIES**

Early in the pre-planning phase and before publication of the notice of intent in the Federal Register, the Service outlined a process that would be inclusive of diverse stakeholder interests and would involve a range of activities for keeping the public informed and ensure meaningful public input. This process was summarized in a planning update titled Public Involvement Summary (FWS 2007a) and posted to the project Web site. The full report titled "Charles M. Russell National Wildlife Refuge Public Involvement Process" was included as an appendix in the scoping report (FWS 2008b), which was posted on the project's Web site. Throughout scoping, the planning team used various methods to solicit guidance and feedback from interested groups and the public. These methods included a variety of outreach materials, public meetings, cooperating agency meetings, briefings and presentations, as well as personal conversations, letters, email and telephone calls.

#### **Planning Updates**

A planning update (Issue 1, January 2008) (FWS 2007a) was mailed to the initial mailing list of 625 people and businesses before the first round of public meetings. The planning update, together with the

earlier Planning Involvement Summary (FWS 2007a), outlined the planning process, draft vision and goals for the CCP, and dates, times and locations of the public scoping meetings. Refuge staff handed out the updates at various local agency meetings. The planning update distribution list consisted of individuals, agencies, and organizations who had previously expressed an interest in refuge activities. Following the close of the public comment period for scoping, Planning Update, Issue 2, May 2008 (FWS 2007a) was mailed and posted to the planning Web site. This update summarized the comments and key findings from scoping.

#### **Press Release**

A news release announcing the planning process and notifying the public of the schedule and location of the public meetings was sent to nearly 270 media organizations throughout Montana including congressional offices, other Federal and State agency offices, and tribal agencies. Several news articles featured the planning process in newspapers, radio, TV, and online publications before the meetings. The Service distributed a second news release when one of the meetings (Bozeman) had to be rescheduled due to inclement weather.

#### **Paid Advertisements**

The Service placed paid advertisements in nine newspapers to publicize the project and invite the public to the scoping meetings. The advertisements, 3.75x6 inches, were placed in the Billings Gazette (January 24), Bozeman Daily Chronicle (January 24), Great Falls Tribune (January 24), Circle Banner (January 17), Glasgow Courier, Glendive Ranger Review (January 17), Jordan Tribune (January 25), Lewiston News-Argus (January 16), and Phillips County News (January 16).

#### **Project Web Site**

The Service established a project Web site <[www.fws.gov/cmr/planning](http://www.fws.gov/cmr/planning)> in January 2008 (FWS 2007a). From the Web site, interested groups and the public could learn about meetings, download documents, get their name added to the project mailing list, and provide comments.

#### **Public Scoping Meetings**

Approximately 210 people attended one of seven public scoping meetings across Montana from January 29-February 21, 2008 in Great Falls, Fort Peck,

Malta, Lewistown, Jordan, Billings, and Bozeman. The planning team listened to many ideas and concerns that were expressed and answered questions from a variety of interested groups and the public. The initial comment period was scheduled to end on February 4, 2008, but was extended to February 29, 2008.

Following a brief welcome and introduction, Service staff made a 15-minute presentation that outlined the following points:

- description of the Service and the purpose of the Refuge System
- key points of the legislation establishing the Charles M. Russell and UL Bend Refuges
- CCP and EIS process
- project schedule

The remainder of the meeting was broken up into two components: (1) a question and answer session; and (2) an opportunity for participants to make official public comments.

## **SCOPING SUMMARY and UPDATE**

During the comment period for scoping, the Service received 23,867 (FWS 2008b) written responses in the form of letters, emails, or from the handout sheet provided at the public meeting. Twenty-three organizations submitted comments.

Following the comment period, the planning team prepared a scoping report summarizing the scoping phase. Copies of the report were provided to the cooperating agencies and posted to the project Web site. The comments were placed into a spreadsheet and included in the scoping report. Additionally, the team summarized the key activities in a second planning update (Issue 2, January 2008) (FWS 2007a), which was mailed out to the entire mailing list and posted to the project Web site.

The comments were consolidated into seven significant topics of concern with several subtopics. The seven primary topics are habitat and wildlife, public uses and access wilderness, socioeconomic issues, water resources, adjacent lands and partnerships and cultural values, traditions, and resources. These are addressed in more detail in chapter 1.

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## **B.2 COOPERATING AGENCIES and TRIBAL COORDINATION**

In accordance with the Service's planning policy (FWS 2000c), the pre-planning and scoping process began with formal notification to Native American tribes and other Federal and State agencies with a land management interest and inviting them to participate as cooperating agencies and members of the planning team.

## **NATIVE AMERICAN TRIBES**

The Service sent letters of notification about the planning process including an invitation to participate on the planning team to the following tribes: Arapahoe Business Council, Chippewa Cree Tribe, Crow Tribal Council, Fort Belknap Tribal Council, Fort Peck Tribal Council, and Northern Cheyenne Tribe. In July 2009, the Service reached out again to several of the closest tribes to the refuge, Fort Peck and Fort Belknap and made arrangements for a formal briefing and consultation (July 8–9, 2009).

## **FEDERAL, STATE, and LOCAL AGENCIES**

In addition to notifying the tribes, the Service sent letters about the planning process including an invitation to participate on the planning team to the following agencies: USACE, BLM, MFWP, and DNRC. The Service sent notification letters to the Montana State Historic Preservation Office and to the six counties (Fergus, Petroleum, Garfield, McCone, Phillips, and Valley). In September 2007, Service staff met with representatives from the conservation districts and the counties to inform them of the CCP and EIS process and discuss the project.

As a result, the Service received formal letters requesting cooperating agency status from the six counties, the Garfield County Conservation District, and the Missouri River Conservation District Council. The Service granted the six counties cooperating agency status. Two representatives attended planning team meetings on behalf of all the counties. Additionally, the Service granted the six conservation districts that surround the refuge cooperating agency status, allowing for one representative to attend meetings on behalf of all the conservation districts.

In summary, the cooperating agencies included USACE, BLM, MFWP, DNRC, Fergus, Petroleum, Garfield, McCone, Phillips, and Valley Counties, and the Missouri River Conservation Districts. A memorandum of understanding was signed by all the agencies, and the signed document was posted to the planning Web site (FWS 2007a).

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## **B.3 PLANNING TEAM MEETINGS**

In November 2007, the planning team met with the Federal and State agencies. Following the addition of the counties and Missouri River Conservation Districts as cooperating agencies, in April 2008 the entire planning team met twice. The first meeting occurred April 15 for bringing all the cooperating agencies together, as several agencies had been

added since the first meeting in the fall of 2007. Key topics included developing of the Memorandum of Understanding, discussion of the Scoping Report, the upcoming alternatives development workshop, and a preliminary discussion about alternative scenarios.

A second meeting occurred when the refuge staff met for a 3-day alternatives workshop, which included representation from most of the cooperating agencies involved in the project. At this workshop preliminary alternative concepts were further developed. Some agency representatives chose instead to take part in a 2-day briefing held June 17–18, 2008, to discuss the concepts that had been further refined and to go out onto the refuge to discuss specific issues. For this meeting, the Service mailed all of the cooperating agencies a copy of the revised draft alternatives table before the meeting. The cooperating agencies offered substantial input and feedback on the initial draft alternatives during the June briefing including written comments that were submitted by McCone County. The Service incorporated many of those comments and concerns before publishing the entire alternatives chart for the public on the Web site in early August.

In early January and February 2009, the planning team met twice to develop preliminary objectives and strategies for all the alternatives. In May of 2009, the Service held another planning team meeting, which included all the county commissioners for the purposes of discussing roads and the accuracy of the data the Service had acquired to date.

The Service provided the cooperating agencies with copies of the internal review document in April 2010. Following a 5-week review period, the Service met with the cooperating agencies in June 2010 to discuss the significant issues identified during their review. Before release of the public draft, the Service met again with the cooperating agencies to advise them of any significant changes to the document.

## ALTERNATIVES DEVELOPMENT

The Service considers alternatives development as part of an iterative process in the development of the draft CCP and EIS (FWS 2000c). This phase of the project began in spring 2008, and public input ended in late fall 2008. Following input by the cooperating agencies and the public on the draft alternatives, detailed objectives and strategies for all the alternatives were developed in early 2009 with input by the cooperating agencies.

## OUTREACH ACTIVITIES

In August 2008, the planning team presented four draft alternatives to the public including a no-action alternative. One alternative (D) was identified as the

proposed action. The Service's planning policy (FWS 2000c) requires that one alternative be identified as the proposed action in an environmental analysis document per the National Environmental Policy Act. It is the alternative that the Service believes best fulfills the refuge purpose, mission, vision, and goals of the National Wildlife Refuge System. At this stage, the alternatives were described as conceptual approaches or themes including the type of management actions that would occur under each approach. For a planning process such as for the Charles M. Russell and UL Bend Refuges, where an EIS is being prepared, the Service often solicits feedback on the draft alternatives before full development of them. While not required under the National Environmental Policy Act, this allows the public an opportunity to provide input earlier into the alternatives process. It also gives the refuge staff a chance to talk about what they would like to achieve. The Service does not select a preferred alternative until the preparation and publication of the final CCP and EIS.

## Planning Updates

Planning Update, Issue 3, August 2008, was mailed or handed out in the refuge headquarters to over 720 persons and businesses during the comment period with most of the updates mailed the week of August 4, 2008 (FWS 2007a). This planning update outlined the initial draft alternatives developed by the planning team and provided the dates, times, and locations of the public workshops. The distribution list consisted of individuals, agencies, and organizations who had previously expressed an interest in refuge activities. In addition, the planning update was handed out at the meetings.

The Service followed up with another update (Planning Update, Issue 4, January 2009), which summarized what had been learned during the comment period. Both updates and a more detailed summary of comments were posted on the project Web site.

## Press Release

On August 18, the Service issued a news release notifying the public of the schedule and location of the public meetings to nearly 270 media organizations throughout Montana including congressional offices, other Federal and State agency offices, and tribal agencies. Several news articles about the planning process appeared in newspapers, radio, TV, and online publications before the meetings.

## Paid Advertisements

The Service placed paid advertisements in nine newspapers to announce the 2008 meetings. The advertisements, 3.75 inches by 6 inches, were placed in the Billings Gazette (August 21), Bozeman Daily Chronicle (August 21), Great Falls Tribune (August 18),

Circle Banner (August 21), Glasgow Courier, Glen-dive Ranger Review (August 20–21), Jordan Tribune (August 20–21), Lewiston News–Argus (August 20), and Phillips County News (August 20).

### Public Workshops

One hundred and eighty-eight people attended one or more of the seven workshops from September 2–17, 2008, in Lewistown, Jordan, Malta, Glasgow, Billings, Bozeman, and Great Falls.

Following a brief welcome and introduction, the project leader made a short presentation highlighting the following:

- project schedule
- mission of the National Wildlife Refuge System and purposes of the refuge
- process for alternatives development
- definitions of reasonable alternatives, alternative concepts, objectives and strategies, and definition of proposed action versus preferred alternative (not until end of project)
- overview of the alternatives
- common issues

Following the presentation, the planning team used the remainder of the meeting to solicit feedback on the alternatives. For the first four meetings (Lewistown, Glasgow, Malta, and Jordan) participants broke into small working groups and rotated every 20–25 minutes through a discussion specific to each alternative. During the second week of meetings, audiences were small (average 15–25 people), and the Service held the discussions as one group. For all meetings, refuge staff presented information about each of the alternatives, and participants were asked to provide feedback and ask questions.

The Service did not use a public hearing format for public testimony, as the intent of the workshop format was to facilitate smaller group discussions during this phase of the project. Many participants liked this format, but others raised concerns in their written comments about not having an opportunity to provide scoping comments in a legal hearing format. The Service appreciates any feedback including criticism about the format used for meetings. A hearing format was used for the meetings on the draft CCP and EIS. The Service has fully followed the requirements set forth in the National Environmental Policy Act in addition to departmental and bureau policies during the scoping process.

### Other Meetings with Individuals and Groups

When asked, refuge staff provided briefings and status updates to stakeholder groups including the Conservation Districts, the Wilderness Society, World Wildlife Fund, Ranchers Stewardship Alliance, Mon-

tana Association of State Grazing Districts, Kalispell Sportsmen group, Gallatin Wildlife Association, and others.

The Service held several seminars during the development of the draft CCP and EIS to provide information about the Service's plans to use prescribed fire and grazing to meet the objectives of the draft CCP. These seminars included presentations by Dr. Sam Fuhlendorf and Dr. Cecil Frost, who helped the Service in developing information for the analysis in the draft CCP and EIS. Many Federal, State, and local agencies, conservation organizations, and members of the public attended one or more of these sessions.

Other one-on-one discussions, briefings, and field trips occurred throughout the planning process. Service representatives engaged in many conversations with individuals that called or stopped by the refuge offices.

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## B.4 COMMENT PERIOD

The Service accepted comments from early August 2008 through October 31, 2008, but also informed the public that comments were welcome throughout the development and writing of the draft CCP and EIS until the formal comment period on the draft CCP and EIS ended. The Service established an ending date for comments on the draft alternatives to use the information learned to fully develop each alternative with detailed objectives and strategies that would form the basis of the environmental analysis. The Service received one written request from the Six County Fort Peck Road Group, a group formed earlier by the six counties next to the refuge, to extend the deadline for submitting comments on the draft alternatives. The Service denied the request and reiterated that comments were welcome past the October 31st deadline, but that the process needed to move forward, and sufficient time had been provided for review of the preliminary draft alternatives. The Service made all of its information available to the public in early August 2008, providing the public over 60 days to provide input. In addition, representatives of the cooperating agencies provided input into the alternatives concepts during several meetings held in April and June of 2008, and during the development of objectives and strategies in early 2009. Members of the Six County Fort Peck Road Group (a group of county commissioners that address roads) were also given an opportunity to take part in a meeting that specifically addressed roads in May 2009.

## METHODS for COMMENT COLLECTION and ANALYSIS

The Service's primary objective in providing the public an early opportunity to review the alternatives was to gather more input before writing the objectives and strategies and conducting the environmental analysis. The planning team made every effort to document all issues, questions, and concerns. Regardless of whether comments and questions were general in nature or about specific points of concern, they were identified.

All comments were considered to be of equal importance. While the planning team valued the comments made in support or opposition to a specific alternative or issue, the team also was seeking feedback on the range of alternatives, whether there were other reasonable alternatives that should be included in the analysis, and whether any of the alternatives should be changed in some way.

The comments, whether from written submissions or recorded at the public meetings, were organized by topic into a spreadsheet and coded for organizational purposes. Volume 2 of the final CCP and EIS contains the Service's summarization and response to public comments and testimony received during the public review of the draft CCP and EIS.

## NUMBER and SOURCE of COMMENTS RECEIVED

During the course of the comment period, the planning team received hundreds of questions and comments during the seven public meetings held across Montana and nearly 300 written responses in the form of letters, emails, and from the handout sheet provided at the public meetings. Twenty-six agencies and organizations submitted comments; the breakdown of type and number of comments follows.

<i>Type of Comment</i>	<i>Number of Comments</i>
Public meetings	hundreds
Form letters	123
Individuals letters, emails, questionnaires	134
Agency, organizations (included two legal letters)	27

There were two distinct form-type letters. While similar in content, one was generated from the Garfield County Conservation District and sent to livestock owners and published in at least some of the local papers. Nine people submitted a second form-type letter and, while the affiliation is not known, most came from the Glasgow area. The key issues identified in both form letters follow:

- the importance of livestock grazing and general opposition to prescriptive grazing
- opposition to wildlife reintroduction
- opposition to removal of interior fences
- support for more water development in uplands and maintenance of current structures
- desire for access for recreation, fire suppression, and livestock management
- concern that Payment in Lieu of Tax payments are too low and do not represent fair market value
- desire for reevaluation of proposed wilderness units
- desire to keep wildlife on the refuge
- support for increased predator control
- concern that the refuge is the largest source of invasive plants
- desire for increased fire suppression and opposition to use of prescribed fire

An action alert by the Montana Wilderness Association generated many individual letters and emails containing the following key issues:

- support for alternative D
- support for reducing the 700-mile road network or limiting off-road travel
- support for wilderness values particularly the proposed wilderness units
- support for prescriptive grazing and restricting livestock grazing where needed to maintain wildlife habitat
- desire for removal of obsolete fencing and letting wildlife move more freely
- desire for a ban on hot-season grazing in the river bottoms and limiting livestock grazing in riparian areas

In addition, many other individuals and organizations voiced their concerns about other topics. Examples included concerns about boat access and types of boats, and hunting and general recreational access or the type of expertise the Service was using in the preparation of the CCP and EIS.

## SUMMARY of COMMENTS

Commenters expressed highly varied opinions in support of or opposition to a range of topics including alternative preferences, habitat and wildlife management, prescriptive livestock grazing, wilderness, wildlife reintroductions, public access, roads, commercial recreation, interior fencing, water development, and prescribed fire. A summary of the comments was posted on the project Web site, and another planning update (issue 4) was mailed to the mailing list (FWS 2007a).

Volume 2 of the final CCP and EIS contains detailed descriptions of the public comments and the associated responses provided by the Service.

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## **B.5 CHANGES to the DRAFT ALTERNATIVES**

From a review of all of the comments, no new significant topics or issues were identified that had not been identified during scoping (refer to chapter 1). All of the action alternatives were clarified or refined in some way as a result of the comments. Suggestions for alternative approaches that were not carried forward in the analysis are discussed in chapter 3.

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## **B.6 RELEASE of the DRAFT CCP and EIS**

The draft CCP and EIS was released to the public for a 60-day review and comment period on September 7, 2010 following publication of a notice of availability in the Federal Register (75 FR-54381). The comment period was extended through December 10, 2010 following publication of a notice for extension in the Federal Register (75 FR-67095).

### **OUTREACH ACTIVITIES**

A planning update (Issue 5, September 2010) was mailed to everyone on the project mailing list. The draft CCP and EIS was mailed to the entities identified under section B.8 and to others who requested one. Before publishing the draft CCP and EIS, the Service mailed out a postcard to the mailing list asking recipients to identify their needs for reviewing the document (compact disc, full document, or executive summary). Press releases, the project Web site, and paid newspaper advertising were also used to announce the availability of the document and the public hearing schedule.

The Service held public hearings in Montana in the following cities: Billings on September 28, 2010; Bozeman on September 29, 2010; Great Falls on September 30, 2010; Lewistown on October 12, 2010; Jordan on October 13, 2010; and Glasgow and Malta on October 14, 2010. The meetings were recorded by a court reporter and transcripts from those meetings are included in volume 2 of this final EIS and CCP. Three hundred twelve people attended the meetings with 39 at Billings, 51 at Bozeman, 37 at Great Falls, 33 at Lewistown, 55 at Jordan, 51 at Glasgow, and 46 at Malta. The public hearings began with a short presentation by the project leader, followed by an opportunity for all who wished offer public testimony 3

minutes to speak. Comment sheets were available for anyone who preferred to submit comments in writing. On request, the Service briefed several agencies and stakeholder groups on the draft CCP and EIS.

Throughout the comment period, the Service received more than 1,700 comments from 919 individual submittal documents (primarily emails, letters, and verbal comments during public meetings), 53 letters from Federal, State, or local government agencies and organizations, and 19,627 form letters. Refer to volume 2 of this final EIS and CCP.

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## **B.7 SIGNIFICANT CHANGES to the FINAL CCP and EIS**

The following discussion summarizes significant changes that were made in the process of developing the final CCP and EIS.

### **WILDERNESS**

Several changes were made to the wilderness inventory and review (appendix E). The acreage for the new wilderness study areas (alternatives B and D) was modified slightly due to a mapping error in the draft CCP and EIS (640 acres within East Seven Blackfoot were previously mislabeled as State lands). Under alternative D, Mickey Butte (550 acres) was added (previously in alternative B only). As a result, 25,879 acres under alternative B and 19,942 acres under alternative D were identified in the final CCP and EIS. No areas were added in alternative C. In consideration of significant public comment on the proposed wilderness areas and a review of the Service's wilderness policy (FWS 2008c), the Service found that the wilderness characteristics of the 15 proposed wilderness areas have not declined in any measurable way since 1974 when they were originally proposed. There is not sufficient justification for recommending to Congress the removal of any of the existing proposed wilderness. As a result, this consideration was rejected for both alternatives C and D.

### **ACCESS ROADS**

Several changes were made to alternative D, which included changing road 315 from closed to seasonally closed from its junction with road 838 to its end. About 13 miles of roads on the north side would be designated as game retrieval roads. These include roads 440, 331, 332, and 333. These roads would be open for retrieval of game for about 4 hours per day during hunting season. This would provide for greater wildlife security and as a result would likely enhance elk harvest in these areas. It would also pro-

vide greater accessibility particularly for hunters with disabilities to be able to retrieve game.

## **WILDLIFE OBJECTIVES**

In response to public and agency comments on the draft CCP and EIS, the big game objectives were adjusted to clarify that big game management on the refuge would meet or exceeds the objectives in approved State conservation plans. In accordance with national policy striving to the extent practicable to achieve consistency with State management objectives and regulations, refuge-specific abundance and population composition objectives could be established through the habitat management plans and would be tailored to regional habitat conditions, productivity and other considerations. Those objectives would consider naturally functioning ecosystem processes, biological integrity, hunting opportunities and quality of recreational experiences.

Information on threatened and endangered species and species of concern was updated as a result of status changes of several species including northern gray wolf, Sprague's pipit, mountain plover, and northern leopard frog.

## **HABITAT OBJECTIVES and STRATEGIES**

Several organizational changes were made to clarify how the Service would achieve its habitat-based goals and objectives on the refuge. The definition of and use of prescription grazing as a management tool was clarified and expanded, and more details were provided. The Service has been transitioning away from annual grazing in favor of a habitat-based or prescriptive component for nearly 20 years and this would continue regardless of the alternative selected. Several alternatives (B and D) would carry out this transition more quickly to adhere to Service legal mandates and policies. The timeframe for moving toward implementing prescriptive grazing was moved from the objective level to the strategy level, which is more consistent with Service planning policy. The objectives identify the specific measurable objectives for enhancing the diversity, viability, and resiliency of plant species on the refuge.

## **FOCAL BIRD SPECIES**

The Service added a discussion and several tables describing focal bird species and included a description in the glossary and in appendix F, plant and wildlife species. Previously, potential bird species were identified. These bird species represent a broader range of species with similar conservation needs and are often part of a larger landscape conservation effort (FWS 2011c; refer to chapter 1, section "1.4 Bird Conservation"). Greater connectivity between the focal bird species and the sentinel plant monitoring pro-

gram was made, particularly in alternative D and to a lesser extent in alternative B. Focal birds were identified for each type of habitat: uplands, river bottoms, and riparian areas and wetlands. Focal birds were not identified for shoreline areas due to its highly dynamic nature.

## **RIPARIAN AREAS**

The riparian area objectives were modified to better define the restoration goals and the measurements for achieving them within a 15-year timeframe based on emphasis of the alternative.

## **MINERALS**

Several clarifications were made about mineral withdrawals on the refuge. The current mineral withdrawal applies to locatable minerals (diatremes or gems) and does not apply to leasable minerals (oil and gas). To date, no leasable minerals have been developed on the refuge. Currently, the Service is seeking an extension of the 20-year mineral withdrawal. Only Congress can designate a permanent withdrawal and the Service would seek this for protection of refuge habitat and wildlife values.

## **LAND ACQUISITION**

Clarification was made that under all alternatives the Service would continue to acquire lands within its authorized boundary and in accordance with the Enhancement Act (refer to chapter 1, section 1.9) based on a willing seller and buyer relationship.

## **LEGAL MANDATES**

Additional clarification and information was provided on the passage of the Improvement Act, Service policies, other legal mandates, and the refuge's history.

## **WATER QUALITY and AIR MONITORING**

Additional information and clarification were provided on water quality and air monitoring on the refuge. Other factual errors were corrected and updates were made where appropriate.

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# **B.8 LIST OF ENTITIES RECEIVING the FINAL CCP and EIS**

The following Federal and State agencies, along with nonprofit organizations, grazing or outfitting permittees, and other businesses received copies of the final CCP and EIS. All interested groups and the public

on the project mailing list (more than 800 names) received a copy of Planning Update, Issue 6, which summarized the contents of the final CCP and EIS.

### **FEDERAL ELECTED OFFICIALS**

- U.S. House of Representatives, Montana Representative Dennis Rehberg
- U.S. Senate, Montana Senator Max Baucus
- U.S. Senate, Montana Senator Jon Tester

### **FEDERAL AGENCIES**

- Bureau of Land Management: Field offices in Lewistown, Malta, and Miles City; Montana State Office in Billings
- Department of Agriculture, Natural Resource Conservation Service, Bozeman, Montana; Forest Service, Rocky Mountain Research Station, Ogden, Utah
- Environmental Protection Agency, Helena, Montana
- Federal Highways Administration, Western Lands Office, Vancouver, Washington
- U.S. Army Corps of Engineers, Fort Peck
- U.S. Fish and Wildlife Service: region 6 programs in Lakewood, Colorado; Invasive Strike Team in Great Falls, Montana; Ecological Services in Helena, Montana; region 9 in Washington, DC
- National Park Service, Lewis and Clark National Trail: Omaha, Nebraska; regional office in Lakewood, Colorado

### **TRIBES and TRIBAL ORGANIZATIONS**

- Arapaho Business Council
- Assiniboine and Gros Ventre Tribes (Fort Belknap)
- Assiniboine and Sioux Tribes (Fort Peck)
- Chippewa Cree Tribe
- Northern Cheyenne Tribe
- Crow Tribe

### **MONTANA ELECTED OFFICIALS**

- Governor Brian Schweitzer
- Representative Ed Butcher
- Representative Dave Kastin
- Representative Wayne Stahl
- Senator Jim Peterson
- Senator John Brenden
- Senator Johnathan Windy Boy

### **MONTANA STATE AGENCIES**

- Department of Fish, Wildlife and Parks: director in Helena; region 4 in Great Falls; Lewistown Area

Resource Office; region 6 in Glasgow; region 7 in Miles City; State Wildlife Grants in Great Falls

- Department of Natural Resources: director in Helena; Lewistown; Miles City
- Department of Transportation, Lewistown
- Montana Historical Society and Preservation Office
- Natural Heritage Program, Helena

### **COUNTY and LOCAL GOVERNMENTS and AGENCIES**

- Fergus County Commissioners
- Garfield County Commissioners
- McCone County Commissioners
- Petroleum County Commissioners
- Phillip County Commissioners
- Valley County Commissioners
- Missouri River Council of Conservation Districts in Great Falls: Fergus County Conservation District, Garfield County Conservation District, McCone County Conservation District, Petroleum County Conservation District, Phillips County Conservation District, Valley County Conservation District

### **ORGANIZATIONS and EDUCATIONAL INSTITUTIONS**

- American Bird Conservancy, The Plains, Virginia
- American Prairie Reserve, Bozeman, Montana
- Defenders of Wildlife, Bozeman, Montana, Missoula, Montana, Washington, DC
- Denver Museum of Nature and Science, Curator of Vertebrate Paleontology, Denver, Colorado
- Department of Natural Resource Ecology and Management, Iowa State University, Iowa
- Ducks Unlimited, Memphis, Tennessee
- Environmental Defense Center for Conservation Incentives, Boulder, Colorado
- Fort Peck Lake Association, Fort Peck, Montana
- Foundation for North American Wild Sheep, Cody, Wyoming
- Friends of the Missouri River Breaks, Lewistown, Montana
- Gallatin Wildlife Association, Bozeman, Montana
- Hellgate Hunters and Anglers, Missoula, Montana
- Izaak Conservation League, Gaithersburg, Maryland
- Maryland Ornithological Society, Ellicott City, Maryland
- Missouri River County, Wolf Point, Montana
- Montana Audubon, Helena, Montana
- Montana Farm Bureau, Bozeman, Montana

- Montana Mountain Bike Alliance, Bozeman, Montana
- Montana Petroleum Association, Helena, Montana
- Montana Trail Vehicle Riders Association, Great Falls, Montana
- Montana Trappers Association, Winnett, Montana
- Montana Wildlife Federation, Helena, Montana
- Montana Wilderness Association, Great Falls, Helena, Montana
- Montana Wildlands Association, Central and Eastern Association, Lewistown and Billings, Montana
- Mule Deer Foundation, Eastern, Bismarck, North Dakota
- Museum of the Rockies, Montana State University, Bozeman, Montana
- National Audubon Society: New York, Washington, DC
- National Trappers Association, New Martinsville, West Virginia
- National Wildlife Federation: Reston, Virginia; Northern Rockies Project Office in Missoula, Montana
- National Wildlife Refuge Association, Washington, DC
- Nature Conservancy, Matador Ranch, Dodson, Montana
- Our Montana, Inc., Billings, Montana
- Ranchers Stewardship Alliance, Malta, Montana
- Sierra Club, San Francisco, California
- The Wilderness Society, Bozeman, Washington, DC
- University of Montana, Missoula, Montana
- Upper Missouri Breaks Audubon, Great Falls, Montana
- U.S. Humane Society, Washington, DC
- Walleyes Unlimited of Montana, Big Sandy, Montana; Crooked Creek Chapter, Malta, Montana
- Western Watersheds Project, Inc., Mendon, Utah
- Wild Sheep Foundation, Montana Chapter
- Wildlife Conservation Society, Bozeman Montana
- World Wildlife Fund, Bozeman, Montana
- Yellowstone Buffalo Foundation, Bozeman, Montana
- Yellowstone Valley Audubon, Bozeman, Montana

## **PUBLIC LIBRARIES**

- Colorado State University, Morgan Library, Fort Collins, Colorado
- Garfield County Library, Jordan Montana
- Glasgow Library, Glasgow, Montana
- Great Falls Public Library, Great Falls, Montana
- Lewistown Public Library, Lewistown, Montana
- McCone County Library, Circle, Montana
- Montana State University Libraries: Billings, Bozeman, Havre, Montana
- Phillips County Library, Malta, Montana
- Petroleum County Library, Winnett, Montana
- U.S. Fish and Wildlife Service, National Conservation Training Center Library, Shepherdstown, West Virginia



# Appendix C

## *Compatibility Determinations*

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### C.1 USES

- Hunting
- Fishing
- Wildlife observation, photography, environmental education, and interpretation
- Camping
- Geocaching
- Guided hunting (outfitting)
- All-terrain vehicle, bicycle, and snowmobile use
- Prescriptive grazing
- Research

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### C.2 REFUGE NAMES

- Charles M. Russell National Wildlife Refuge
- UL Bend National Wildlife Refuge

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### C.3 ESTABLISHING and ACQUISITION AUTHORITIES

The following laws and Executive order established the refuges and authorized acquisition of refuge lands.

#### **CHARLES M. RUSSELL NATIONAL WILDLIFE REFUGE**

- Executive Order 7509, dated December 11, 1936
- Refuge Recreation Act
- Bankhead–Jones Farm Tenant Act
- Migratory Bird Conservation Act of 1929

#### **UL BEND NATIONAL WILDLIFE REFUGE**

- Fish and Wildlife Coordination Act
- Migratory Bird Conservation Act
- Fish and Wildlife Act 1956
- Refuge Administration Act
- Wilderness Act legislation

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### C.4 REFUGE PURPOSES

Each refuge was established for specific purposes, as described below.

#### **CHARLES M. RUSSELL NATIONAL WILDLIFE REFUGE**

- “For the conservation and development of natural wildlife resources and for the protection and improvement of public grazing lands and natural forage resources: Provided, That nothing herein contained shall restrict prospecting, locating, developing, mining, entering, leasing, or patenting the mineral resources of the lands under the applicable laws: ... Provided, however, That the natural forage resources therein shall be first utilized for the purpose of sustaining in a healthy condition a maximum of four hundred thousand (400,000) sharp-tailed grouse, and one thousand five hundred (1,500) antelope, the primary species, and such nonpredatory secondary species in such numbers as may be necessary to maintain a balanced wildlife population but, in no case, shall the consumption of forage by the combined population of the wildlife species be allowed to increase the burden of the range dedicated to the primary species: Provided further, That all the forage resources within this range or preserve shall be available, except as herein provided with respect to wildlife, for domestic livestock.” (Executive Order 7509, dated December 11, 1936)
- “Shall be administered by him [Secretary of the Interior] directly or in accordance with cooperative agreements ... and in accordance with such rules and regulations for the conservation, maintenance, and management of wildlife, resources thereof, and its habitat thereon.” (16 U.S.C. 664, Fish and Wildlife Coordination Act)
- “Suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species” (16 U.S.C. 460k–1), “ the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors.” (16 U.S.C. 460k–2, Refuge Recreation Act [16 U.S.C. 460k–460k–4], as amended)

- “Purposes of a land-conservation and land-utilization program.” (7 U.S.C. 1011, Bankhead-Jones Farm Tenant Act)
- “Particular value in carrying out the national migratory bird management program.” (16 U.S.C. 667b, An Act Authorizing the Transfer of Certain Real Property for Wildlife)
- “Conservation, management, and ... restoration of the fish, wildlife, and plant resources and their habitats ... for the benefit of present and future generations of Americans.” (16 U.S.C. 668dd [a] [2], National Wildlife Refuge System Administration Act)
- “For use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” (16 U.S.C. 715d, Migratory Bird Conservation Act)

## UL BEND NATIONAL WILDLIFE REFUGE

- “For use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” (16 U.S.C. § 715d, Migratory Bird Conservation Act), “reserved for the UL Bend National Wildlife Refuge” (Public Land Order 4588, dated March 25, 1969), “for the protection of lands for migratory waterfowl management.” (Public Land Order 4826, dated May 15, 1970)
- “Shall be administered by him [Secretary of the Interior] directly or in accordance with cooperative agreements ... and in accordance with such rules and regulations for the conservation, maintenance, and management of wildlife, resources thereof, and its habitat thereon.” (16 U.S.C. § 664, Fish and Wildlife Coordination Act)
- “Particular value in carrying out the national migratory bird management program.” (16 U.S.C. § 667b, An Act Authorizing the Transfer of Certain Real Property for Wildlife)
- “For the development, advancement, management, conservation, and protection of fish and wildlife resources.” (16 U.S.C. § 742f [a] [4])
- “For the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude.” (16 U.S.C. § 742f [b] [1], Fish and Wildlife Act of 1956)
- “Conservation, management, and ... restoration of the fish, wildlife, and plant resources and their habitats ... for the benefit of present and future generations of Americans.” (16 U.S.C. § 668dd [a] [2], National Wildlife Refuge System Administration Act)
- “To secure for the American people of present and future generations the benefits of an enduring resource of wilderness ... wilderness areas ... shall be administered for the use and enjoyment of the American people in such manner as would

leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information about their use and enjoyment as wilderness.” (16 U.S.C. 1131, Wilderness 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.

## C.5 DESCRIPTION of USE: Hunting

The Charles M. Russell National Wildlife Refuge hunting program allows for the take of elk, pronghorn, white-tailed deer and mule deer, waterfowl (ducks and geese), upland gamebirds (turkey, ring-necked pheasant, mourning dove, sage-grouse, sharp-tailed grouse, Hungarian partridge) and coyotes. Season dates, limits, and harvest methods are generally consistent with State regulations, with the exception of mule deer and coyotes. Both have refuge-specific restrictions at the time of publishing. Specific regulations are available to the public at the Web site at [www.fws.gov/cmr](http://www.fws.gov/cmr) or at any office of the refuge (Lewistown, Sand Creek, Jordan, and Fort Peck).

In 2009, there was an estimated 103,000 hunter visits on the refuge, which is about 41 percent of the annual visitation for the refuge (annual visitation is about 250,000). The refuge is one of the most notable areas in the State of Montana for big game hunting. The refuge staff observes a small number of waterfowl and upland bird hunters each year. Hunting is one of the six wildlife-dependent recreational uses on the refuge. Managed hunting is a tool used by the Refuge System for control of wildlife populations to maintain biological diversity and mimic natural processes that are missing or diminished.

Hunting takes place refuge-wide with the exception of administrative areas, closed areas (Slippery Ann Elk View Area), and recreational areas. Dual collateral refuge officers and currently one full-time refuge officer monitor hunters and their take. Especially during the big game rifle season when use on the refuge reaches its peak, refuge officers work in coordination with other Federal officers and State game wardens to ensure the use of safe and legal hunting practices.

## AVAILABILITY of RESOURCES

Adequate resources are available to manage the existing hunting program at the current level of participation. The current road system provides access for hunters onto the refuge for hunting. Most refuge roads become impassible with only a minimal amount of precipitation. During the hunting season, this may cause clustering of hunters in localized, accessible areas of the refuge.

Increased use of the river as a motorway for access has provided many the opportunity for solitude and a primitive and unconfined hunt. This allows for access to resources that cannot be attained via the road system or easily on foot. Several wilderness units are only accessible on foot or via the Missouri River.

Aerial big game surveys are used during the year to establish counts and population statistics on elk, mule deer, white-tailed deer, and pronghorn. These monitoring surveys help in managing the overall health of the populations, which could be used to establish limits or expand the hunting program. To help enforcement on the refuge, all four of the dual-function officers participate in a weekend rotation conducting law enforcement duties. The refuge currently has only one full-time officer. Additional needs are addressed in the CCP.

A refuge hunting regulation brochure is available to inform the public of hunting opportunities, refuge regulations, and safety precautions. Maps are also available, which show the location of roads, recreation areas, and those areas closed to hunting.

## ANTICIPATED IMPACTS of the USE

Temporary disturbance would exist to wildlife near the activity. Animals surplus to populations would be removed by hunting. A temporary decrease in populations of wildlife might help ensure that carrying capacity (especially for big game species) is not exceeded. Closed areas would provide some sanctuary for game and nongame species, minimize conflicts between hunters and other visitors, and provide a safety zone around communities and administrative areas. The harvest of these species would be compensatory mortality, with minimal impact to the overall health of their populations.

Temporary negative effects on the habitat are expected due to the use of camping grounds, tree stands, and possible illegal off-road travel. To mitigate the possible impacts, the refuge has established camping areas providing parking and vault toilets. The Service also enforces a pack-in, pack-out policy encouraging folks to remove their trash.

## PUBLIC REVIEW and COMMENT

Public review and comment was solicited through posting of notices at the refuge, notices in local newspapers and the Federal Register, public meet-

ings held during the CCP process, and formal public review of this compatibility determination as part of the draft CCP and EIS for the refuge.

## DETERMINATION

Public hunting is compatible.

**Stipulations Necessary to Ensure Compatibility.** To ensure compatibility with refuge purposes and the mission of the National Wildlife Refuge System, hunting can occur on the refuge if the following stipulations are met:

1. Hunting is prohibited in all administrative sites, closed areas, and recreational areas.
2. Target shooting with firearms is prohibited at all times on the refuge.
3. Collection of antlers, artifacts, and fossils is prohibited.
4. All boats, trailers, and ATVs must be properly licensed from the State of origin. In addition, all ATVs must be street-legal, which requires brake lights and rear mirror in addition to licensing.
5. All vehicles including ATVs are only allowed on open, numbered roads.
6. Nonmotorized game carriers are allowed on the refuge except on the UL Bend Wilderness.
7. The use of firewood is allowed for those dead and downed trees. No live cutting is permitted.

**Justification.** Public hunting is a historical wildlife-dependent use of the refuge complex, and is designated as one of the priority public uses as specified in the Refuge Improvement Act of 1997. Infrastructure is already in place to support hunting programs, and current personnel levels and money are adequate. Special regulations are in place to minimize negative effects on the refuges and associated wildlife. Montana State law further controls hunter activities. Hunting is a legitimate wildlife management tool that can be used to control wildlife populations. Hunting harvests a small percentage of the renewable resources, which is in accordance with wildlife management objectives and principals.

**Mandatory 15-Year Reevaluation Date:** 2027.

## C.6 DESCRIPTION of USE:

### Fishing

The refuge allows public fishing in accordance with the State fishing regulations and seasons, and in coordination with refuge and USACE regulations. The uses covered in the determination would be fishing on refuge reservoirs, fishing on the Missouri

River, and fishing on the Fort Peck Lake as well as the use of boat ramps, parking areas, fishing areas, and other structures maintained to facilitate the refuge's fishing program.

During the months that ice fishing is available, icehouses are permitted on the Fort Peck Reservoir December 1 to March 31. The owner's name and address must be attached to the outside wall of the structure.

In 2009, the refuge had more than 60,000 visitors for fishing. Lake trout, salmon, bass and upriver paddle fish are some of the more popular species sought after. Fishing is allowed throughout the year; however, access is variable based on road conditions. Licensed vehicles and licensed ATVs are allowed on refuge numbered routes and the ice surface of Fort Peck Lake. Snowmobiles are only allowed to travel on the surface of Fort Peck Lake. Travel off Fort Peck Lake and numbered routes is not allowed with any vehicle (i.e., travel along the shoreline).

## AVAILABILITY of RESOURCES

Anglers use the existing network of roads to access the river, lake, and various reservoirs of the refuge for fishing. There are twelve locations for launching boats; however, with the water level fluctuation of the Fort Peck Reservoir some boat ramps may be inaccessible to the water. The refuge complex has adequate administrative and management staff to manage its fishing program.

Annual funding is needed for seasonal workforce salary and for supplies to maintain fishing facilities (including mowing, painting, and repairing facilities; litter pick up; restroom cleaning supplies; and periodic pumping costs of vaulted toilets). Money is needed for law enforcement staff salaries, fuel costs, repairs, maintenance of patrol vehicles, and associated costs to support the law enforcement program. Routine law enforcement patrols occur year-round. The refuge is currently hiring an additional law enforcement officer at the Fort Peck Field Station and part of their duties would be to patrol fishing on the refuge.

## ANTICIPATED IMPACTS of the USE

The anticipated impacts of fishing are considered minimal. Fishing is one of the six wildlife-dependent priority public uses identified by Service policy. These uses are encouraged when compatible with refuge purposes. The disturbance is expected to be limited in scope and duration. All motor vehicle use is restricted to numbered routes and parking areas, which reduces disturbance to wildlife. The vast size of the nearly 250,000-acre Fort Peck Reservoir allows for a large number of anglers and an opportunity for solitude.

The CCP's preferred alternative (alternative D) recommends establishing clear access for ice fishing. This recommendation could help divert potential violators from disturbing shoreline and upland habitat to access the ice for fishing. Anglers occasionally violate regulations; however, these incidents usually have only minor negative effects on fish populations or refuge resources.

## PUBLIC REVIEW and COMMENT

Public review and comment was solicited through posting of notices at the refuge, notices in local newspapers and the Federal Register, public meetings held during the CCP process, and formal public review of this compatibility determination as part of the draft CCP and EIS for the refuge.

## DETERMINATION

Public fishing is compatible.

**Stipulations Necessary to Ensure Compatibility.** To ensure compatibility with refuge purposes and the mission of the National Wildlife Refuge System, fishing can occur on the refuge if the following stipulations are met:

1. This use must be conducted in accordance with State and Federal regulations and applicable special refuge regulations published.
2. Travel is only permitted on numbered routes with licensed motor vehicles.
3. Travel is permitted on the surface of Fort Peck Reservoir with licensed motor vehicles and snowmobiles.
4. Shoreline travel is not permitted on the refuge.

**Justification.** Fishing is a historical wildlife-dependent use at Charles M. Russell National Wildlife Refuge and is one of the priority public uses as specified in the Refuge Improvement Act of 1997. Infrastructure is already in place to facilitate this activity. Current personnel levels and funding resources are adequate. Special refuge regulations are in place to minimize negative effects on refuge habitat and wildlife.

**Mandatory 15-Year Reevaluation Date:** 2027.

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## C.7 DESCRIPTION of USE: Wildlife Observation, Photography, Environmental Education, and Interpretation

The Service estimates the number of visitors who take part in nonconsumptive uses at about 87,100. Refer to table 28 in chapter 5. This includes participants in

wildlife observation, wildlife photography, environmental education, interpretation and other recreational participants. These activities may take place on foot, bicycle, automobile, motorized boat, canoe, horse, cross-county skis and snowshoes. The refuge complex is open from dawn to dusk, and entry into closed areas is allowed through a special use permit and special conditions that are evaluated on a case-by-case basis.

With four of the above accounted uses being one of the six priority public uses of the Refuge System, these uses are to be encouraged when found to be compatible with the refuge purpose.

Refuge staff would help with activities when available. Organized groups, such as schools, Scouts, and 4-H organizations, may have instructors or leaders who would use refuge habitat and facilities to conduct compatible programs. Ages of participants range from preschool to college and beyond.

### AVAILABILITY of RESOURCES

The refuge provides outstanding opportunities for the above uses due to the abundance of deer, elk, eagles, prairie dogs, and other unique species that people find interesting. The opportunity for solitude and premier landscape views are numerous across the entire refuge.

The CCP's preferred alternative (alternative D) recommends expanding interpretation and environmental education and maintaining wildlife observation programs and facilities. The interpretation and environmental education programs would emphasize the principles of natural plant and animal communities and ecological processes and restoration.

Implementing improvements or expanding public use opportunities would be addressed in future step-down management plans and through future money requests. Program expansion would require increased money for operations and maintenance. When money is not adequate to run and maintain programs, they would be reduced in scope or discontinued. Information kiosks, interpretive signs, and other infrastructure are in place for the present level of public use activities.

### ANTICIPATED IMPACTS of the USE

The disturbance of wildlife is considered a minimal impact of public use. The disturbance is considered temporary and local, such as running off feeding deer and elk or the flushing of upland bird species. The benefits of educating the public and providing for a quality outdoor recreational experience are considered to outweigh the potential impacts of disturbing wildlife and the associated habitat.

### PUBLIC REVIEW and COMMENT

Public review and comment was solicited through posting of notices at the refuge, notices in local

newspapers and the Federal Register, public meetings held during the CCP process, and formal public review of this compatibility determination as part of the draft CCP and EIS for the refuge.

## DETERMINATION

Wildlife observation, photography, environmental education, and interpretation is compatible.

**Stipulations Necessary to Ensure Compatibility.** To ensure compatibility with refuge purposes and the mission of the National Wildlife Refuge System, wildlife observation, photography, environmental education, and interpretation can occur on the refuge if the following stipulations are met:

1. Managers need to monitor use patterns and densities and make adjustments in timing, location, and duration as needed to limit disturbance.
2. Use should be directed to public use facilities (both existing and in the future) or those areas appropriate for the use, which would not be within sensitive areas.
3. Observation areas need to provide wildlife information and safe areas for the public to pull the main roadway for view and photography.

**Justification.** Public use for wildlife observation, photography, environmental education, and interpretation is a historical wildlife-dependent use of the refuge. These activities are designated as priority public uses as specified in the Refuge Improvement Act of 1997. Special regulations are in place to minimize negative effects on the refuges and associated wildlife. The preferred alternative (D) for the refuge CCP would support the addition of two outdoor recreation specialists to help in the area of public use. Disturbance to wildlife is limited by the size and remote nature of large parts of the refuge. Disturbance is also generally short-term and only temporarily displaces wildlife and the adjacent wildlife habitat.

**Mandatory 15-Year Reevaluation Date:** 2027.

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## C.8 DESCRIPTION of USE: Camping

Camping is defined as erecting a tent or shelter, preparing a sleeping bag or other bedding material for use, parking of a motor vehicle or camper trailer fit for occupancy. The use of camping on the refuge is not considered one of the wildlife-dependent uses established in the National Wildlife Refuge System Improvement Act of 1997, but it facilitates the use of all six uses considered wildlife-dependent. Due to

the remote location of the refuge, it is necessary for the health and safety of those who are recreating on the refuge to be allowed to establish a location to camp. This use is being proposed due to the remote location of the refuge and as a necessary convenience when taking into consideration the health and safety of the recreationists using the refuge.

The refuge currently has 21 established camping areas. While camping is allowed refuge wide, these areas contain facilities that are not available everywhere. Driving off-road to establish a campsite is only allowed within 100 yards of a numbered route. Driving off-road for all other purposes is prohibited. Camping is allowed to occur at all times on the refuge. Most of the camping occurs during open hunting seasons in August through most of November. Most camping takes place within 100 yards of a numbered route and ranges in facilities such as a tent of natural or synthetic material or a camper trailer with minimal modern conveniences.

## AVAILABILITY of RESOURCES

**Resources Involved in the Administration and Management of the Use:** Resources involved in the use of camping on the refuge would include law enforcement officers to ensure compliance with refuge regulations, maintenance of facilities available for recreationists and camping, and funding to produce refuge brochures explaining refuge regulations and mapping locations.

**Maintenance Costs, Special Equipment, Facilities, or Improvements Necessary to Support the Use:** Maintenance of current vault toilets and hardened campsites is minimal and although funding is not optimum, personnel is available to allow this use at current levels.

**Offsetting Revenues:** The refuge does not currently charge a fee or require a permit for camping.

## ANTICIPATED IMPACTS of the USE

**Short-Term Impacts:** There would be localized disturbance of vegetation in the area where camping facilities are set up. Other uses such as setting up a campfire and general use of the area around the campsite would have an impact on the vegetation and cause a disturbance to wildlife in the area. Due to the refuge limit of camping for a maximum of 14 days within any 30-day period, these effects would be short term, and areas are expected to recover back to a natural state with little to no restoration conducted by refuge staff.

**Long-Term Impacts:** Due to the high number of campers during the hunting season, certain locations on the refuge receive a higher concentration of users. These areas have consistent use and require longer to recover back to a natural state. In these areas, not only is the refuge vegetation and wildlife heavily

impacted, but refuge regulation violations can be high as well. During fishing and hunting season, it is more common to find violations due to dogs off leash, intoxication, illegal drugs, illegal firearm use, human waste, littering, disturbances to other users, and noise violations. This increase in refuge violations has become a recurring expense on the refuge law enforcement.

**Cumulative Impacts:** While certain times of year and locations receive a greater number of users and a higher potential for long-term impacts, the use of camping on the refuge is deemed to have a greater benefit to the public by supporting wildlife-dependent uses on the refuge.

## PUBLIC REVIEW and COMMENT

Public review and comment was solicited through posting of notices at the refuge, notices in local newspapers and the Federal Register, public meetings held during the CCP process, and formal public review of this compatibility determination as part of the draft CCP and EIS for the refuge.

## DETERMINATION

Camping is compatible.

**Stipulations Necessary to Ensure Compatibility.** To ensure compatibility with refuge purposes and the mission of the National Wildlife Refuge System, camping can occur on the refuge if the following stipulations are met:

1. Vehicle access to camping areas is allowed, by the shortest route, within 100 yards of numbered roads except where closed. Off-road vehicle access to camp sites is not allowed in proposed wilderness, wilderness study areas, designated wilderness where habitat impacts warrant closing a site with a "No Vehicle" sign, and administrative areas that are posted as closed. Backpack camping is allowed throughout the refuge unless specifically closed.
2. All camping is limited to 14 days within any 30-day period. Any property including camping equipment, boats, trailers, and other personal property left unattended for a period in excess of 72 hours is subject to removal.
3. Use of dead and downed wood for campfires is allowed on the refuge. Removal of live limbs and trees is prohibited.
4. The pack-in, pack-out policy will be promoted for trash removal and campsite restoration.
5. Public use regulations will be enforced to protect habitat and limit disturbance to other refuge visitors.

**Justification.** Currently, all six of the wildlife-dependent uses are used on the refuge. Due to the remote

location of the refuge, lodging establishments are non-existent. For the health and safety of those who are using the resources of the refuge and taking part in recreational activities, camping is necessary. The time at which camping on the refuge is at its peak is not considered to be a critical period for wildlife on the refuge. In the fall during hunting season, all wildlife has produced young of the year and migratory bird species have completed nesting. The size of the refuge and difficulty of public access to certain locations provides alternative areas for disturbed wildlife.

While regulation violations and disturbance to other visitors can locally be a problem, with the cooperation of State and local law enforcement the workload is minimized. Due to the primitive nature of camping sites throughout the refuge and the existence of very few facilities, maintenance needs are minimal.

Given the above, camping does not materially interfere with the purposes of the refuge or the mission of the Refuge System.

**Mandatory 10-Year Reevaluation Date:** 2022.

## C.9 DESCRIPTION of USE: Geocaching

Traditional geocaching (the burying, placement or removal of a physical cache) is generally not an appropriate use for national wildlife refuges in accordance with Service and Department of the Interior regulations and policies. However, other forms of geocaching have emerged that do not require burying, placing, or removing objects. Some of the most current types are Virtual Geocaching, Letterboxing, Earthcaching, Trail Link, and GPS Adventures. Geocaching is not a priority public use; however, certain types of geocaching may offer benefits to support the refuge's educational and interpretive programs and to learn more about refuge visitors.

The use of geocaching would be allowed refuge wide with the exception of closed areas. Those participating in geocaching would be responsible for following all rules and regulations required of all refuge users. Geocaching would be allowed year-round with the understanding that access to the refuge during the winter months is highly variable and most likely very limited. Refuge roads are often impassible due to the drifting of snow, and most roads are not maintained in the winter season. The refuge would evaluate the type of geocaching requested and how it benefits environmental education and interpretation. In accordance with refuge policy, refuge users are prohibited from disturbing archaeological resources, removing refuge resources such as plants, artifacts, and sheds, and abandoning property.

Geocaching has become a rapidly growing outdoor recreational activity. While traditional geocaching, which consists of burying or placing of a physical cache, would cause damage to the wildlife habitat, other forms of geocaching facilitates environmental education and interpretation, which are both wildlife-dependent priority public uses. By allowing geocaching to take place on the refuge, the Service is providing the opportunity for those who take part in the recreational activity to view wildlife and wildlife habitat.

### AVAILABILITY of RESOURCES

**Resources Involved in the Administration and Management of the Use:** The issuance of special use permits to those wanting to participate in geocaching on the refuge would be an additional administrative resource involved. The level of need for special use permits for geocaching is not known at this time. Depending on the number of user groups, it may be that the current level of refuge resources is sufficient, or it may show that there is a greater than anticipated interest and additional resources are necessary.

**Special Equipment, Facilities, or Improvements Necessary to Support the Use:** The refuge is not responsible for providing any additional equipment necessary to conduct this recreational use. The current refuge facilities that support refuge visitors are considered sufficient for the expected number of users.

**Maintenance Costs:** The maintenance of general recreational facilities is not expected to significantly increase due to the use of geocaching on the refuge.

**Monitoring Costs:** The increase in unfamiliar monitoring techniques using Web sites and additional monitoring methods with the frequently changing technological activities would require additional administrative resources. Web sites that track geocaches and allow for a central location for users to communicate can also be used if there is an unapproved cache or abuse of the use on the refuge by disabling the proposed activity from its Web pages and alerting its users of the inappropriate use.

**Offsetting Revenues:** None.

### ANTICIPATED IMPACTS of the USE

**Short-Term Impacts:** The disturbance of wildlife, trampling of vegetation, and potential littering are all considered to be a minimal impact of public use. The prohibited practice of removing or leaving a cache on the refuge would be considered to negatively affect the refuge resources, but by monitoring the use and communicating the rules and regulations, the benefits of educating the public and providing for a qual-

ity outdoor recreational experience are considered to outweigh the potential impacts.

**Long-Term Impacts:** There are no long-term impacts foreseen with the use of geocaching. By complying with refuge rules and regulations for this use, the long-term impacts are considered minimal to nonexistent.

**Cumulative Impacts:** The potential short-term and long-term impacts are considered to be minimal the use of geocaching on the refuge is considered to have a positive effect by facilitating environmental education, interpretation, and wildlife observation.

## PUBLIC REVIEW and COMMENT

Public review and comment was solicited through posting of notices at the refuge, notices in local newspapers and the Federal Register, public meetings held during the CCP process, and formal public review of this compatibility determination as part of the draft CCP and EIS for the refuge.

## DETERMINATION

Geocaching is compatible.

**Stipulations Necessary to Ensure Compatibility.** To ensure compatibility with refuge purposes and the mission of the National Wildlife Refuge System, geocaching can occur on the refuge if the following stipulations are met:

1. All refuge recreationists are responsible for knowing and following all refuge regulations.
2. The removal of refuge resources is prohibited. That includes, but is not limited to, the illegal take of wildlife, vegetation, archaeological resources, antler sheds, and geological resources.
3. The burial of caches on the refuge is prohibited.
4. The abandonment or leaving of a cache on the refuge is prohibited.
5. Caches that deface public or private property, whether a natural or constructed object, to provide a hiding place, a clue or a logging method are prohibited.

**Justification.** The use of geocaching on the refuge is determined to be compatible with the refuge purpose and the mission of the Service. It allows an opportunity for the public to take part in wildlife observation, wildlife photography, environmental education, and interpretation, which are all considered priority public uses. With recreationists adhering to refuge regulations, it would minimize the negative effects on wildlife and wildlife habitat. By allowing the use of this rapidly growing activity, the refuge is providing the opportunity for the American public, not currently aware of the Refuge System's conserva-

tion mission, to be environmentally educated and involved in conservation.

**Mandatory 10-year Reevaluation Date.** 2022.

## C.10 DESCRIPTION of USE: Guided Hunting (Outfitting)

The refuge would authorize commercial hunting guide operations within the refuge, and regulate such use through the implementation of a hunting guide program and issuance of special use permits with conditions. This activity provides recreational opportunity for hunters who desire a successful, quality experience, but who may lack the necessary equipment, skills, or knowledge to hunt within the expansive Missouri River, Missouri River Breaks, and the rugged country the refuge encompasses. While guided hunts are not specifically identified as a priority public use, hunting is a priority public use.

Guided hunting operates under the same regulations as the public hunting. The use is allowed refuge wide with the exception of closed areas, recreational areas, and administrative sites. There are currently 11 special use permits issued to outfitters on the refuge to conduct guided hunts. These 11 are spread throughout the entire refuge. Guided hunts are under the same Federal and State regulations and must adhere to the same limits, season dates, and wildlife-specific regulations. All guided hunts take place during the big game hunting seasons starting with bow season in late August through the general rifle season in November.

The refuge has consistently issued special use permits and established special conditions in addition to the Service's general conditions for special use permits. Refuge law enforcement would be responsible for regulating the use and any compliance issues that arise. Each outfitter would receive an outfitter identification card for operations on the refuge. The permits are valid only within the Charles M. Russell National Wildlife Refuge and UL Bend National Wildlife Refuge Executive order boundaries. Including Service lands and USACE lands. All refuge outfitters must keep a log of use, and when requested by a refuge officer, State warden, or special agent, shall provide for inspection, current outfitter records as specified by 8.39.703 (Outfitters Records) of "Chapter 39—Montana Administrative Rules."

Based on the existing client demand for guide services, a significant number of the hunting public is willing to pay for the expertise and local knowledge provided by guides. To increase the chance of the public having a successful and quality hunting experience, the use of guides is a necessary approach due to the remote location and vast area of land.

## AVAILABILITY of RESOURCES

**Resources Involved in the Administration and Management of the Use:** The use of refuge law enforcement in cooperation with other Federal, State, and local officers during the hunting season is no greater due to guided hunts than with the public hunters. The issuance of special use permits takes the time and effort of refuge staff with costs for printing the permits, issuing identification cards, and keeping records. The current staff is capable of issuing permits and managing the guided hunting program on the refuge.

**Special Equipment, Facilities, or Improvements Necessary to Support the Use:** The current equipment and facilities are adequate to meet the needs of the guided hunting program and the current participation levels.

**Maintenance Costs:** As with the public hunting program, maintenance of vault toilets and camping facilities is necessary during peak recreation times of the year. Starting in August with big game bow hunting through the end of the big game rifle season in November, maintenance of recreation areas, vault toilets, camping areas, and general use of the refuge is necessary.

**Monitoring Costs:** The cost of law enforcement, both full-time, dual collateral, other Federal, State, and local officers, is at its highest during the fall hunting season. The addition of a full-time refuge officer on the east end of the refuge would help with the heavy burden during this time of year. All other needs are addressed in the comprehensive conservation plan.

**Offsetting Revenues:** The current fee for an outfitting permit on the refuge is \$250. This fee is kept by the refuge to use as discretionary funding whether to provide overtime for employees or to maintain and enhance current refuge facilities.

## ANTICIPATED IMPACTS of the USE

**Short-Term Impacts:** It is anticipated that the disturbance of guided hunting would not be measurably greater than the disturbance from the general hunting public.

Temporary disturbance would exist to wildlife near the activity. Animals surplus to populations would be removed by hunting. A temporary decrease in populations of wildlife might help ensure that carrying capacity (especially for big game species) is not exceeded. Closed areas would provide some sanctuary for game and nongame species, minimize conflicts between hunters and other visitors, and provide a safety zone around communities and administrative areas. The harvest of these species would be compensatory mortality, with minimal impact to the overall health of their populations.

Temporary negative effects on habitat are expected due to the use of camping grounds, tree

stands, and possible illegal off-road travel. To mitigate the possible impacts, the refuge has established camping areas providing parking and vault toilets. The Service also enforces a pack-in, pack-out policy encouraging folks to remove their trash.

**Long-Term Impacts:** The primary concern about commercial guided hunting activities is the potential for conflict between guided activities and other refuge users, particularly unguided hunters. Based on experiences on this refuge and on other national wildlife refuges, commercial guiding operations can increase user conflicts. An important part of this issue is public perception that hunting guides and clients have an advantage of equipment and technique and are taking game that would otherwise be available to regular hunters. Guides, because they are running a business, may also be viewed as more aggressive when compared to unguided hunters. The State and refuge regulations should help ease the tensions between guided hunters and the public hunters. However, this conflict between hunters could be considered a potential long-term impact.

**Cumulative Impacts:** Guide operations may increase use of some refuge facilities such as boat ramps, campsites, and other facilities frequented by general user groups. With the dispersal of outfitters throughout the entire refuge from one end to the other, this increase would not be significant compared to the overall use.

## PUBLIC REVIEW and COMMENT

Public review and comment was solicited through posting of notices at the refuge, notices in local newspapers and the Federal Register, public meetings held during the CCP process, and formal public review of this compatibility determination as part of the draft CCP and EIS for the refuge.

## DETERMINATION

Guided hunting (outfitting) is compatible.

**Stipulations Necessary to Ensure Compatibility.** To ensure compatibility with refuge purposes and the mission of the National Wildlife Refuge System, guided hunting (outfitting) can occur on the refuge if the following stipulations are met:

1. Regulations for recreational users apply. See refuge guide map and information (revised 2004).
2. Outfitters and their licensed guides must have in their possession an outfitter identification card for the Charles M. Russell Refuge while operating on the refuge.
3. Charles M. Russell Refuge outfitter permits are valid only on lands administered by the Service within the boundary of the Charles M. Russell

and UL Bend Refuges (including USACE lands within the refuge).

4. Charles M. Russell Refuge outfitter permits do not give exclusive use of any area.
5. All violations of refuge regulations, special conditions of an outfitter permit, MFWP statutes, or Board of Outfitters Rules by a Charles M. Russell Refuge outfitter, licensed guide, client, or a violation occurring in the presence of an outfitter or guide must be reported to the proper official immediately. Failure to report violations would be grounds for cancellation of the permit.
6. Permitted outfitters may not use licensed outfitters as guides.
7. Outfitters must meet State of Montana minimum insurance requirements. In addition, the policy shall (1) name the United States Government as coinsured, (2) specify that the insurance company shall have no right of subrogation against the United States of America, and (3) the permittee shall indemnify the United States. A current certificate of insurance must be provided to the refuge's Lewistown office.
8. All refuge outfitters on request of a refuge officer, State warden or special agent, shall provide for inspection, current outfitter records as specified by 8.39.703 (Outfitters Records) of "Chapter 39—Montana Administrative Rules."
9. Refuge outfitters are not allowed to use aircraft for locating game on the refuge.
10. Outfitter logs, along with hunter-use days are required to be turned into Charles M. Russell National Wildlife Refuge, P.O. Box 110, Lewistown, Montana 59457, by December 31 of each year. Failure to submit logs would be grounds for cancellation of the following year's permit.
11. Violation of any permit special conditions may be grounds for cancellation.
12. Outfitters who wish to keep their refuge permit and remain inactive with the State of Montana license requirements, must pay the \$250 permit fee. Outfitters would be allowed to renew their permit with the Charles M. Russell Refuge for 2 years while remaining inactive with the State. If at the beginning of a third year, an outfitter is still inactive with the State, he or she would not be offered an opportunity to renew with the refuge.

**Justification.** With the current regulations specific to guided hunting, and the spatial distribution of the outfitters, allowing guided hunting on the refuge would not materially interfere with or detract from the purposes of the refuge or the mission of the Refuge System. By allowing guided hunts on the refuge,

it would provide an opportunity for those hunters looking to have a quality hunting experience and a greater chance of a successful hunt by using the knowledge, skills and abilities of those with local experience and the necessary equipment.

**Mandatory 10-Year Reevaluation Date.** 2022.

## C.11 DESCRIPTION of USE: All-Terrain Vehicles, Bicycles, and Snowmobiles

This applies to the proposed use and the restriction of use on the refuge uplands, Fort Peck Lake, and the Missouri River. Snowmobile use occurs during the winter season and is only allowed across the Fort Peck Lake. It is prohibited along the Missouri River and across the refuge uplands including all roads. ATV use occurs year-round and is allowed over the Fort Peck Lake during the winter season and on refuge numbered roads. ATV use is prohibited off-road on the refuge uplands and along the Missouri River. Bicycles are currently allowed on numbered roads including seasonally closed roads. These uses are not priority public uses according to the National Wildlife Refuge System Administration Act of 1997.

As the list below shows, ATV use would be allowed on refuge numbered routes and the Fort Peck Lake. Snowmobile access is only allowed over the Fort Peck Lake. Neither use is allowed along the Missouri River nor can either use take place off-road over the refuge uplands.

<i>Vehicle Type</i>	<i>Fort Peck Lake</i>	<i>Missouri River</i>	<i>Refuge Roads</i>
ATV	Allowed	Prohibited	Allowed
Bicycle	Prohibited	Prohibited	Allowed
Snowmobile	Allowed	Prohibited	Prohibited

Use locations that are both allowed or prohibited by the use of snowmobiles and ATVs.

ATV use occurs year-round on refuge numbered routes and during the winter months over the Fort Peck Lake. Snowmobile use is only allowed over the Fort Peck Lake during the winter season when ice and snow are present. ATVs are required to use refuge roads, the Fort Peck Lake ice during winter months, and all must be street-legal. Montana residents must have a metal license plate and all operators must possess the proper driver's license. Nonresident operators who wish to operate their ATVs on the refuge should contact the refuge office about proper licensing requirements. Snowmobiles and their operators need to comply with State licensing requirements.

Due to the remote area in and around the refuge, the use of smaller and more navigable motorized vehicles is necessary to access or disperse access for wildlife dependent recreation. Snowmobiles and ATVs are both used to access the large Fort Peck Lake for ice-fishing opportunities away from the main access points. ATVs and, occasionally, bicycles are used on the refuge during hunting season and for general access year-round.

## AVAILABILITY of RESOURCES

**Resources Involved in the Administration and Management of the Use:** The main cost of these uses is going to be the time and effort of regulating the use. With one full-time law enforcement officer and four dual-collateral officers to cover the 1.1 million-acre refuge are considered a marginal number of resources at best given the sheer size of the refuge and the number of users. Other Federal, State, and local law enforcement officers may help, as they are available.

**Special Equipment, Facilities, or Improvements Necessary to Support the Use:** Additional equipment and facilities are not necessary to monitor the use within the refuge and Fort Peck Lake.

**Maintenance Costs:** The most obvious maintenance cost is to the road system and to the vehicles used by refuge staff for patrolling the uses on the refuge.

**Monitoring Costs:** Monitoring use is the most expensive cost for the refuge. Either by plane or by vehicle, the cost of gas and staff time is significant. Due to the remote location and inaccessibility of certain areas, traversing the refuge is extremely time-consuming and a fast reaction to a refuge violation could take hours.

**Offsetting Revenues:** The refuge does not currently charge a fee for the use of the road system, or for access.

## ANTICIPATED IMPACTS OF THE USE

**Short-Term Impacts:** Snowmobiling has little to no resource impact given the season of use and regulation confining snowmobiles to ice covered waters. Snowmobiles do generate noise that may disturb other users in the area. ATV and bicycle use have little to no resource impacts as they are restricted to refuge numbered routes and to ice covered waters. As with snowmobiles, ATVs generate a disturbance due to noise that may disturb wildlife as well as other users within the area. Neither is considered to have an impact on the refuge habitat, as both are restricted to roads and the ice.

**Long-Term Impacts:** There are no long-term impacts associated with the use of ATVs, bicycles, and snowmobiles due to the use restrictions. The refuge roads are already disturbed areas of the refuge, and the long-

term negative effects on the Fort Peck Lake are considered nonexistent.

**Cumulative Impacts:** The greatest impact overall would be the disturbance to other users in the area with the use of ATVs, bicycles and snowmobiles. The noise generated from both snowmobiles and ATVs could disturb those who are viewing wildlife, hiking, snowshoeing, cross-country skiing, fishing, and hunters pursuing game.

## PUBLIC REVIEW and COMMENT

Public review and comment was solicited through posting of notices at the refuge, notices in local newspapers and the Federal Register, public meetings held during the CCP process, and formal public review of this compatibility determination as part of the draft CCP and EIS for the refuge.

## DETERMINATION

The use of ATVs, bicycles, and snowmobiles is compatible.

**Stipulations Necessary to Ensure Compatibility.** To ensure compatibility with refuge purposes and the mission of the National Wildlife Refuge System, the use of ATVs and snowmobiles can occur on the refuge if the following stipulations are met:

1. All appropriate State and Federal regulations for ATVs and snowmobiles apply.
2. ATVs belonging to Montana residents must be street-legal and have a metal license plate. Operators must also possess the proper driver's license. Nonresident ATV owners who wish to operate their ATVs on the refuge should contact the refuge staff about licensing requirements. Anyone intending to operate an ATV on the refuge should contact the refuge staff to ensure the ATV meets the necessary requirements for legal use.
3. ATVs are required to stay on refuge-numbered routes or over the ice on Fort Peck Lake. Bicycles are required to stay on refuge-numbered roads including seasonally closed roads. ATVs are not allowed on roads when they are seasonally closed.
4. Snowmobiles are only allowed use on the Fort Peck Lake.
5. Off-road operation of ATVs or bicycles, as well as all motor vehicles, is illegal.

**Justification.** Although there is a minor disturbance to wildlife and other refuge users, the use of snowmobiles, bicycles, and ATVs allows for greater access and more dispersed access benefiting wildlife-dependent public uses. It increases access into areas that may not be accessible with traditional motor vehicles or on foot. While snowmobiles and ATVs generate a

noise disturbance, those who are looking for a solitude and quiet recreational experience have many opportunities elsewhere on the refuge. Disturbed wildlife also has many opportunities to retreat to a less disturbed area.

With stipulations in place, recreational snowmobiling, bicycling and ATV use, given the location and season of most use and the physical nature and size of the refuge, do not materially interfere with or detract from the conservation purposes of the refuge.

**Mandatory 10-Year Reevaluation Date:** 2022.

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## **C.12 DESCRIPTION of USE: Prescriptive Grazing**

Prescribed grazing is the planned application of livestock grazing at a specified season, duration and intensity to accomplish specific vegetation management objectives. The objectives are designed to achieve the broader habitat and wildlife goals. Rather than managing refuge resources to support livestock grazing or other economic uses, livestock grazing is used as a habitat management tool to achieve wildlife habitat goals and objectives. The Service employs the strategy of adaptive management in the development of habitat management plans. Adaptive management is defined as a process that uses feedback from refuge research and monitoring and evaluation of management actions to support or change objectives and strategies at all planning levels.

Prescriptive grazing is used to improve or maintain the health and vigor of selected plants and to maintain a stable and desired plant community, provide or maintain food, cover, and shelter for animals of concern, maintain or improve water quality and quantity and reduce accelerated soil erosion and maintain or improve soil condition.

Prescriptive grazing will be carried out across the refuge to meet wildlife and habitat objectives as identified in various management plans. The Service has been gradually making the transition to prescribed grazing for over 20 years as a result of the 1986 EIS and existing Service policies, and has carried out prescriptive grazing on about 34 percent of the refuge. Most habitat units with annual grazing programs are not meeting residual grass cover for priority species. The use would be implemented across the refuges where the Service has control over the use. For example, habitat units that are fenced from common pastures would be the first units enrolled into prescriptive grazing. Habitat units that are not fenced from private or other government-owned lands would be managed under existing management plans.

The use would be conducted according to approved habitat management plans to meet specific wildlife and habitat objectives. Use could occur during any season depending on the specific objectives to be achieved. Prescriptive grazing would be administered through issuance of a special use permit. Permittees would be selected using the criteria identified in the Refuge Manual. Habitat management plans would identify season of use, number of animals and length of time to achieve the management objectives.

A critical step in developing an effective and ecologically sound prescriptive grazing program is establishing criteria by which the prescription's implementation and effectiveness will be measured. By collecting quantitative data over time, one is better equipped to detect trends toward or away from the desired effects of grazing treatments. Furthermore, monitoring during grazing treatments will help to determine whether grazing treatments are applied at the appropriate season, duration, frequency, and intensity to meet specific wildlife and habitat objectives.

This use would move from an annual grazing program to a prescriptive grazing program to meet specific wildlife and habitat management objectives. Currently, habitat surveys show that most grazed habitat units are not meeting the 70 percent residual grass cover as specified in the 1986 EIS. Residual grass cover is important for several grassland-nesting birds. In addition to the grass cover, new monitoring for highly palatable, first-to-decline forbs and shrubs (sentinel plants) are declining and being eliminated due to overuse and lack of natural ecological processes. These plants are extremely important to numerous wildlife species, especially birds and pollinators. The Great Plains have evolved over time through ecological disturbances like fire and grazing. These disturbances can be described as "pulse" and "press." A pulse occurrence occurs sporadically but still occurs, whereas a press disturbance is constant (Frost 2008). Like fire, originally, ungulate grazing (herbivory) was a pulse disturbance. Before 1882, there were many years with periods of abandonment by wild ungulates where less grazing took place due to its interaction with fire. Since 1882, it has become a press (constant) disturbance because of fences and fire control. As a result, highly palatable species (particularly shrubs and forbs such as chokecherry and white prairieclover) have dramatically declined. These species evolved with, and are highly adapted to, grazing when combined with several-year periods of abandonment for recovery. Palatable shrubs require several years to grow from seed to seed-bearing maturity and are alive above ground (or vulnerable to damage from grazing) 12 months of the year. Present-day livestock grazing systems typi-

cally only rest pastures for 1 entire year or less from livestock use (with no rest from wild ungulate use). A prescriptive grazing program would allow the refuge to fulfill the intent of the National Wildlife Refuge System Improvement Act of 1997.

## AVAILABILITY of RESOURCES

**Resources Involved in the Administration and Management of the Use:** Refuge staff would continue to monitor permittees for violations of permit conditions and trespass. Biologists and station managers would monitor habitat conditions using current HDP and sentinel plant species.

**Special Equipment, Facilities, or Improvements Necessary to Support the Use:** The refuge would continue to monitor grazing activities using ground surveys and aerial counts. New permanent or temporary fences would need to be constructed to apply prescriptive grazing on common pastures. Temporary water developments may be necessary to facilitate prescriptive grazing in some habitat units to meet habitat objectives.

**Maintenance Costs:** Maintenance costs could be reduced due to the reduction in interior fences necessary to manage prescriptive grazing program according to CCP alternatives. There may be additional costs with the construction and maintenance of boundary fences, which would be constructed anyway to manage livestock in common pastures.

**Monitoring Costs:** Refuge personnel who are involved in administering the grazing program spend approximately 25–35 percent of their time issuing permits, monitoring for trespass livestock and habitat conditions, and communicating with permittees. The refuge monitors livestock trespass via fixed wing aircraft that costs \$140 per hour with a monthly fixed cost of \$770.

**Offsetting Revenues:** The refuge receives approximately \$60,000 in 6860 (grazing) funds per year; however, these funds are being reduced each year due to the increase in oil and gas development on other refuges. Refuges receive a percentage of the amount of revenue that is generated from commercial activities on refuges. It is expected the revenue generated by grazing on the refuge would continue to decline over the years. These funds do not cover current expenses incurred managing current grazing program and probably would not cover the costs of implementing the prescriptive grazing program.

## ANTICIPATED IMPACTS of the USE

**Short-Term Impacts:** Short-term impacts would include loss of vegetative cover, which could result in increased soil erosion. Highly palatable forbs and shrubs would be heavily impacted by grazing affect-

ing a large number of wildlife species from pollinators to big game. However, the benefit would be to the wildlife species that require short cover such as prairie dogs, mountain plovers, and McCown's longspur and grazing ungulates (elk and deer) that would graze the fresh growth of grasses. Prescriptive grazing can reduce invasive species and reduce fuel in sage-grouse habitat. In weed-infested areas, grazing must be carefully managed to reduce rather than increase invasive plant establishment and spread. Ecologically based grazing prescriptions pay careful attention to positively directing plant community change, not just removing the weedy species (Sheley et al. 1996). Moving from annual grazing to prescriptive grazing could have an impact on some current permittees from an economic standpoint. Prescriptive grazing would be carried out over time and with input from current permittees to lessen potential financial impacts. Permittees that are able to meet refuge needs may benefit financially by taking advantage of increased grazing opportunities.

**Long-Term Impacts:** The habitats of the refuge evolved with a pulse fire–grazing interaction (pyric herbivory). As fires burned across the landscape, grazing ungulates grazed less selectively on all plant species and thus highly palatable shrubs and forbs benefited from less grazing pressure. This interaction resulted in highly resilient systems that have a great diversity of species that promote heterogeneity and ecological integrity. Restoring this historical process would promote healthy habitats that promote biodiversity and resiliency to climate change.

**Cumulative Impacts:** Changes in grazing management would likely reduce the availability of grazing land in the region. However, because the refuge supplies less than 1 percent of all AUMs in the region, the cumulative effect of implementing prescriptive grazing, when combined with other land management changes would be negligible.

## PUBLIC REVIEW and COMMENT

Public review and comment was solicited through posting of notices at the refuge, notices in local newspapers and the Federal Register, public meetings held during the CCP process, and formal public review of this compatibility determination as part of the draft CCP and EIS for the refuge.

## DETERMINATION

Prescriptive grazing is compatible.

**Stipulations Necessary to Ensure Compatibility.** To ensure compatibility with refuge purposes and the mission of the National Wildlife Refuge System, prescriptive grazing can occur on the refuge if the following stipulations are met:

1. Habitat management plans would be developed with specific wildlife and habitat objectives.
2. Prescriptive grazing is one of the tools used to meet these objectives.

**Justification.** Sharp-tailed grouse, pronghorn, sage-grouse, large ungulates, and other wildlife species need a diversity of and abundant group of plants for food and cover all year. Refuge monitoring has shown that several highly palatable forbs and shrubs are declining due to the natural fire–grazing interaction being out of balance. Prescriptive grazing and other adaptive management strategies would permit flexibility necessary for the restoration of these important plant species. Prescriptive grazing is a valuable management tool that supports refuge objectives.

**Mandatory 10-Year Reevaluation Date:** 2022.

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## C.13 DESCRIPTION of USE: Research

The refuge allows research on a variety of biological, physical, archaeological, and social issues and concerns to address refuge management information needs or other issues not related to refuge management. Studies are conducted by Federal, State, and private entities including the U.S. Geological Survey, State agencies, State and private universities, and independent researchers and contractors.

Research is allowed refuge-wide and is addressed on a case-by-case basis for the need and potential impacts. The exact locations of the studies would be determined by the focus of the study. Research requests would be considered during all times of the year and on a case-by-case basis. Due to the difficulty in accessing the refuge lands during the winter months, studies at that time may be more heavily scrutinized as to their biological need and benefit. The location of the study may have an impact on when the use would be conducted, especially if it is during a specific hunting season.

Researchers would be required to submit a written proposal that outlines the methods, materials, timing, and justification for proposed projects. These proposals would be reviewed by refuge staff to assess the appropriateness of the research for the refuge, environmental impacts, assure that the projects do not interfere with the other resource operations, and provide suggested modifications to the project to avoid disruptions to refuge wildlife and operations. A special use permit is issued to those whose requests are deemed valid and necessary. The refuge staff would be responsible for monitoring their use and that it is appropriate and consistent with the terms and conditions in their special use permit.

Research on the refuge is allowed as a symbiotic relationship between the refuge research needs and the need for the requesting agency and individual to complete the research. The Service encourages and supports research and management studies on refuge lands that would improve and strengthen decisions on managing natural resources. All research requests would be evaluated on the refuge need and be in the best interest of wildlife and sound biological information.

## AVAILABILITY of RESOURCES

**Resources Involved in the Administration and Management of the Use:** The refuge currently uses the existing staff to issue special use permits and to monitor researchers. Current staff resources are deemed adequate to manage issuing permits and monitoring the researchers for compliance at the existing levels.

**Special Equipment, Facilities, or Improvements Necessary to Support the Use:** The research group or individual would be responsible for supplying their own equipment necessary to complete the study.

**Maintenance Costs:** There are no foreseen maintenance costs with allowing research studies on the refuge.

**Monitoring Costs:** The current refuge staff is adequate to monitor the research completed by non-Service personnel. Research studies in excess of available refuge resources would not be allowed.

**Offsetting Revenues:** The refuge does not charge a fee to conduct research studies on the refuge.

## ANTICIPATED IMPACTS of the USE

**Short-Term Impacts:** Research activities have the potential to impact and disturb wildlife through observation, capture and release techniques, and banding or marking. The access of multiple research sites several times in a short period may noticeably disturb vegetation either by walking, trampling, or by the use of a motor vehicle. Efforts to capture wildlife may cause not only disturbance, but also injury or even death. The energy costs of disturbance may be appreciable in terms of disruption of feeding, displacement from preferred habitat, and the added energy expended to avoid the disturbance of the research being conducted.

**Long-Term Impacts:** None are anticipated for the approval of research studies on the refuge.

**Cumulative Impacts:** With most research taking place on the refuge during the summer, the compilation of several studies may be excessive disturbance on refuge resources. Even with this, no cumulative impacts are expected due to the ability of the refuge manager to control the location and timing of all research studies conducted. The size of the refuge is also con-

sidered to be such that the tolerance of several studies on the wildlife and habitat is high.

## PUBLIC REVIEW and COMMENT

Public review and comment was solicited through posting of notices at the refuge, notices in local newspapers and the Federal Register, public meetings held during the CCP process, and formal public review of this compatibility determination as part of the draft CCP and EIS for the refuge.

## DETERMINATION

Research is compatible.

**Stipulations Necessary to Ensure Compatibility.** To ensure compatibility with refuge purposes and the mission of the National Wildlife Refuge System, research can occur on the refuge if the following stipulations are met:

1. Before conducting investigations, researchers must obtain special use permits from the refuge that make specific stipulations related to when, where, and how the research would be conducted. Managers have the option to prohibit research on the refuge that does not contribute to the purpose of the refuge or the mission of the Refuge System.
2. Researchers must possess all applicable State and Federal permits for the capture and possession of protected species, and for conducting all other regulated activities.
3. Research activities will be monitored for compliance with permit conditions and impacts.
4. If proposed research methods would impact or potentially impact refuge complex resources (habitat or wildlife), it must be shown that the research is necessary (i.e., critical to survival of a species, would enhance restoration activities of native species, would help in control of invasive species or provide valuable information that would

guide future complex activities), and the researcher must identify the issues in advance of the impact.

5. Researchers must clearly mark posts, equipment platforms, fencing material, and other equipment left unattended so it does not pose a hazard. Such items shall be removed as soon as practicable on completion of the research.
6. Cultural and archaeological surveys would be coordinated with the Regional Historical Preservation Officer and the appropriate State Historic Preservation Officer to assure compliance with the Archaeological Resource Protection Act.
7. All research activities would be performed in accordance with stipulations in this determination and in specific special use permits.
8. Researchers would submit a final report concerning refuge research to the refuge manager.

**Justification.** Research is compatible with the mission of the Service and the purpose of the refuge. Research studies on the refuge can be used to manage trust resource responsibilities of the Service by providing information on a sound scientific basis. Research conducted on biological, physical, archaeological and social components of the refuge provide a means to analyze management actions, impacts from internal and outside forces, and ongoing natural processes within the refuge ecosystems. Research provides scientific evidence used to make management decisions and ensure the refuge is managed as intended during establishment by Congress.

Negative short-term impacts caused during the research activities would be minimized with the stipulations above and are not considered significant in nature. Conducting research studies on the refuge would not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purpose for which the refuge was established.

**Mandatory 10-Year Reevaluation Date:** 2022.

## SIGNATURE

 16 Feb 2012

Richard Potts  
Project Leader  
Charles M. Russell National Wildlife Refuge Complex  
Lewistown, Montana

Date

## CONCURRENCE

 2/16/12

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

Date



# Appendix D

## *Key Legislation and Policy*

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

### **D.1 NATIONAL WILDLIFE REFUGE SYSTEM**

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

#### **Goals**

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

#### **Guiding Principles**

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

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

### **D.2 OTHER LEGAL and POLICY GUIDANCE**

Management actions on national wildlife refuges are constrained by many mandates including laws and Executive orders. The more common regulations that affect refuge management are listed below.

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

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

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

**Archaeological and Historic Preservation Act (1974):** Directs the preservation of historic and archaeological data in Federal construction projects.

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

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

**Bald and Golden Eagle Protection Act (1940):** Provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds.

**Bankhead–Jones Farm Tenant Act (1937):** Some early refuges and hatcheries were established under the authority of this Act that required the Secretary of Agriculture to develop a program of land conservation and use.

**Clean Air Act (1970, amended 1990):** Restricts the amount of pollutants that can be emitted into the air. Designated wilderness areas including UL Bend National Wildlife Refuge have the highest standards (class I) for pollution and visibility and air quality is monitored at the refuge.

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

**Data Quality Act (2001):** Requires Government agencies to ensure and maximize the quality, objectivity, utility, and dissemination of information by Federal agencies.

**Emergency Wetlands Resources Act (1986):** Promotes wetland conservation for the public benefit to help fulfill international obligations in various migratory bird treaties and conventions. The act authorizes buying wetlands with Land and Water Conservation Fund monies.

**Endangered Species Act (1973):** Requires Federal agencies to carry out programs for the conservation of endangered and threatened species.

**Enhancement Act (2000):** Public Law 106–54 authorized the Secretary of Army, working with the Secretary of Interior, to identify cabin sites suitable for conveyance to current lessees. The funds received will be used for acquiring other lands with greater wildlife and other public value for the refuge.

**Executive Order 7509 (1936):** Establishes the Fort Peck Game Range for the conservation and development of natural wildlife resources and for the protection and improvement of public grazing lands and natural forage resources. In 1963, it was renamed the Charles M. Russell National Wildlife Range (Public Land Order 2951).

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

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

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

**Executive Order 13352, Cooperative Conservation (2004):** Directs Federal agencies to implement laws relating to the environment and natural resources in a manner that promotes cooperative conservation with an emphasis on appropriate inclusion of local participation in Federal decisionmaking in accordance with respective agency missions and policies.

**Executive Order 13443, Facilitation of Hunting Heritage and Wildlife Conservation (2007):** Directs Federal land management and other agencies to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat.

**Federal Noxious Weed Act (1990):** Requires the use of integrated management systems to control or contain undesirable plant species and an interdisciplinary approach with the cooperation of other Federal and State agencies.

**Federal Records Act (1950):** Requires the preservation of evidence of the Government's organization, functions, policies, decisions, operations, and activities, as well as basic historical and other information.

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

**Game Range Act (1976):** Public Law 94–223 transferred the management of all game ranges to the sole authority of National Wildlife Refuge System. This included Charles M. Russell Game Range and in 1978, the refuge was renamed Charles M. Russell National Wildlife Refuge (Public Land Order 5635).

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

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

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

**Native American Policy (1994):** Articulates the general principles that guide the Service's government-to-government relationship to Native American governments in the conservation of fish and wildlife resources.

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

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

**National Trails System Act (1968):** Established a national trails system including provisions for national historic trails that follow as closely as possible the original trails or routes of travel of national historic significance.

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

**National Wildlife Refuge System Improvement Act of 1997:** Sets the mission and administrative policy for all refuges in the National Wildlife Refuge System; mandates comprehensive conservation planning for all units of the Refuge System.

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

**Paleontological Resources Preservation Act of 2009:** Requires the Secretary of Interior and Agriculture to manage and protect paleontological resources on Federal land using scientific principles and expertise.

**Public Land Order (4588):** Establishment of UL Bend National Wildlife Refuge and revocation of Executive Order 7509 on these lands.

**Public Law (94–557) of 1976:** Designation of wilderness areas within the National Wildlife Refuge System including parts of UL Bend National Wildlife Refuge.

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

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

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

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

**Wild and Scenic Rivers Act (1968):** Set aside certain rivers in the Nation to be preserved in free-flowing condition among other provisions. This included portions along the western boundary of the Refuge, which is part of the Upper Missouri National Wild and Scenic River most of which flows through the Upper Missouri Breaks National Monument (BLM). The act was modified in 1976 by Public Law 94–486 to apply the scenic designation to the river and its bed for the part that flows through the refuge.

**Wilderness Act (1964):** The act (Public Law 88–577) [16 U.S.C. 1131–36] defines wilderness as “A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.” Approximately 20,819 acres within UL Bend National Wildlife Refuge are designated as wilderness, and approximately 176,140 acres within Charles M. Russell Refuge are proposed for inclusion in the National Wilderness Preservation System, and is managed as if were designated wilderness.



# Appendix E

## Wilderness Review and Summary

The Service has reviewed and updated existing lands within Charles M. Russell National Wildlife Refuge for current wilderness potential, as guided by the Wilderness Stewardship Policy (FWS 2008c), which provides an overview and foundation for implementing the Wilderness Act and the National Wildlife Refuge System Administration Act of 1966, as amended by the Improvement Act.

### E.1 HISTORY of WILDERNESS at CHARLES M. RUSSELL REFUGE

With the passage of The Wilderness Act of September 3, 1964, (Public Law 88–577), the Secretary of Interior was required to review every roadless area of 5,000 acres or more and every roadless island, regardless of size, within the National Wildlife Refuge System within 10 years after the effective date of the act, and report to the President of the United States his recommendations as to the suitability or unsuitability of each such area or island for preservation as wilderness. Refer to table A for a timeline of wilderness decisions and actions that affected the refuge.

On May 3, 1974, the Directors of the Bureau of Sport Fisheries and Wildlife (the Service) and BLM released a draft environmental impact Statement for 13 proposed wilderness units within Charles M. Russell National Wildlife Refuge. Five separate public hearings were then held on the proposals in Malta, Miles City, Billings, Denver, and Jordan between May 20 and May 29, 1974. The comment period was extended until June 28, 1974, to allow for more written comments on the proposed wilderness units. A total of 283 individuals attended the five hearings with 101 statements read into the record. The public hearings resulted in the addition of two more Charles M. Russell Refuge units as viable wilderness, bringing the total recommended wilderness areas to 15 with a combined acreage of 155,288 acres.

On December 4, 1974, President Gerald Ford, via House Document No. 93–403 recommended that the selected 155,288 acres of the Charles M. Russell National Wildlife Refuge retain their pristine character through protection as proposed wilderness units (Note: The proposal that went to Congress

identified 155,388 acres, but the actual acreage was 155,288 acres and is considered to be legal acreage). The 155,288 acres was divided among 15 units (identified in table B in section “E.3 Wilderness Inventory”).

With advances in technology, the Service has since refined all of the proposed wilderness units and entered them into GIS. Through the minimization of errors and correction of boundaries, the acreage the Service recognizes today as proposed wilderness units is closer to 158,619 acres.

Section E.2 provides a complete description of each area currently managed as proposed wilderness. As directed by Congress, the Service is required to manage all proposed wilderness units to maintain their wilderness character based on these qualities: an untrammelled and natural state, a lack of development, and the capacity for solitude or primitive and unconfined recreation.

**Table A. Timeline for wilderness on the Charles M. Russell and UL Bend Refuges.**

<i>Date</i>	<i>Action</i>
September 13, 1964	The Wilderness Act of 1964 enacted and all agencies are given 10 years to provide recommendations for wilderness designations. (Public Law 88–577)
May 3, 1974	Directors of the Bureau of Sport Fisheries and Wildlife and BLM release a draft environmental impact statement for 13 proposed wilderness units within Charles M. Russell National Wildlife Refuge.
May 20–29, 1974	Public hearings held in four Montana locations (Malta, Miles City, Billings, and Jordan) and Denver, Colorado, to ascertain public views on the desirability to include Charles M. Russell Refuge in the National Wilderness Preservation System. Public hearings results in the removal of three previously recommended units (Lost Creek, Sage Creek, and Snow Creek) and the addition of four (East Beauchamp, East Hell Creek, Wagon Coulee, and West Beauchamp) bringing the total number of recommended wilderness units to 15.

**Table A. Timeline for wilderness on the Charles M. Russell and UL Bend Refuges.**

<i>Date</i>	<i>Action</i>
August 28, 1974	Assistant Secretary of the Interior officially forwards Charles M. Russell Refuge wilderness recommendations to the President of the United States.
December 4, 1974	President Gerald R. Ford transmits proposals for 37 additions to the National Wilderness Preservation System (including Charles M. Russell Refuge's 15 units) to Congress. This act transitions the 15 Charles M. Russell Refuge units from wilderness study areas (WSA) to "proposed wilderness." From this point forward, all 15 units are to be managed as wilderness, per the tenets of The Wilderness Act of 1964. (House Document 94-403)
October 19, 1976	UL Bend Wilderness designated in part of UL Bend National Wildlife Refuge with wilderness areas totaling 20,890 acres. (Public Law 94-557)
October 31, 1983	28 acres of designated wilderness within UL Bend Refuge removed from the National Wilderness Preservation System to allow for fishing access. (Public Law 98-140)
July 29, 2002	All refuge roads on proposed wilderness areas closed per US DOI memo entitled, "Charles M. Russell Road Policy Challenged."

## E.2 CURRENT PROPOSED WILDERNESS

The map for alternative A (figure 7) in chapter 3 and the wilderness map (figure A) in this appendix show the locations of the proposed wilderness units. The wilderness character of all designated and proposed wilderness areas within Charles M. Russell Refuge will be reevaluated through the creation of a wilderness stewardship plan following finalization of the CCP.

The next section describes the basic geography and topography of the 15 existing proposed wilderness units.

### 1. East Seven Blackfoot—11,744 acres

BLM's wilderness study area surrounds the southern boundary of East Seven Blackfoot. This unit, like the Billy Creek Unit and West Seven Black-

foot Unit, is extremely rugged with high ridges and numerous side drainages and coulees. Slaymaker Ridge is the most notable physical feature, running north and south in the middle of the proposed wilderness unit. Vegetation types include limited forested areas, grassy benches, and sagebrush and greasewood flats. Much of the land is barren due to the soils, slope, and topography.

### 2. Mickey Butte—16,893 acres

Mickey Butte is situated on the east side of the UL Bend Refuge, contiguous with the UL Bend Wilderness. This unit is characterized by high bluffs on the northwest side yielding to steep, rugged coulees draining the area to the east and southeast. The coulees are relatively short as they rise to the bluffs. Forested areas become more sparse in this area, compared to the western part of the refuge, with grasses, sagebrush, and greasewood increasing in percentage of ground cover.

### 3. Burnt Lodge—21,576 acres

Burnt Lodge is one of the most rugged and scenic areas within the Missouri River Breaks. The area varies from rolling Bear Paw shale hills in the west to the extremely rugged eastern part, which is an extension of the Larb Hills. Scattered patches of ponderosa pine and juniper dominate the north slopes and high bench lands. Grasses, sagebrush, and greasewood predominate in the area west of Killed Woman Creek. The northern boundary of this unit abuts a BLM wilderness study area.

### 4. Billy Creek—10,916 acres

Billy Creek is extremely rugged with short, steep-sided drainages. Much of the area is inaccessible to livestock with dominant grass, sagebrush, and greasewood vegetation. Forested areas are isolated and occur only where soil, slope, and aspects are conducive to their growth.

### 5. West Seven Blackfoot—6,456 acres

A BLM wilderness study area surrounds the southern boundary of West Seven Blackfoot. The unit is similar to the East Seven Blackfoot. A long, high ridge running west to east and paralleling the reservoir dominates the unit. Vegetation is similar to adjacent proposed wilderness units, with increased forest cover.

### 6. Antelope Creek—5,062 acres

Antelope Creek is forested with long and geologically well-developed drainages. The bordering ridges are steep and relatively narrow-crested. It is located in the very northwest corner of the refuge contiguous to the Upper Missouri River National Monument WSA administered by BLM.

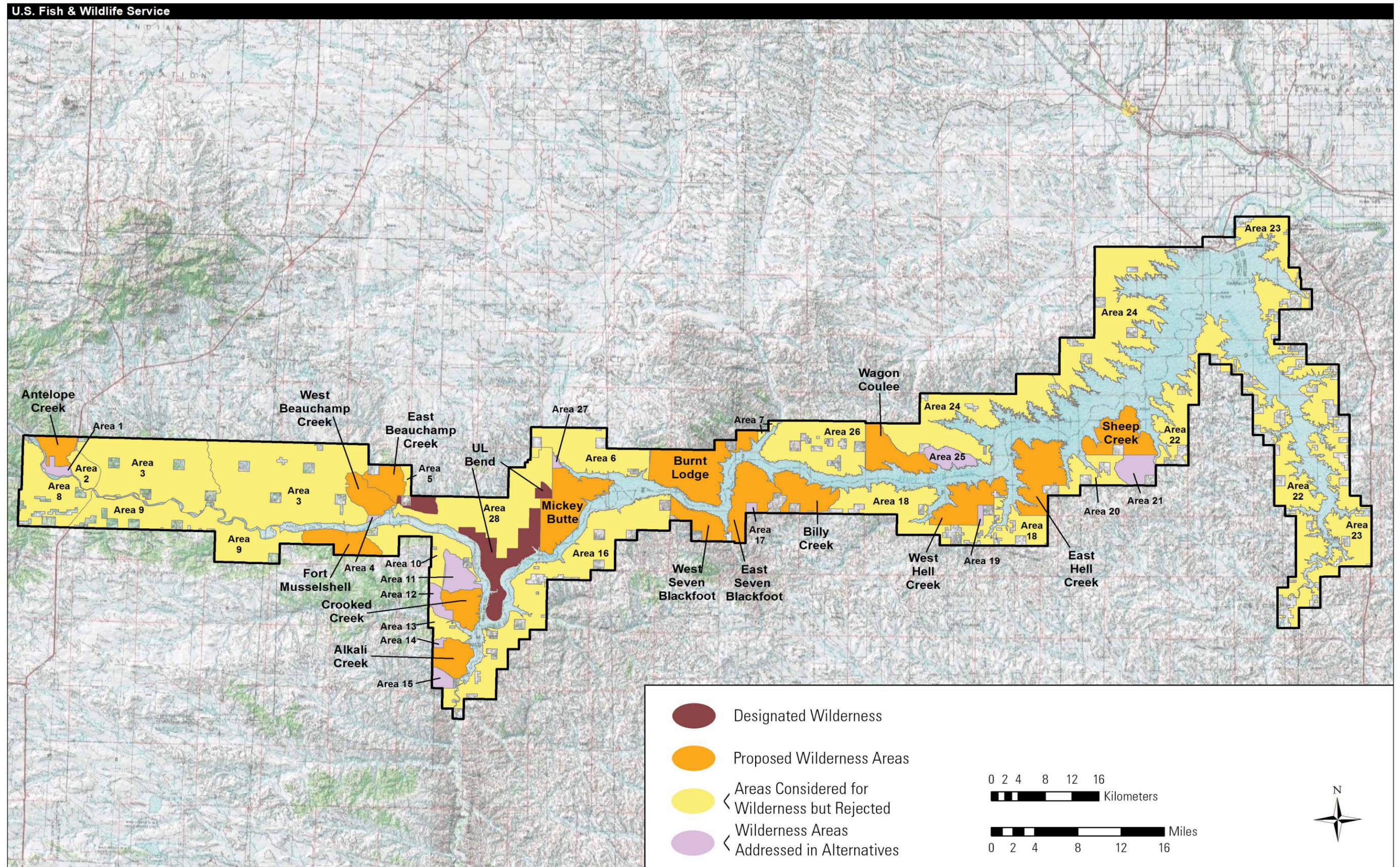


Figure A. Map of the wilderness review areas for the Charles M. Russell and UL Bend Refuges.

Figure A (wilderness)



**7. West Hell Creek—11,896 acres**

West Hell Creek provides a physical transition between the badlands to the east and the Missouri River Breaks to the west. Forest cover is more plentiful in this unit than in the area east of Hell Creek, but the landscape is still dominated by grass, sagebrush, and other shrubs.

**8. Fort Musselshell Unit—8,303 acres**

Fort Musselshell contains major drainages that run parallel to Fort Peck Reservoir, in contrast to the perpendicular drainages in most areas. The slopes are well vegetated with conifers, grass, sagebrush, and other shrubs.

**9. Sheep Creek—11,784 acres**

Sheep Creek is situated between Cracker Creek Bay and Gilbert Creek Bay west of the Sage Creek Proposed Wilderness. The topography reflects inconsistent erosion. Grass with some sagebrush and other shrubs dominate the landscape. Trees are virtually absent.

**10. West Beauchamp Creek—6,736 acres**

West Beauchamp Creek comprises three short coulees between ridges that start from CK Ridge and proceed in a southeasterly direction, ending at the Missouri River. These coulees are characterized by scattered stands of ponderosa pine and juniper, and ridge tops of sagebrush shrub mixed with western and bluebunch-wheatgrass grassland.

**11. Wagon Coulee—10,480 acres**

Wagon Coulee contains the most rugged portions of the south-facing aspect of Harper's Ridge. It includes the lower 2 miles of the Cabin Coulee drainage and an approximately 2-mile section of the middle reaches of Carpenter Creek. The coulees within the unit contain healthy stands of ponderosa pine with ridge tops consisting of primarily grass and scattered sage.

**12. Alkali Creek—6,592 acres**

Alkali Creek is characterized by short drainages, which produce a jumbled appearance. Slopes are forested and, due to the northern exposure, well vegetated with grasses, sagebrush, and other shrubs.

**13. Crooked Creek—6,842 acres**

Crooked Creek drainages are relatively short with well-forested side slopes. Away from the reservoir, the forest is interspersed with small grassy parklands.

**14. East Hell Creek—14,744 acres**

East Hell Creek is physically similar to the West Hell Creek proposed wilderness unit. Landscapes include grassy, flat ridge tops or mesas, gentle rolling breaks, and numerous steep drainages and canyons nearer the lake. Vegetation is typical of the Missouri River Breaks with a mix of forested areas and juniper patches, grasslands, and sagebrush flats.

**15. East Beauchamp Creek—5,264 acres**

East Beauchamp Creek comprises the lower reaches of the Beauchamp Creek drainage, which is a 20-mile-long watershed. A wide, intermittent drainage within the East Beauchamp unit has the potential for excellent riparian habitat. Secondary side coulees are characterized by ponderosa pine and juniper.

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## E.3 WILDERNESS INVENTORY

There are three phases to the wilderness review process: (1) inventory, (2) study, and (3) recommendation. Areas that meet the minimum criteria for wilderness are identified in the inventory phase. These areas are called wilderness study areas (WSAs). These areas must be roadless and meet one of the following size criteria:

- greater than 5,000 acres
- a roadless island of any size
- less than 5,000 acres but of sufficient size to be practicably managed as wilderness

A wilderness study area must also be natural and provide opportunities for solitude or primitive recreation.

Table B reflects the evaluation of existing wilderness and nonwilderness units within Charles M. Russell Refuge against the criteria for inclusion in the National Wilderness Preservation System.

**Table B. Wilderness inventory for the Charles M. Russell and UL Bend Refuges.**

*Evaluation criteria (“yes” or “no” for meeting criteria, with comments)*

(1) At least 5,000 acres of land	(2) Affected primarily by forces of nature, with the imprint of human work substantially unnoticeable	(3a) Outstanding opportunities for solitude (3b) Outstanding opportunities for primitive and unconfined recreation	(4) Ecological, geological, or other features of scientific, educational, or historical value	<i>QUALIFIES as a wilderness study area (meets criteria 1, 2, and 3a or 3b)</i>
<b>AREA 1 • NORTH: Antelope Creek proposed wilderness • SOUTH, WEST: Missouri River (see “A” in figures 8 and 10)</b>				
(1) No 1,836 acres	(2) Yes No bisecting roads. Part of refuge road 306 is recommended for closure in alternative B to increase connectivity with Antelope Creek proposed wilderness.	(3a) Yes, (3b) Yes Bounded by the Missouri River and Antelope Creek proposed wilderness, connecting to BLM Upper Missouri River Breaks National Monument WSA. Opportunities for land and water recreation (Missouri River).	(4) Yes River edge is important habitat for spiny softshell turtle and the American white pelican.	YES Addition to Antelope Creek proposed wilderness unit in alternatives B and D.
<b>AREA 2 • NORTH, WEST: Antelope Creek proposed wilderness, inventory unit 1 • SOUTH: Missouri River • EAST: Highway 191</b>				
(1) No 4,606 acres	(2) No Eastern boundary is Highway 191 along with State-maintained power lines. Refuge road 305 within this unit.	(3a) No, (3b) Yes Proximity to State highway, auto tour route, and developed Kipp Recreation Area reduces solitude. Opportunities for land and water recreation (Missouri River).	(4) No	NO
<b>AREA 3 • NORTH: Refuge boundary • SOUTH: Missouri River • WEST: Highway 191 • EAST: Refuge boundary, State section, refuge road 201, West Beauchamp proposed wilderness</b>				
(1) Yes 108,397 acres	(2) No Contains the auto tour route visited by 10,000 vehicles each year and the Slippery Ann elk-viewing area. Portions of road 201, the main artery on the north side of the refuge, pass through this unit. Contains four State sections and three privately owned tracts.	(3a) No, (3b) No Auto tour route and Slippery Ann viewing area results in significant vehicular traffic. Recreation opportunities are disrupted by roads and year-round closure of the Slippery Ann area.	(4) Yes Important elk breeding habitat.	NO

**Table B. Wilderness inventory for the Charles M. Russell and UL Bend Refuges.***Evaluation criteria (“yes” or “no” for meeting criteria, with comments)*

(1) At least 5,000 acres of land	(2) Affected primarily by forces of nature, with the imprint of human work substantially unnoticeable	(3a) Outstanding opportunities for solitude (3b) Outstanding opportunities for primitive and unconfined recreation	(4) Ecological, geological, or other features of scientific, educational, or historical value	<i>QUALIFIES as a wilderness study area (meets criteria 1, 2, and 3a or 3b)</i>
<b>AREA 4 • NORTH, EAST: West Beauchamp Creek proposed wilderness; WEST: Refuge roads 201 and 302 • SOUTH: Missouri River (see “B” in figure 8)</b>				
(1) No 359 acres	(2) Yes Bordered by roads 201 and 302, but does not contain any bisecting roads. Road 302 recommended for closure in alternative B.	(3a) No, (3b) Yes Too small to offer solitude. Adjacency to Missouri River provides water recreation access.	(4) No	YES Addition to West Beauchamp Creek proposed wilderness in alternative B.
<b>AREA 5 • NORTH, EAST: Refuge boundary • WEST: East Beauchamp proposed wilderness • SOUTH: State section</b>				
(1) No 1,348 acres	(2) No No roads present, but provides vehicular access to the State lease south of unit.	(3a) No, (3b) No Unit dominated by a steep, eroded coulee.	(4) No	NO
<b>AREA 6 • NORTH, WEST: Refuge boundary • SOUTH: UL Bend National Wildlife Refuge, Missouri River • EAST: Burnt Lodge proposed wilderness</b>				
(1) Yes 21,061 acres	(2) No Contains the Fourchette Creek Recreation Area. Unit is intersected by five refuge roads and contains three State parcels.	(3a) No, (3b) No Recreation area visited by hunters and recreationists year-round. Installations and development at recreation areas preclude primitive recreation.	(4) No	NO
<b>AREA 7 • NORTH: Refuge boundary • WEST: Burnt Lodge proposed wilderness • SOUTH, EAST: Timber Creek, Missouri River</b>				
(1) No 833 acres	(2) No Road 339 bisects the northern half of the unit and provides access to Timber Creek Bay.	(3a) No, (3b) No A road disrupts solitude, and the small size limits recreation opportunities.	(4) No	NO

**Table B. Wilderness inventory for the Charles M. Russell and UL Bend Refuges.**

*Evaluation criteria (“yes” or “no” for meeting criteria, with comments)*

(1) At least 5,000 acres of land	(2) Affected primarily by forces of nature, with the imprint of human work substantially unnoticeable	(3a) Outstanding opportunities for solitude (3b) Outstanding opportunities for primitive and unconfined recreation	(4) Ecological, geological, or other features of scientific, educational, or historical value	<i>QUALIFIES as a wilderness study area (meets criteria 1, 2, and 3a or 3b)</i>
<b>AREA 8 • NORTH: Missouri River • WEST, SOUTH: Refuge boundary • EAST: Highway 191</b>				
(1) Yes 18,913 acres	(2) No Contains privately owned land, two State sections, and four ref- uge roads. Along the Highway 191 corridor.	(3a) No, (3b) No Private inholdings and trafficked roads preclude solitude. Mosaic of roads and inholdings disrupt opportunities for unconfined recreation.	(4) No	NO
<b>AREA 9 • NORTH: Missouri River West, Highway 191 • SOUTH: Refuge boundary • EAST: Fort Musselshell proposed wilderness</b>				
(1) Yes 32,929 acres	(2) No Along the Highway 191 corridor. Also contains Sand Creek Field Station and administrative area, multiple pri- vately owned tracts, and three State sec- tions.	(3a) No, (3b) No Contains the major east–west refuge road on the southern side of the Missouri River and the Sand Creek Field Station. Contains significantly developed areas such as the Sand Creek Field Station.	(4) No	NO
<b>AREA 10 • NORTH, EAST: Missouri River • SOUTH: Refuge road 315, Wilderness Inventory Unit C • WEST, SOUTH: Refuge boundary</b>				
(1) Yes 12,560 acres	(2) No Contains two private inholdings, two State sections, and several refuge roads that pro- vide important BLM access.	(3a) No, (3b) No Contains two impor- tant roads, 311 and 315, that cross adja- cent BLM land. Several roads and the narrow refuge prop- erty along the Mis- souri River in this unit confines recre- ation.	(4) No	NO

**Table B. Wilderness inventory for the Charles M. Russell and UL Bend Refuges.***Evaluation criteria (“yes” or “no” for meeting criteria, with comments)*

(1) At least 5,000 acres of land	(2) Affected primarily by forces of nature, with the imprint of human work substantially unnoticeable	(3a) Outstanding opportunities for solitude (3b) Outstanding opportunities for primitive and unconfined recreation	(4) Ecological, geological, or other features of scientific, educational, or historical value	<i>QUALIFIES as a wilderness study area (meets criteria 1, 2, and 3a or 3b)</i>
<b>AREA 11 • NORTH, EAST: Refuge road 315, Missouri River • WEST: Refuge road 838 • SOUTH: Crooked Creek proposed wilderness (see “C” in figure 8)</b>				
(1) Yes 5,568 acres	(2) Yes No interior roads and bordered by refuge roads 315, 838, and 311. Alternative B closes all or parts of roads 311, 838, and 315. Alternative D closes road 838.	(3a) Yes, (3b) Yes Closure of roads under certain alternatives increases solitude. Bordering roads allow for hunting access.	(4) Yes Important sage-grouse habitat.	YES (alternative B) NO (alternative D)
<b>AREA 12 • NORTH: Refuge road 311 • SOUTH: Refuge road 411, Missouri River • EAST: Crooked Creek proposed wilderness • WEST: Refuge boundary (see “D” in figures 8 and 10)</b>				
(1) No 2,826 acres	(2) Yes No interior roads and bordered by roads 311, 377, and 411.	(3a) No, (3b) Yes Surrounded by refuge roads on two sides and close to Crooked Creek Recreation Area. Bordering roads allow for hunting access.	(4) No	YES Addition to Crooked Creek proposed wilderness in alternatives B and D.
<b>AREA 13 • NORTH: Crooked Creek drainage, refuge road 411 • WEST: Refuge boundary • SOUTH: Refuge road 103 to intersection with Crooked Creek</b>				
(1) No 4,046 acres	(2) No Contains the Crooked Creek Recreation Area managed by USACE.	(3a) No, (3b) No Contains USACE facilities. Development at Crooked Creek Recreation Area precludes primitive recreation.	(4) No	NO
<b>AREA 14 • NORTH: County road, Crooked Creek Road • SOUTH, EAST: Alkali Creek proposed wilderness • WEST: Refuge boundary (see “E” in figures 8 and 10)</b>				
(1) No 640 acres	(2) Yes Contains no roads and is bordered on the north by refuge road 103.	(3a) No, (3b) No Traffic on Crooked Creek Road is visible from the unit.	(4) No	YES Addition to Alkali Creek proposed wilderness in alternatives B and D.

**Table B. Wilderness inventory for the Charles M. Russell and UL Bend Refuges.**

*Evaluation criteria (“yes” or “no” for meeting criteria, with comments)*

(1) At least 5,000 acres of land	(2) Affected primarily by forces of nature, with the imprint of human work substantially unnoticeable	(3a) Outstanding opportunities for solitude (3b) Outstanding opportunities for primitive and unconfined recreation	(4) Ecological, geological, or other features of scientific, educational, or historical value	<i>QUALIFIES as a wilderness study area (meets criteria 1, 2, and 3a or 3b)</i>
<b>AREA 15 • NORTH: Alkali Creek proposed wilderness • SOUTH, WEST: Refuge boundary (see “F” in figures 8 and 10)</b>				
(1) No 2,240 acres	(2) Yes No established roads in or next to the unit.	(3a) Yes, (3b) Yes Only accessible via foot.	(4) No	YES Addition to Alkali Creek proposed wil- derness in alterna- tives B and D.
<b>AREA 16 • NORTH: Missouri River • SOUTH, WEST: Refuge boundary • EAST: West Seven Blackfoot proposed wilderness</b>				
(1) No 50,074 acres	(2) No Multiple, privately owned parcels, roads (refuge and county), and the Devils Creek Recreation Area.	(3a) No, (3b) No Substantial private traffic and public traf- fic on county route 245. Unit is a mosaic bro- ken up by refuge and county roads. Significant private and refuge installations and development.	(4) Yes Pronghorn migration route across Missouri River.	NO
<b>AREA 17 • NORTH, EAST, WEST: East Seven Blackfoot proposed wilderness • SOUTH: Refuge boundary (see “G” in figures 8 and 10)</b>				
(1) No 640 acres	(2) Yes No established roads.	(3a) Yes, (3b) Yes Surrounded on all sides by East Seven Blackfoot proposed wilderness and BLM Seven Blackfoot WSA.	(4) No	YES Addition to East Seven Blackfoot pro- posed wilderness in alternatives B and D.
<b>AREA 18 • NORTH: Missouri River, West Hell Creek proposed wilderness, Hell Creek Bay, East Hell Creek proposed wilderness • SOUTH, EAST: Refuge boundary • WEST: Billy Creek proposed wilderness</b>				
(1) Yes 32,359 acres	(2) No Contains the Hell Creek Recreation Area, which has a campground, marina, boat ramp, and multi- ple private inholdings.	(3a) No, (3b) No County road pro- vides public access to the Hell Creek Rec- reation area and near Round Butte. A mosaic of private and refuge lands. Contains refuge developments at Hell Creek Recreation Area.	(4) No	NO

**Table B. Wilderness inventory for the Charles M. Russell and UL Bend Refuges.**

*Evaluation criteria (“yes” or “no” for meeting criteria, with comments)*

(1) At least 5,000 acres of land	(2) Affected primarily by forces of nature, with the imprint of human work substantially unnoticeable	(3a) Outstanding opportunities for solitude (3b) Outstanding opportunities for primitive and unconfined recreation	(4) Ecological, geological, or other features of scientific, educational, or historical value	<i>QUALIFIES as a wilderness study area (meets criteria 1, 2, and 3a or 3b)</i>
<b>AREA 19 • NORTH, WEST: West Hell Creek proposed wilderness • EAST: State section (see “H” in figures 8 and 10)</b>				
(1) Yes 641 acres	(2) Yes No established roads.	(3a) Yes, (3b) Yes Contiguous on two sides with West Hell Creek proposed wil- derness.	(4) No	YES Addition to West Hell Creek proposed wil- derness in alterna- tives B and D.
<b>AREA 20 • NORTH: Fort Peck Reservoir, Sheep Creek proposed wilderness, refuge road 357 • EAST: Refuge road 357 • SOUTH: Refuge boundary; West: Township line R38E</b>				
(1) Yes 8,225 acres	(2) No Contains two private inholdings, one State section, and five ref- uge roads.	(3a) No, (3b) No Mosaic of roads and private and State lands with associated traffic.	(4) No	NO
<b>AREA 21 • NORTH: Sheep Creek proposed wilderness • SOUTH, EAST: Refuge boundary • WEST: Refuge roads 356 and 357 (see “I” in figures 8 and 10)</b>				
(1) Yes 5,726 acres	(2) Yes Only one adjacent road: refuge road 356/357.	(3a) Yes, (3b) Yes Adjacent roads pro- vide hunting access and water recreation access via Gilbert Creek Bay.	(4) No	YES Addition to Sheep Creek proposed wil- derness in alterna- tives B and D.
<b>AREA 22 • NORTH: Fort Peck Reservoir, Big Dry Arm • WEST: West Gilbert Creek drainage • SOUTH: Refuge boundary • EAST: Fort Peck Reservoir, Big Dry Arm, Big Dry Creek</b>				
(1) Yes 48,835 acres	(2) No Contains multiple roads and private inholdings. Inhold- ings and roads break up the unit, so there is not a single, contigu- ous 5,000-acre block.  The Rock Creek Rec- reation Area is within the unit. It consists of multiple, privately owned cabin sites.	(3a) No, (3b) No Primitive nature of unit is broken up by numerous transecting roads.	(4) Yes Area contains signif- icant paleontological resources.	NO

**Table B. Wilderness inventory for the Charles M. Russell and UL Bend Refuges.***Evaluation criteria ("yes" or "no" for meeting criteria, with comments)*

(1) At least 5,000 acres of land	(2) Affected primarily by forces of nature, with the imprint of human work substantially unnoticeable	(3a) Outstanding opportunities for solitude (3b) Outstanding opportunities for primitive and unconfined recreation	(4) Ecological, geological, or other features of scientific, educational, or historical value	<i>QUALIFIES as a wilderness study area (meets criteria 1, 2, and 3a or 3b)</i>
<b>AREA 23 • NORTH, SOUTH, EAST: Refuge boundary • WEST: Big Dry Arm of the Fort Peck Reservoir</b>				
(1) Yes 57,446 acres	(2) No Several USACE recreation areas and multiple State sections. Includes more than a dozen refuge roads. Contains Fort Peck Dam spillway.	(3a) No, (3b) No Includes three recreation areas with developed structures. Area is riddled with roads and developed structures.	(4) No	NO
<b>AREA 24 • NORTH: Refuge boundary, refuge road 331 • SOUTH: Fort Peck Reservoir • WEST: Refuge road 327, Wagon Coulee proposed wilderness • EAST: Duck Creek Road</b>				
(1) Yes 82,160 acres	(2) No Contains four partial or full State sections, multiple private in-holdings, and refuge roads. Includes the Pine Recreation Area.	(3a) No, (3b) No Many refuge roads and structures.	(4) No	NO
<b>AREA 25 • NORTH: Refuge road 327 • SOUTH, EAST: Missouri River • WEST: Wagon Coulee proposed wilderness (see "J" in figures 8 and 10)</b>				
(1) No 4,843 acres	(2) Yes No interior roads or installed structures other than a navigational marker on the shoreline.	(3a) Yes, (3b) Yes Limited access on adjacent refuge road 327.	(4) No	YES Addition to Wagon Coulee proposed wilderness in alternatives B and D.
<b>AREA 26 • NORTH: Refuge boundary • EAST: Wagon Coulee proposed wilderness • SOUTH: Fort Peck Reservoir • WEST: Timber Creek Bay</b>				
(1) Yes 23,560 acres	(2) No Contains the Bone Trail Boat Ramp and multiple private in-holdings.	(3a) No, (3b) No Provides vehicular access to Fort Peck Reservoir.	(4) No	NO
<b>AREA 27 • NORTH, EAST: Fort Peck Lake • SOUTH: Mickey Butte proposed wilderness (see "K" in figures 8 and 10)</b>				
(1) No 550 acres	(2) Yes No roads adjacent or within area.	(3a) Yes, (3b) Yes No roads adjacent or within area.	(4) No	YES Addition to Mickey Butte proposed wilderness in alternatives B and D.

**Table B. Wilderness inventory for the Charles M. Russell and UL Bend Refuges.**

*Evaluation criteria (“yes” or “no” for meeting criteria, with comments)*

(1) At least 5,000 acres of land	(2) Affected primarily by forces of nature, with the imprint of human work substantially unnoticeable	(3a) Outstanding opportunities for solitude (3b) Outstanding opportunities for primitive and unconfined recreation	(4) Ecological, geological, or other features of scientific, educational, or historical value	<i>QUALIFIES as a wilderness study area (meets criteria 1, 2, and 3a or 3b)</i>
<b>AREA 28 • UL BEND NATIONAL WILDLIFE REFUGE: all land currently not part of the UL Bend Wilderness</b>				
(1) Not known	(2) No A network of roads crosses the center of UL Bend Refuge.	(3a) No, (3b) No Popular access to fishing and hunting. Roads disrupt opportunities for unconfined recreation.	(4) Yes Habitat for the endangered black-footed ferret and associated black-tailed prairie dog.	NO

\*Wilderness inventory numbers in this table reference labeled areas in figure A.

## E.4 WILDERNESS STUDY

The wilderness inventory identified 11 areas within Charles M. Russell and UL Bend Refuges that possess the required wilderness character for potential inclusion in the National Wilderness Preservation System as defined by The Wilderness Act of 1964. All areas are next to existing proposed wilderness areas on the refuge. Each of these areas was further evaluated through the refuge planning process to determine their suitability for designation, management, and preservation as wilderness. This evaluation considered the following:

- quality of wilderness values
- evaluation of resource values, public uses, and associated management concerns
- capability for management as wilderness

All recommended wilderness study areas resulting from this review assume the name of the adjacent proposed wilderness area. For example, the area abutting Antelope Creek proposed wilderness is known as the Antelope Creek WSA (identified as A in figures 8 and 10).

### Evaluation of Wilderness Values

BLM currently manages several wilderness study areas next to the refuge (see figure 7, map of the no-action alternative A, in chapter 3). These areas were taken into consideration in reviewing refuge lands that contain wilderness character and potential areas that could be suited for wilderness proposal and designation. In three general areas along the refuge boundary, there are either BLM wilderness study areas or the Upper Missouri River Breaks National Monument. These protected areas provide

crucial unobstructed corridors for wildlife migration in central Montana.

**Naturalness.** All of the recommended wilderness study areas generally appear to have been affected primarily by nature, with the imprint of human uses and activities substantially unnoticeable. The 11 recommended wilderness study areas are free from private inholdings and interior roads and are next to existing, proposed Charles M. Russell Refuge wilderness areas.

To improve the naturalness of the following wilderness study areas, this CCP and EIS’s alternative B recommends the closure of refuge roads next to the following units: Antelope Creek WSA, Crooked Creek WSA, and Wagon Coulee WSA.

Several of the recommended wilderness study areas exhibit excellent, natural, active, riparian systems such as Antelope Creek WSA and West Beauchamp Creek WSA.

**Outstanding Opportunities for Solitude and Primitive Recreation.** All of the recommended, wilderness study areas offer outstanding opportunities for both solitude and primitive recreation. Although several are less than 5,000 acres, all wilderness study areas are contiguous with already existing proposed wilderness areas in Charles M. Russell Refuge and serve to further enhance the size of existing areas available for solitude and primitive recreation.

The following areas are not bounded by refuge roads or the refuge boundary and, therefore, will provide particularly quality opportunities for solitude and primitive recreation: East Seven Blackfoot WSA, Mickey Butte WSA, West Beauchamp Creek WSA, and West Hell Creek WSA.

**Quality of Supplemental Values.** Some of the recommended wilderness study areas provide important habitat for federally warranted and State-listed plant and animal species such as greater sage-grouse, ferruginous hawk, American white pelican, spiny softshell turtle, and northern leopard frog.

**Evaluation of Manageability and Other Resource Values and Uses.** Each of the 11 recommended wilderness study areas on the refuge can be managed to preserve their wilderness character in perpetuity, recognizing that a “minimum requirement” approach is required. There are no valid, existing private rights included in any recommended wilderness study areas.

Currently, game carts are allowed in existing proposed Charles M. Russell Refuge wilderness units, and this provision would be common to all newly recommended wilderness study areas. The UL Bend Wilderness will still prohibit the use of game carts.

None of the current or expected refuge management activities and public uses would diminish the wilderness character. These include hunting, scientific research, resource monitoring, commercial services such as guided wildlife hunting, environmental education, and low-impact recreational activities. There are no plans to construct permanent facilities or structures to accommodate these uses.

In summary, wilderness designation and management of all 11 wilderness study areas would be fully compatible with current and proposed refuge management, and none of the resource values identified above would be foregone or adversely affected as a result of designation.

## E.5 DEVELOPMENT of CCP and EIS ALTERNATIVES

The Service has evaluated four alternatives in this CCP and EIS for managing wilderness on the refuge (refer to table C and to the wilderness analysis under section 5.7 in chapter 5 for a full discussion of the effects). All CCP and EIS wilderness recommendations are described below and all adhere to the overarching CCP goal for wilderness:

*Conserve, improve, and promote the wilderness quality and associated natural processes of designated, proposed, and wilderness study areas within Charles M. Russell National Wildlife Refuge for all generations.*

### Alternative A

Alternative A is the no-action alternative, and there would be no modifications to existing wilderness acreage (see figure 7, map of alternative A, in chapter 3 and figure A).

### Alternative B

Alternative B emphasizes management that improves the abundance of wildlife populations. To achieve this goal the Service is recommending 11 additions or adjustments to current wilderness units for alternative B. These additions all are denoted by a “Yes” in the “Qualifies as a wilderness study area” column in table C. These additions to current, proposed wilderness would improve landscape scale habitat conser-

**Table C. Summary of wilderness study areas (WSAs) recommended in the CCP alternatives for the Charles M. Russell and UL Bend Refuges.**

WSA unit <sup>1</sup>	Unit name	Acres	Recommended in alternatives			
			A	B	C	D
1(A)	Antelope Creek	1,836	No	Yes	No	Yes
4 (B)	West Beauchamp Creek	359	No	Yes	No	No
11(C)	Crooked Creek 1	5,568	No	Yes	No	No
12 (D)	Crooked Creek 2	2,826	No	Yes	No	Yes
14 (E)	Alkali Creek 1	640	No	Yes	No	Yes
15 (F)	Alkali Creek 2	2,240	No	Yes	No	Yes
17(G) <sup>2</sup>	East Seven Blackfoot	640	No	Yes	No	Yes
19 (H)	West Hell Creek	641	No	Yes	No	Yes
21 (I)	Sheep Creek	5,726	No	Yes	No	Yes
25 (J)	Wagon Coulee	4,843	No	Yes	No	Yes
27(K) <sup>2</sup>	Mickey Butte	550	No	Yes	No	Yes
Total acres by alternative			0	25,869	0	19,942

<sup>1</sup> Wilderness study area unit numbers in this table reference labeled areas in figure A and figures 8 and 10.

<sup>2</sup> Wilderness study area Unit 17 (G) was not included in alternatives B and D and wilderness study area Unit 27 was not included in alternative D (K) in the released draft CCP and EIS due to discrepancies in map review.

vation capabilities. The total net wilderness acreage increase would be 25,869 acres. The additions are shown in figure 8 (map of alternative B) in chapter 3.

Alternative B also recommends the closure of refuge roads next to the following recommended wilderness study areas to improve naturalness: Antelope Creek WSA, Crooked Creek WSA, and Wagon Coulee WSA.

### Alternative C

Alternative C aims to expand wildlife-dependent recreational opportunities and economic uses while protecting wildlife populations and their habitat. To maintain maximum, mechanized access for recreation this alternative does not propose any wilderness study areas be recommended for inclusion in the National Wilderness Preservation System. Like alternative A, this alternative would result in no modifications to existing wilderness acreage (see figure 7, map of alternative A, in chapter 3 and figure A).

### Alternative D

This alternative has an emphasis on promoting natural ecological processes with minimal management to promote biological diversity, biological integrity, and environmental health. Through this alternative the Service would expand or adjust nine proposed wilderness units by recommending adjacent wilderness study areas be considered for inclusion in the National Wilderness Preservation System. This would allow more efficient management of large landscapes.

The nine wilderness study areas that are recommended in alternative D follow: Alkali Creek 1 WSA, Alkali Creek 2 WSA, Antelope Creek WSA, Crooked Creek WSA, Mickey Butte WSA, Seven Blackfoot WSA, Sheep Creek WSA, Wagon Coulee WSA, and West Hell Creek WSA. This alternative would result in a net gain of 19,942 acres (see figure 10, map of alternative D, in chapter 3).

Two wilderness study areas are not recommended in alternative D. Crooked Creek 1 WSA is not recommended to allow the most management options for wildlife-dependent recreational use and the use of prescribed fire and livestock grazing in this area's habitat unit. West Beauchamp Creek WSA is bordered by the heavily recreated refuge road 302. To maintain access for wildlife-dependent recreation, this area is excluded from alternative D.

In summary, alternatives B and D would result in the establishment of new wilderness study areas. These areas would become proposed wilderness following transmission to the United States President per 610 FW 4.23. An act of Congress is required for all proposed wilderness units to then become designated wilderness.

## E.6 DEFINITIONS

Several definitions are used in this wilderness review.

**Wilderness Definition and Criteria.** The definition of wilderness is in section 2(c) of the Wilderness Act:

“A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and that (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historic value.”

**Designated Wilderness.** An area designated in legislation and administered as part of the National Wilderness Preservation System.

**Proposed Wilderness.** An area of the Refuge System that the Secretary of the Interior (Secretary) has recommended to the President for inclusion in the National Wilderness Preservation System. The President then transmits the wilderness proposal to Congress. Once the Secretary transmits the recommendation to the President, the Service considers the area proposed wilderness and will manage it as designated wilderness.

**Recommended Wilderness.** An area of the Refuge System that the Director of the Service has recommended to the Secretary through the Assistant Secretary for Fish and Wildlife and Parks for inclusion in the National Wilderness Preservation System.

**Wilderness Review.** The inventory, study, and decisionmaking process the Service uses to determine whether to recommend Refuge System lands and waters for wilderness designation.

**Wilderness Study Area.** A wilderness study area is an area the Service is considering for wilderness designation. The Service identifies and establishes wilderness study areas through the inventory component of a wilderness review. The study areas include all areas that are still undergoing the review process, areas for which a final determination of suitability and recommendation for wilderness designation in the record of decision for the CCP and EIS is pending, and areas recommended for wilderness designation in a final CCP and awaiting approval by the

Director. The Service considers areas recommended by the Director “recommended wilderness.”

**Wilderness Values.** Wilderness values are biophysical (ecosystems, scenery, and natural processes), psychological (opportunity for solitude or primitive and unconfined recreation), symbolic (national and natural remnants of American cultural and evolutionary heritage), and spiritual (sense of connection with nature and values beyond one’s self).

# Appendix F

## List of Plant and Animal Species

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This appendix contains the common and scientific names of plants, amphibians, reptiles, fish, birds, and mammals of the Charles M. Russell National Wildlife Refuge and the UL Bend National Wildlife Refuge.

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### SENTINEL PLANT SPECIES

Sentinel plants are those species that vanish first when the ecological processes that occur within an ecosystem are out of balance. The following sentinel plant species occur on the upland plains and draws and north slopes on the Charles M. Russell National Wildlife Refuge and UL Bend National Wildlife Refuge. The list is not inclusive of all possible species, or custom to a specific locale, and are intended to be adaptive to new information obtained through management or research.

The “fire sentinel” plants listed below are fire-intolerant species. Unlike the sentinel shrubs, trees, and warm-season forbs that are currently declining, the fire sentinels are abundant on the refuge. However, fire sentinels are important species to monitor because of their significance to wildlife and ecological processes.

#### SHRUBS and TREES

rubber rabbitbrush, *Chrysothamnus nauseosus* spp. *nauseosus*  
green rubber rabbitbrush, *Chrysothamnus nauseosus* spp. *graveolens*  
saltbush, *Atriplex aptera*  
winterfat, *Krascheninnikovia lanata*  
silver buffaloberry, *Shepherdia argentea*  
chokecherry, *Prunus virginiana*  
boxelder, *Acer negundo*  
green ash, *Fraxinus pennsylvanica*  
plains cottonwood, *Populus deltoides*  
redosier dogwood, *Cornus stolonifera*  
golden current, *Ribes aureum*  
quaking aspen, *Populus tremuloides*  
peachleaf willow, *Salix amygdaloides*

#### WARM-SEASON FORBS

purple coneflower, *Echinacea angustifolia*  
stiff sunflower, *Helianthus pauciflorus*  
dotted gayfeather, *Liatris punctata*  
white prairieclover, *Dalea candida*  
purple prairieclover, *Dalea purpurea*  
Maximilian sunflower, *Helianthus maximiliani*

#### FIRE SENTINELS

big sagebrush, *Artemisia tridentata tridentata*  
Rocky Mountain juniper, *Juniperus scopulorum*  
ponderosa pine, *Pinus ponderosa*  
Douglas-fir, *Pseudotsuga toxifolia*

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### FOCAL BIRD SPECIES

On the refuge, the following focal bird species are considered most sensitive to or limited by certain ecological processes (such as fire or nest predation) or habitat attributes (such as patch size or snags). Some of the sentinel species listed above are important for focal birds and are being used to help guide management activities.

#### UPLAND

long-billed curlew, *Numenius americanus*  
Sprague's pipit, *Antus spragueii*  
Baird's sparrow, *Ammodramus bairdii*  
brown creeper, *Certhia americana*  
sharp-tailed grouse, *Tympanuchus phasianellus*  
greater sage-grouse, *Centrocercus urophasianus*

#### RIVER BOTTOM

ovenbird, *Seiurus aurocapillus*  
Cordilleran flycatcher, *Empidonax occidentalis*  
black-billed cuckoo, *Coccyzus erythrophthalmus*  
western wood-pewee, *Contopus sordidulus*

#### RIPARIAN AREA and WETLAND

red-eyed vireo, *Vireo olivaceus*  
Brewer's blackbird, *Euphagus cyanocephalus*  
veery, *Catharus fuscescens*

## PLANT LIST

<i>Scientific name</i>	<i>Common name</i>
<b>Aceraceae</b>	<b>Maple family</b>
<i>Acer negundo</i>	boxelder
<b>Agavaceae</b>	<b>Century-plant family</b>
<i>Yucca glauca</i>	soapweed yucca
<b>Alismataceae</b>	<b>Water plantain family</b>
<i>Alisma gramineum</i>	narrowleaf water plantain
<i>A. triviale</i>	northern water plantain
<i>Sagittaria cuneata</i>	arumleaf arrowhead
<i>S. latifolia</i>	bulltongue arrowhead
<b>Amaranthaceae</b>	<b>Amaranth family</b>
<i>Amaranthus albus</i>	prostrate pigweed
<i>A. arenicola</i>	sandhill amaranth
<i>A. blitoides</i>	mat amaranth
<i>A. californicus</i>	California amaranth
<i>A. retroflexus</i>	redroot amaranth
<b>Anacardiaceae</b>	<b>Sumac family</b>
<i>Rhus trilobata</i>	skunkbush
<i>Toxicodendron rydbergii</i>	western poison ivy
<b>Apaceae</b>	<b>Carrot family</b>
<i>Cymopterus acaulis</i>	plains spring parsley
<i>Heracleum sphondylium</i>	eltrot
<i>Lomatium foeniculaceum</i>	dessert biscuitroot
<i>Musineon divaricatum</i>	wild parsley
<i>Osmorhiza longistylis</i>	longstyle sweetroot
<i>Sium suave</i>	hemlock waterparsnip
<b>Apocynaceae</b>	<b>Dogbane family</b>
<i>Apocynum cannabinum</i>	Indianhemp
<b>Asclepiadaceae</b>	<b>Milkweed family</b>
<i>Asclepias speciosa</i>	showy milkweed
<i>A. verticillata</i>	whorled milkweed
<b>Asteraceae</b>	<b>Aster family</b>
<i>Achillea millefolium</i>	common yarrow
<i>Acroptilon repens</i>	hardheads
<i>Agoseris glauca</i>	pale agoseris
<i>Ambrosia artemisifolia</i>	annual ragweed
<i>Antennaria dimorpha</i>	low pussytoes
<i>A. microphylla</i>	littleleaf pussytoes
<i>A. neglecta</i>	field pussytoes
<i>A. parvifolia</i>	small-leaf pussytoes
<i>A. rosea</i>	rosy pussytoes
<i>Arctium lappa</i>	greater burdock
<i>Arnica sororia</i>	twin arnica
<i>Artemisia absinthium</i>	absinthium
<i>A. biennis</i>	biennial wormwood
<i>A. campestris</i>	field sagewort
<i>A. cana</i>	silver sagebrush
<i>A. dracunculus</i>	tarragon
<i>A. frigida</i>	prairie sagewort
<i>A. longifolia</i>	longleaf wormwood
<i>A. ludoviciana</i>	white sagebrush
<i>A. tridentate tridentata</i>	big sagebrush
<i>Aster brachyactis</i>	aster brachyactis
<i>A. falcatus</i>	white prairie aster

Scientific name	Common name
<i>Bidens cernua</i>	nodding beggartick
<i>B. frondosa</i>	devil's beggartick
<i>Brickellia eupatoroides</i>	false boneset
<i>Centaurea stoebe</i>	spotted knapweed
<i>Chaenactis douglasii</i>	Douglas' dustymaiden
<i>Chrysothamnus viscidiflorus</i>	yellow rabbitbrush
<i>Cirsium arvense</i>	Canadian thistle
<i>C. flodmanii</i>	Flodman's thistle
<i>C. undulatum</i>	wavyleaf thistle
<i>C. vulgare</i>	bull thistle
<i>Conzya canadensis</i>	Canadian horseweed
<i>Crepis atribarba</i>	largeflower hawksweed
<i>C. occidentalis</i>	largeflower hawksweed
<i>C. runcinata</i>	fiddleleaf hawksweed
<i>Cyclachaena xanthifolia</i>	giant sumpweed
<i>Dyssodia papposa</i>	field marigold
<i>Echinacea angustifolia</i>	blacksamson echinaceae
<i>Ericameria nauseosa</i> ssp. <i>nauseosa</i> var. <i>glabrata</i>	rubber rabbitbrush
<i>E. nauseosa</i> ssp. <i>nauseosa</i> var. <i>nauseosa</i>	rubber rabbitbrush
<i>Erigeron caespitosus</i>	tufted fleabane
<i>E. compositus</i>	cutleaf daisy
<i>E. corymbosus</i>	longleaf fleabane
<i>E. ochroleucus</i>	buff fleabane
<i>E. pumilus</i>	shaggy fleabane
<i>E. strigosus</i>	prairie fleabane
<i>Gallardia aristata</i>	common gallardia
<i>Gnaphalium palustre</i>	western marsh cudweed
<i>Grindelia squarrosa</i>	curlycup gumweed
<i>Gutierrezia sarothrae</i>	broom snakeweed
<i>Helenium autumnale</i>	common sneezeweed
<i>Helianthus annuus</i>	common sunflower
<i>H. maximiliani</i>	Maximilian sunflower
<i>H. pauciflorous</i>	stiff sunflower
<i>H. petiolaris</i>	prairie sunflower
<i>Heterotheca villosa</i>	hairy false golden aster
<i>Hieracium umbellatum</i>	narrowleaf hawkweed
<i>Hymenopappus polycephalus</i>	manyhead hymenopappus
<i>Hymenoxys richardsonii</i>	pingue rubberweed
<i>Iva axillaris</i>	poverty weed
<i>Lactuca tatarica</i>	blue lettuce
<i>Latuca punctata</i>	dotted blazing star
<i>Lygodesmia juncea</i>	rush skeletonplant
<i>Machaeranthera canescens</i>	hoary tansyaster
<i>M.grindeloides</i>	rayless tansyaster
<i>M. pinnatifida</i>	lacy tansyaster
<i>M. tanacetifolia</i>	tansyleaf tansyaster
<i>Microseris nutans</i>	nodding microceris
<i>Nothocalais cuspidata</i>	sharppoint prairie-dandelion
<i>Packera cana</i>	wolly groundsel
<i>Picradeniopsis oppositifolia</i>	opposite leaf bahia
<i>Ratibida columnifera</i>	upright prairie coneflower
<i>Senecio integerrimus</i>	lambstongue ragwort
<i>S. serra</i>	tall ragwort
<i>Solidago canadensis</i>	Canada goldenrod
<i>S. missouriensis</i>	Missouri goldenrod

<i>Scientific name</i>	<i>Common name</i>
<i>S. mollis</i>	velvety goldenrod
<i>S. rigida</i>	stiff goldenrod
<i>Sonchus arvensis</i> spp. <i>uliginosus</i>	moist sowthistle
<i>S. oleraceus</i>	common sawthistle
<i>Stenotus acaulis</i>	stemless mock goldenweed
<i>Stephanomeria runcinata</i>	desert wirelettuce
<i>Symphytotrichum ericoides</i> var. <i>pansum</i>	manyflowered aster
<i>S. laeve</i>	smooth blue aster
<i>Taraxacum laevigatum</i>	rock dandelion
<i>T. officinale</i>	common dandelion
<i>Townsendia exscupa</i>	stemless Townsend daisy
<i>Townsendia hookeri</i>	Hooker's Townsend daisy
<i>Tragopogon dubius</i>	yellow salsify
<i>Xanthium strumarium</i>	rough cocklebur
<b>Boraginaceae</b>	<b>Borage family</b>
<i>Cryptantha celosioides</i>	buttecandle
<i>Cryptantha spiculifera</i>	Snake River cryptantha
<i>Hackelia deflexa</i>	nodding stickseed
<i>Lappula redowskii</i>	flatspine stickseed
<i>L. squarrosa</i>	European stickseed
<i>Lithospermum incisum</i>	narrowleaf stoneseed
<i>Plagiobothrys leptocladus</i>	finebranched popcorn flower
<b>Brassicaceae</b>	<b>Mustard family</b>
<i>Alyssum desertorum</i>	desert madwort
<i>Arabis hirsuta</i>	hairy rockcress
<i>A. holboellii</i>	Holboell's rockcress
<i>Armoracia rusticans</i>	horseradish
<i>Camelina microcarpa</i>	littlepod false flax
<i>Cardaria draba</i>	whitetop
<i>Chorispora tenella</i>	crossflower
<i>Conringia orientalis</i>	hare's ear mustard
<i>Descurainia richardsonii</i>	mountain tansy mustard
<i>Draba albertina</i>	slender draba
<i>D. nemorosa</i>	woodland draba
<i>D. reptans</i>	Carolina draba
<i>Erysimum asperum</i>	western wallflower
<i>E. inconspicuum</i>	shy wallflower
<i>E. cheiranthoides</i> L.	wormseed wallflower
<i>Hesperis matronalis</i>	dames rocket
<i>Lepidium densiflorum</i>	common pepperweed
<i>L. perfoliatum</i>	clasping pepperweed
<i>Lesquerella alpina</i>	alpine bladderpod
<i>L. ludoviciana</i>	foothill bladderpod
<i>Physaria didymocarpa</i>	common twinpod
<i>Rorippa sinuata</i>	spreading yellowcress
<i>Sisymbrium altissimum</i>	tall tumbleweed mustard
<i>Thelypodium paniculatum</i>	northwestern thelypody
<i>Thlaspi arvense</i>	field pennycress
<b>Callitricheae</b>	<b>Water-starwort family</b>
<i>Callitriche hermaphroditica</i>	northern water-starwort
<b>Campanulaceae</b>	<b>Bellflower family</b>
<i>Campanula rotundifolia</i>	bluebell bellflower
<i>Triodanis leptocarpa</i>	slimpod Venus looking glass
<b>Capparidaceae</b>	<b>Caper family</b>
<i>Cleome serrulata</i>	Rocky Mountain beeplant

Scientific name	Common name
<i>Polanisia dodocandra</i> spp. <i>trachysperma</i>	sandyseed clammyweed
<b>Caprifoliaceae</b>	<b>Honeysuckle family</b>
<i>Symphoricarpos albus</i>	common snowberry
<i>S. occidentalis</i>	western snowberry
<b>Caryophyllaceae</b>	<b>Pink family</b>
<i>Arenaria lateriflora</i>	bluntleaf sandwort
<i>Cerastium arvense</i>	field chickweed
<i>C. nutans</i>	nodding chickweed
<i>Paronychia sessiliflora</i>	creeping nailwort
<i>Silene latifolia</i>	bladder campion
<i>S. menziesii</i>	Menzies' campion
<i>S. oregana</i>	Oregon silene
<b>Cactaceae</b>	<b>Cactus family</b>
<i>Coryphantha missouriensis</i>	Missouri pincushion
<i>C. vivipara</i>	purple pincushion
<i>Opuntia fragilis</i>	brittle prickly pear
<i>O. poluacantha</i>	plains prickly pear
<b>Chenopodiaceae</b>	<b>Goosefoot family</b>
<i>Atriplex argentea</i>	silverscale saltbush
<i>A. canescens</i>	fourwing saltbush
<i>A. confertifolia</i>	shadescale saltbush
<i>A. gardneri</i>	Gardner's saltbush
<i>A. patula</i>	spear saltbush
<i>A. powellii</i>	Powell's saltbush
<i>A. rosea</i>	tumbling saltbush
<i>Bassia scoparia</i>	burning bush
<i>Chenopodium album</i>	lambsquarter
<i>C. atrovirens</i>	pinyon goosefoot
<i>C. desiccatum</i>	aridland goosefoot
<i>C. fremontii</i>	Fremont's goosefoot
<i>C. glaucum</i>	oakleaf goosefoot
<i>C. leptophyllum</i>	narrowleaf goosefoot
<i>C. pratericola</i>	desert goosefoot
<i>C. rubrum</i>	red goosefoot
<i>C. subglabrum</i>	smooth goosefoot
<i>Endolepis diocicia</i>	Suckley's endolepis
<i>Krascheninnikovia lanata</i>	winterfat
<i>Monolepis nuttalliana</i>	Nuttall's povertyweed
<i>Salicornia rubra</i>	red swapfire
<i>Salsola tragus</i>	prickly Russian thistle
<i>Sarcobatus vermiculatus</i>	greasewood
<i>Suaeda calceoliformis</i>	Pursh seepweed
<i>Suaeda moquinii</i>	Mojave seablite
<b>Commelinaceae</b>	<b>Spiderwort family</b>
<i>Tradescantia occidentalis</i>	prairie spiderwort
<b>Convolvulaceae</b>	<b>Morning glory family</b>
<i>Calystegia sepium</i>	hedge false bindweed
<i>Convolvulus arvensis</i>	field bindweed
<i>Cornaceae</i>	dogwood
<i>Cornus siricea</i> spp. <i>siricea</i>	redosier dogwood
<b>Cupressaceae</b>	<b>Cypress family</b>
<i>Juniperus communis</i>	common juniper
<i>J. horizontalis</i>	creeping juniper
<i>J. scopulorum</i>	Rocky Mountain juniper
<i>J. scopulorum</i> × <i>horizontalis</i>	hybrid of creeping and Rocky Mountain junipers

Scientific name	Common name
<b>Cyperaceae</b>	<b>Sedge family</b>
<i>Carex brevior</i>	shortbreak sedge
<i>C. douglasii</i>	Douglas sedge
<i>C. duriusula</i>	needleleaf
<i>C. filifolia</i>	threadleaf sedge
<i>C. hoodii</i>	Hood's sedge
<i>C. lanuginosa</i>	American willyfruit sedge
<i>C. pennsylvanica</i>	Pennsylvania sedge
<i>C. rossii</i> Boott.	Ross' sedge
<i>C. sprengelii</i>	Sprengel's sedge
<i>C. vulpinoidea</i>	fox sedge
<i>C. xerantica</i>	whitescale sedge
<i>Eleocharis acicularis</i>	needle spikerush
<i>E. palustris</i>	common spikerush
<i>Schoenoplectus acutus</i>	hardstem bulrush
<i>S. americanus</i>	chairmaker's bulrush
<i>S. maritimus</i>	cosmopolitan bulrush
<i>S. tabernaemontani</i>	softstem bulrush
<b>Dryopteridaceae</b>	<b>Wood fern family</b>
<i>Cystopteris fragilis</i>	brittle bladder fern
<i>Woodsia oregana</i>	Oregon cliff fern
<b>Elaeagnaceae</b>	<b>Oleaster family</b>
<i>Elaeagnus angustifolia</i>	Russian olive
<i>E. communtata</i>	silverberry
<i>Shepherdia argentea</i>	silver buffaloberry
<b>Elatinaceae</b>	<b>Waterwort family</b>
<i>Elatine triandra</i>	threestamen waterwort
<b>Equisetaceae</b>	<b>Horsetail family</b>
<i>Equisetum arvense</i>	field horsetails
<i>E. hyemale</i>	scouringrush horsetails
<i>E. laevigatum</i>	smooth horsetail
<i>E. variegatum</i>	variegated scouringrush
<b>Euphorbiaceae</b>	<b>Spurge family</b>
<i>Euphorbia brachycera</i>	horned spurge
<i>Euphorbia esula</i>	leafy spurge
<i>Euphorbia glyptosperma</i>	ribseed sandmat
<i>Euphorbia serpyllifolia</i>	thymeleaf sandmat
<i>Euphorbia spathulata</i>	water spurge
<b>Fabaceae</b>	<b>Legume family</b>
<i>Astragalus agrestis</i>	purple vetch
<i>A. bisulcatus</i>	two grooved milkvetch
<i>A. canadensis</i>	Candian milkvetch
<i>A. crassicaarpus</i>	groundplum milkvetch
<i>A. flexuosus</i>	flexile milkvetch
<i>A. geyeri</i>	Geyer's milkvetch
<i>A. gilviflorus</i>	plains milkvetch
<i>A. gracilis</i>	slender milkvetch
<i>A. grummondii</i>	Drummonds milkvetch
<i>A. kentrophyta</i>	spiny milkvetch
<i>A. laxmanni</i> var. <i>robustior</i>	prairie milkvetch
<i>A. lentiginosus</i>	freckled milkvetch
<i>A. lotiflorus</i>	lotus milkvetch
<i>A. purshii</i>	woolypod milkvetch
<i>A. spatulatus</i>	tufted milkvetch
<i>Caragana arborescens</i>	Siberian peashrub

Scientific name	Common name
<i>Dalea candida</i>	white prairie clover
<i>D. purpurea</i>	purple prairie clover
<i>Glycyrrhiza lepidota</i>	American licorice
<i>Lupinus argenteus</i>	silvery lupine
<i>L. pusillus</i>	rusty lupine
<i>Medicago lupulina</i>	black medrich
<i>M. sativa</i>	alfalfa
<i>Melilotus officinalis</i>	yellow sweetclover
<i>Oxytropis besseyi</i>	Bessey's locoweed
<i>O. lambertii</i>	purple locoweed
<i>O. monticola</i>	yellow flower locoweed
<i>O. sericea</i>	white locoweed
<i>Pedimelum argophyllum</i>	silverleaf breadroot
<i>P. esculentum</i>	large indian breadroot
<i>P. lanceolatum</i>	lemon scurfpea
<i>P. tenuiflorum</i>	slimflower scurfpea
<i>Thermopsis rhombifolia</i>	prairie thermopsis
<i>Trifolium hybridum</i>	alsike hybridum
<i>Trifolium repens</i>	white clover
<i>Vicia americana</i>	American vetch
<b>Geraniaceae</b>	<b>Geranium family</b>
<i>Geranium carolinianum</i>	Carolina geranium
<b>Grossulariaceae</b>	<b>Currant family</b>
<i>Ribes americanum</i>	American black currant
<i>R. aureum</i>	golden currant
<i>R. cereum</i>	wax currant
<i>R. setosum</i>	inland gooseberry
<i>R. viscosissimum</i>	sticky currant
<b>Haloragidaceae</b>	<b>Water milfoil family</b>
<i>Myriophyllum spicatum</i>	Eurasian water milfoil
<i>Hydrophyllaceae</i>	waterleaf
<i>Ellisia nyctelea</i>	Aunt Lucy
<i>Nemophila breviflora</i>	basin nemophila
<i>Phacelia linearis</i>	threadleaf phacelia
<i>P. thermalis</i>	heated phacelic
<b>Iridaceae</b>	<b>Iris family</b>
<i>Sisyrinchium montanum</i>	strict blue-eyed grass
<b>Juncaceae</b>	<b>Rush family</b>
<i>Juncus balticus</i>	Baltic rush
<i>J. bufonius</i>	toad rush
<i>J. interior</i>	inland rush
<i>J. tenuis</i>	Poverty rush
<i>J. torreyi</i>	Torrey's rush
<b>Juncaginaceae</b>	<b>Arrowgrass family</b>
<i>Triglochin concinnum</i>	slender arrowgrass
<b>Lamiaceae</b>	<b>Mint family</b>
<i>Dracocephalum parviflorum</i>	American dragonhead
<i>Hedeona drummondii</i>	Drummond's false pennyroyal
<i>Hedeona hispida</i>	false penny royal
<i>Lycopus asper</i>	rough bungleweed
<i>Mentha arvensis</i>	wild mint
<i>Monarda fistulosa</i>	wild bermont (beebulm)
<i>Nepeta cataria</i>	catnip
<b>Lemnaceae</b>	<b>Duckweed family</b>
<i>Lemna minor</i>	common duckweed

Scientific name	Common name
<b>Liliaceae</b>	<b>Lily family</b>
<i>Allium textile</i>	textile onion
<i>Asparagus officinalis</i>	garden asparagus
<i>Calochortus nuttallii</i>	sego lily
<i>Fritillaria pudica</i>	yellow fritillary
<i>Maianthemum stellatum</i>	starry false lily of the valley
<i>Prosartes trachycarpa</i>	rough fruit fairybells
<i>Smilax herbacea</i>	smooth carrionflower
<i>Zigadenus venenosus</i>	meadow deathcamas
<b>Linaceae</b>	<b>Flax family</b>
<i>Linum lewisii</i>	Lewis flax
<i>L. rigidum</i>	stiffstem flax
<b>Loasaceae</b>	<b>Loasa family</b>
<i>Mentzelia albicaulis</i>	whitestem blazingstar
<i>M. decapetala</i>	ten petal blazingstar
<i>M. laevicaulis</i>	smooth stemmed blazingstar
<b>Malvaceae</b>	<b>Mallow family</b>
<i>Malva parviflora</i>	cheeseweed mallow
<i>Sphaeralcea coccinea</i>	scarlet gold mallow
<b>Najadaceae</b>	<b>Waternymph family</b>
<i>Najas guadalupensis</i>	southern waternymph
<b>Nyctaginaceae</b>	<b>Four o'clock family</b>
<i>Mirabilis linearis</i>	narrowleaf four o'clock
<b>Oleaceae</b>	<b>Olive family</b>
<i>Fraxinus pennsylvanica</i>	green ash
<b>Onagraceae</b>	<b>Evening primrose family</b>
<i>Calylophus serrulatus</i>	yellow sundrops
<i>Epilobium angustifolium</i>	fireweed
<i>E. ciliatum</i>	fringed willow herb
<i>E. pbrachycarpum</i>	tall annual willowherb
<i>E. pygmaeum</i>	smooth spike primrose
<i>Gaura coccinea</i>	scarlet beeblossom
<i>Oenothera albicaulis</i>	whitest evening primrose
<i>O. biennis</i>	common evening primrose
<i>O. cespitosa</i>	gumbo evening primrose
<i>O. flava</i>	yellow evening primrose
<i>O. nuttallii</i>	Nuttall's evening primrose
<i>O. villosa</i>	hairy evening primrose
<b>Orbanchaceae</b>	<b>Broomrape family</b>
<i>Orobanche fasciculata</i>	clustered broomrape
<i>O. ludoviciana</i>	Louisiana broomrape
<b>Pinaceae</b>	<b>Pine family</b>
<i>Pinus flexis</i>	limber pine
<i>Pinus ponderosa</i>	ponderosa pine
<i>Pseudotsuga menziesii</i>	Douglas-fir
<b>Plantaginaceae</b>	<b>Plantain family</b>
<i>Plantago aristata</i>	largebracted plantain
<i>P. elongata</i>	prairie plantain
<i>P. lanceolata</i>	narrow leaf plantain
<i>P. major</i>	common plantain
<i>P. patagonica</i>	hairy plantain (Indian wheat)
<b>Poaceae</b>	<b>Grass family</b>
<i>Achnatherum hymenoides</i>	indian ricegrass
<i>Agropyron cristatum</i>	crested wheatgrass
<i>Agrostis sabra</i>	rough bentgrass

<i>Scientific name</i>	<i>Common name</i>
<i>Agrostis stolonifera</i>	creeping bentgrass
<i>Andropogon hallii</i>	sand bluestem
<i>Avena sativa</i>	common oat
<i>Beckmannia syzigachne</i>	American sloughgrass
<i>Bouteloua dactyloides</i>	buffalo grass
<i>B. gracilis</i>	blue grama
<i>Bromus arvensis</i>	field brome (Japanese brome)
<i>B. carinatus</i>	California brome
<i>B. ciliatus</i>	fringed brome
<i>B. commutatus</i>	bald brome
<i>B. inermis</i>	smooth brome
<i>B. inermis</i> spp. <i>pumpellianus</i>	Pumpelly's brome
<i>B. tectorum</i>	cheatgrass
<i>Calamagrostis canadensis</i>	bluejoint
<i>C. montanensis</i>	plains reedgrass
<i>Calamovilfa longifolia</i>	prairie sandreed
<i>Dactylis glomerata</i>	orchardgrass
<i>Danthonia unispicata</i>	onespike danthonia
<i>Distichlis stricta</i>	saltgrass
<i>Echinochloa crus-galli</i>	barnyard grass
<i>Elymus canadensis</i>	Canada wildrye
<i>E. elymoides</i>	squirreltail
<i>E. lanceolatus</i>	thickspike wheatgrass
<i>E. repens</i>	quackgrass
<i>E. trachycaulum</i>	slender wheatgrass
<i>Eragrostis cilianensis</i>	stinkgrass
<i>E. pectinacea</i>	tufted lovegrass
<i>Festuca rubra</i>	red fescue
<i>Glyceria striata</i>	fowl mannagrass
<i>Hesperostipa comatga</i>	needle and thread
<i>Hordeum jubatum</i>	foxtail barley
<i>H. pusillum</i>	little barley
<i>Koeleria macrantha</i>	prairie Junegrass
<i>Leymus triticoides</i>	heartless wildrye
<i>Muhlenbergia asperifolia</i>	scratchgrass
<i>M. cuspidata</i>	plains muhly
<i>Munroa squarrosa</i>	false buffalo grass
<i>Nassella viridula</i>	green needlegrass
<i>Panicum cappillare</i>	witchgrass
<i>Pascopyrum smithii</i>	western wheatgrass
<i>Phalaris arundinaceae</i>	reed canarygrass
<i>Phleum pratense</i>	timothy
<i>Piptatherum micrantha</i>	littleseed ricegrass
<i>Poa annua</i>	annual bluegrass
<i>P. arida</i>	plains bluegrass
<i>P. bulbosa</i>	bulbous bluegrass
<i>P. compressa</i>	Canada bluegrass
<i>P. cusickii</i>	Cusick's bluegrass
<i>P. palustris</i>	fowl bluegrass
<i>P. pratensis</i>	Kentucky bluegrass
<i>P. secunda</i>	Sandberg bluegrass
<i>Polypogon monspeliensis</i>	annual rabbit's foot grass
<i>Pseudoroegneria spicata</i>	bluebunch wheatgrass
<i>Puccinellia nuttalliana</i>	Nuttall's alkali grass
<i>Schedonnardus paniculatus</i>	tumble grass

<i>Scientific name</i>	<i>Common name</i>
<i>Schizachyrium scoparium</i>	little bluestem
<i>Setaria viridis</i>	green bristlegrass
<i>Spartina gracilis</i>	alkali cordgrass
<i>Sporobolus airoides</i>	alkali sacaton
<i>S. cryptandrus</i>	sand dropseed
<i>Thinopyrum intermedium</i>	intermediate wheatgrass
<i>Torreyochloa pallida</i>	pale false mannagrass
<i>Triticum aestivum</i>	common wheat
<i>Vulpia octoflora</i>	sixweeks fescue
<b>Polemoniaceae</b>	<b>Phlox family</b>
<i>Collomia linearis</i>	tiny trumpet
<i>Microsteris gracilis</i>	slender phlox
<i>Phlox alyssifolia</i>	alyssumleaf phlox
<i>P. hoodii</i>	spiny phlox
<b>Polygalaceae</b>	<b>Milkwort family</b>
<i>Polygala alba</i>	white milkwort
<i>P. verticillata</i>	whorled milkwort
<i>Polygonaceae</i>	buckwheat
<i>Eriogonum annuum</i>	annual buckwheat
<i>E. cernuum</i>	nodding buckwheat
<i>E. flavum</i>	alpine golden buckwheat
<i>E. ovalifolium</i>	cusion buckwheat
<i>E. pauciflorum</i>	few flower buckwheat
<i>Polygonum aviculare</i>	prostate knotweed
<i>P. convolvulus</i>	black bindweed
<i>P. erectum</i>	erect knotweed
<i>P. lapathifolium</i>	curlytop knotweed
<i>P. punctatum</i>	dotted smartweed
<i>P. ramosissimum</i>	bushy knotweed
<i>Rumex acetosella</i>	common sheep sorrel
<i>R. aquaticus</i>	western dock
<i>R. crispus</i>	curly dock
<i>R. maritimus</i>	golden dock
<i>R. salicifolius</i>	willow dock
<i>R. venosus</i>	veiny dock
<b>Portulacaceae</b>	<b>Purslane family</b>
<i>Claytonia perfoliata</i>	miner's lettuce
<i>Portulaca oleracea</i>	little hogweed
<b>Potamogetonaceae</b>	<b>Pondweed family</b>
<i>Potamogeton diversifolius</i>	waterthread pondweed
<i>P. foliosus</i>	leafy pondweed
<i>P. praelongus</i>	whitesteam pondweed
<i>P. pusillus</i>	small pondweed
<i>Stuckenia pectinat</i>	sago pondweed
<b>Primulaceae</b>	<b>Primrose family</b>
<i>Androsace filiformis</i>	filiformis rockjasmine
<i>A. occidentalis</i>	western rockjasmine
<b>Ranunculaceae</b>	<b>Buttercup family</b>
<i>Anemone cylindrica</i>	candle anemone
<i>A. multifida</i>	Pacific anemone
<i>Clematis ligusticifolia</i>	western white clematis
<i>Delphinium bicolor</i>	little larkspur
<i>Pulsatilla patenes</i>	cutleaf anemone
<i>Ranunculus aquatilis</i>	white water crowfoot
<i>R. cymbalaria</i>	alkali buttercup

Scientific name	Common name
<i>R. glaberrimus</i>	sagebrush buttercup
<i>R. macounii</i>	Macoun's buttercup
<i>R. sceleratus</i>	cursed buttercup
<i>Thalictrum venulosum</i>	veiny meadow-rue
<b>Rosaceae</b>	<b>Rose family</b>
<i>Amelanchier alnifolia</i>	Saskatoon serviceberry
<i>Crataegus chrysocarpa</i>	fineberry hawthorn
<i>Fragaria virginiana</i>	Virginia strawberry
<i>Geum aleppicum</i>	yellow avens
<i>G. triflorum</i>	prairie smoke
<i>Potentilla anserina</i>	silverweed cinquefoil
<i>P. arguta</i>	tall cinquefoil
<i>P. biennis</i>	biennial cinquefoil
<i>P. gracilis</i>	slender cinquefoil
<i>P. paradoxa</i>	paradox cinquefoil
<i>P. pensylvanica</i>	Pennsylvania cinquefoil
<i>Prunus virginiana</i>	chokecherry
<i>Rosa acicularis</i> spp. <i>sayi</i>	prickly rose
<i>R. arkansana</i>	prairie rose
<i>R. woodsii</i>	Woods' rose
<b>Rubiaceae</b>	<b>Bedstraw family</b>
<i>Galium aparine</i>	stickywilly (catchweed bedstraw)
<i>G. boreale</i>	northern bedstraw
<i>G. trifidum</i>	threepetal bedstraw
<b>Salicaceae</b>	<b>Willow family</b>
<i>Populus deltoides</i>	eastern cottonwood
<i>P. tremuloides</i>	quaking aspen
<i>P. balsamifera</i>	balsam poplar
<i>Salix amygdaloides</i>	peachleaf willow
<i>S. bebbiana</i>	Bebb willow
<i>S. exigua</i>	narrowleaf willow
<i>S. fragilis</i>	crack willow
<i>S. lasiandra</i>	Pacific willow
<i>S. lutea</i>	yellow willow
<b>Santalaceae</b>	<b>Sandalwood family</b>
<i>Comandra umbellata</i>	bastard toadflax
<b>Saxifragaceae</b>	<b>Saxifrag family</b>
<i>Heuchera parvifolia</i>	littleleaf alumroot
<b>Scrophulariaceae</b>	<b>Figwort family</b>
<i>Bacopa rotundifolia</i>	disk waterhyssop
<i>Besseyia wyomingensis</i>	Wyoming besseyia
<i>Castilleja sessiliflora</i>	downy paintedcup
<i>Collinsia parviflora</i>	maiden blue eyed Mary
<i>Limosella aquatica</i>	water mudwort
<i>Orthocarpus leteus</i>	yellow owl's clover
<i>Penstemon albidus</i>	white penstemon
<i>P. nitidus</i>	waxleaf penstemon
<i>Veronica anagallis-aquatica</i>	water speedwell
<i>V. pergrina</i>	neckweed
<b>Selaginellaceae</b>	<b>Spikemoss family</b>
<i>Selaginella densa</i>	lesser spikemoss
<b>Solanaceae</b>	<b>Potato family</b>
<i>Solanum rostratum</i>	buffalo nightshade
<i>S. triflorum</i>	cutleaf nightshade

<i>Scientific name</i>	<i>Common name</i>
<b>Tamaricaceae</b> <i>Tamarix chinensis</i>	<b>Tamarisk family</b> five stamen tamarisk (saltcedar)
<b>Typhaceae</b> <i>Typha latifolia</i>	<b>Cattail family</b> broadleaf cattail
<b>Urticeae</b> <i>Parietaria pensylvanica</i> <i>Urtica dioica</i>	<b>Nettle family</b> Pennsylvania stinging nettle
<b>Verbenaceae</b> <i>Verbena bracteata</i>	<b>Verbena family</b> bigbract verbena
<b>Violaceae</b> <i>Viola adunca</i> <i>V. canadensis</i> <i>V. nephrophylla</i> <i>V. nuttallii</i>	<b>Violet family</b> hooked-sur violet Canadian white violet northern bog violet smooth stemmed blazing star
<b>Vitaceae</b> <i>Parthenocissus inserta</i> <i>Zannichelliaceae</i> <i>Zigadenus venenosus</i>	<b>Grape family</b> Virginia creeper horned pondweed family meadow deathcamas

## ANIMAL LIST

### BUTTERFLIES

Source: *Butterflies and Moths of North America (2011)*.

<i>Scientific name</i>	<i>Common name</i>
<b>Nymphalidae</b>	<b>Brush-footed butterflies</b>
<b>Limnitiinae</b>	<b>Admirals and relatives</b>
<i>Limnitis arthemis</i>	red-spotted purple
<i>L. archippus</i>	viceroy
<i>L. weidemeyerii</i>	Weidemeyer's admiral
<i>L. arthemis arthemis</i>	white admiral
<b>Heliconiinae</b>	<b>Longwings</b>
<i>Speyeria aphrodite</i>	Aphrodite fritillary
<i>S. callippe</i>	callippe fritillary
<i>S. coronis</i>	coronis fritillary
<i>S. edwardsii</i>	Edwards' fritillary
<i>S. egleis</i>	great basin fritillary
<i>S. cybele</i>	great spangled fritillary
<i>S. hydasphe</i>	hydasphe fritillary
<i>S. mormonia</i>	Mormon fritillary
<i>S. hesperis</i>	northwestern fritillary
<i>S. zerene</i>	Zerene fritillary
<i>Boloria bellona</i>	meadow fritillary
<i>B. selene</i>	silver-bordered fritillary
<i>Euptoieta claudia</i>	variegated fritillary
<b>Nymphalinae</b>	<b>True brush-foots</b>
<i>Nymphalis vaualbum</i>	Compton tortoiseshell
<i>N. antiopa</i>	mourning cloak
<i>Euphydryas editha</i>	Edith's checkerspot
<i>E. gillettii</i>	Gillette's checkerspot
<i>E. chalcedona</i>	variable checkerspot
<i>Phycoides pulchellus</i>	field crescent
<i>P. cocyta</i>	northern crescent

Scientific name	Common name
<i>P. pallid</i>	pale crescent
<i>P. tharos</i>	pearl crescent
<i>P. batesii</i>	tawny crescent
<i>Chlosyne gorgone</i>	Gorgone checkerspot
<i>C. palla</i>	northern checkerspot
<i>C. acastus</i>	sagebrush checkerspot
<i>Polygonia progne</i>	gray comma
<i>P. faunus</i>	green comma
<i>P. gracilis</i>	hoary comma
<i>P. satyrus</i>	satyr comma
<i>Aglais milberti</i>	Milbert's tortoiseshell
<i>Vanessa cardui</i>	painted lady
<i>V. atalanta</i>	red admiral
<i>V. annabella</i>	west coast lady
<b>Riodinidae</b>	<b>Metalmarks</b>
<i>Apodemia mormo</i>	Mormon metalmark
<b>Parnassiinae</b>	<b>Parnassians</b>
<i>Parnassian smintheus</i>	Rocky Mountain parnassian
<b>Papilioninae</b>	<b>Swallowtails</b>
<i>Papilio zelicaon</i>	anise swallowtail
<i>P. canadensis</i>	Canadian tiger swallowtail
<i>P. machaon</i>	Old World swallowtail
<i>P. eurymedon</i>	pale swallowtail
<i>P. multicaudata</i>	two-tailed swallowtail
<i>P. rutulus</i>	western tiger swallowtail
<b>AMPHIBIANS and REPTILES</b>	
<b>Ambystomatidae</b>	<b>Mole salamanders</b>
<i>Ambystoma tigrinum</i>	tiger salamander
<b>Hylidae</b>	<b>Chorus frogs</b>
<i>Pseudacris triseriata</i>	western chorus frog
<b>Ranidae</b>	<b>True frogs</b>
<i>Rana pipiens</i>	northern leopard frog
<b>Bufo</b>	<b>True toads</b>
<i>Bufo woodhousei</i>	Woodhouse's toad
<i>B. cognatus</i>	Great Plains toad
<b>Scaphiopodidae</b>	<b>Spadefoots</b>
<i>Scaphiopus bombifrons</i>	plains spadefoot
<b>Chelydridae</b>	<b>Snapping turtles</b>
<i>Chelydra serpentina</i>	snapping turtle
<b>Emydidae</b>	<b>Pond turtles</b>
<i>Chrysemys picta</i>	painted turtle
<b>Trionychidae</b>	<b>Softshell turtles</b>
<i>Trionyx spiniferus</i>	spiny softshell
<b>Colubridae</b>	<b>Colubrid snakes</b>
<i>Coluber constrictor</i>	racer
<i>Thamnophis elegans</i>	terrestrial garter snake
<i>T. radix</i>	plains garter snake
<i>T. sirtalis</i>	common garter snake
<i>Lampropeltis triangulum</i>	milk snake
<i>Pituophis catenifer</i>	gopher snake or bullsnake
<i>Heterodon nasicus</i>	western hog-nosed snake
<b>Viperidae</b>	<b>Vipers</b>
<i>Crotalus viridis</i>	prairie rattlesnake

Scientific name	Common name
<b>FISHES</b>	
<i>Sources: Bramblett and Zale (1999).</i>	
<b>Acipenseridae</b>	<b>Sturgeons</b>
<i>Scaphirhynchus albus</i> (N)	pallid sturgeon
<i>S. platyrhynchus</i> (N)	shovelnose sturgeon
<b>Polyodontidae</b>	<b>Paddlefishes</b>
<i>Polyodon spathula</i>	paddlefish
<b>Lepisosteidae</b>	<b>Gars</b>
<i>Lepisosteus platostomus</i>	shortnose gar
<b>Hiodontidae</b>	<b>Mooneyes</b>
<i>Hiodon alosoides</i>	goldeneye
<b>Salmonidae</b>	<b>Trout</b>
<i>Oncorhynchus mykiss</i>	rainbow trout
<i>Salmo trutta</i>	brown trout
<i>Salvelinus namaycush</i>	lake trout
<i>Coregonus artedii</i>	cisco
<b>Cyprinidae</b>	<b>Minnows</b>
<i>Hybognathus hankinsoni</i>	brassy minnow
<i>H. placitus</i>	plains minnow
<i>H. argyritis</i>	western silvery minnow
<i>Cyprinus carpio</i>	common carp
<i>Notropis atherinoides</i>	emerald shiner
<i>Pimephales promelas</i>	fathead minnow
<i>Hybopsis gracilis</i>	flathead chub
<i>Couesius plumbeus</i>	lake chub
<i>Rhynchichthys cataractae</i>	longnose dace
<i>Phoxinus eos</i>	northern redbelly dace
<i>P. eos</i> × <i>P. neogaeus</i>	northern redbelly dace × finescale dace
<i>Notropis hudsonius</i>	spottail shiner
<i>N. ludibundus</i>	sand shiner
<i>Semotilus atromaculatus</i>	creek chub
<i>Macrhybopsis gelida</i>	sturgeon chub
<i>M. meeki</i>	sicklefin chub
<b>Castostomidae</b>	<b>Suckers</b>
<i>Catostomus catostomus</i>	longnose sucker
<i>C. commersoni</i>	white sucker
<i>Carpoides carpio</i>	river carpsucker
<i>Cycleptus elongate</i>	blue sucker
<i>Ictiobus bubalus</i>	smallmouth buffalo
<i>I. cyprinellus</i>	bigmouth buffalo
<i>Moxostoma macrolepidotum</i>	shorthead redhorse
<b>Ictaluridae</b>	<b>Bullheads and catfishes</b>
<i>Ictalurus melas</i>	black bullhead
<i>I. punctatus</i>	channel catfish
<i>Noturus flavus</i>	stonecat
<b>Esocidae</b>	<b>Pikes and pickerels</b>
<i>Esox lucius</i>	northern pike
<b>Gadidae</b>	<b>Burbot</b>
<i>Lota lota</i>	burbot
<b>Gasterosteidae</b>	<b>Sticklebacks</b>
<i>Culaea inconstans</i>	brook stickleback
<b>Centrarchidae</b>	<b>Sunfishes</b>
<i>Pomoxis nigromaculatus</i>	black crappie
<i>P. annularis</i>	white crappie

Scientific name	Common name
<i>Lepomis cyanellus</i>	green sunfish
<i>L. macrochirus</i>	bluegill
<i>Micropterus salmoides</i>	largemouth bass
<b>Percidae</b>	<b>Perches</b>
<i>Etheostoma exile</i>	Iowa darter
<i>Stizostedion canadense</i>	sauger
<i>S. vitreum</i>	walleye
<i>Perca flavescens</i>	yellow perch
<b>Sciaenidae</b>	<b>Drums</b>
<i>Aplodinotus grunniens</i>	freshwater drum
<b>Fundulidae</b>	<b>Killfishes</b>
<i>Fundulus zebrinus</i>	plains killfish

## BIRDS

Of the bird species recorded, there are the following:

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

The order of birds below follows the American Ornithologists' Union checklist of Northern American birds (2000).

\* indicates a documented breeding record

# indicates a migratory nongamebird species of management concern in the United States (FWS 1995)

<b>Gaviidae</b>	<b>Loons</b>
<i>Gavia immer</i>	common loon#
<i>G. stellata</i>	red-throated loon
<i>G. pacifica</i>	Pacific loon
<i>G. adamsii</i>	yellow-billed loon
<b>Podicipedidae</b>	<b>Grebes</b>
<i>Podilymbus podiceps</i>	pied-billed grebe*
<i>Podiceps auritus</i>	horned grebe*
<i>P. grisegena</i>	red-necked grebe
<i>P. nigricollis</i>	eared grebe*
<i>Aechmophorus occidentalis</i>	western grebe*
<i>A. clarkia</i>	Clark's grebe*
<b>Pelicanidae</b>	<b>Pelicans</b>
<i>Pelecanus erythrorhynchos</i>	American white pelican*
<b>Phalacrocoracidae</b>	<b>Cormorants</b>
<i>Phalacrocorax auritus</i>	double-crested cormorant*
<b>Ardeidae</b>	<b>Bitterns, herons, and egrets</b>
<i>Botaurus lentiginosus</i>	American bittern*#
<i>Ardea herodias</i>	great blue heron*
<i>A. alba</i>	great egret
<i>Egretta thula</i>	snowy egret
<i>Nycticorax nycticorax</i>	black-crowned night-heron
<b>Threskiornithidae</b>	<b>Ibises and spoonbills</b>
<i>Plegadis chihi</i>	white-faced ibis
<b>Cathartidae</b>	<b>New World vultures</b>
<i>Cathartes aura</i>	turkey vulture
<b>Anatidae</b>	<b>Swans, geese, and ducks</b>
<i>Anser albifrons</i>	greater white-fronted goose
<i>Chen caerulescens</i>	snow goose
<i>C. rossii</i>	Ross' goose

<i>Scientific name</i>	<i>Common name</i>
<i>Branta canadensis</i>	Canada goose*
<i>Cygnus columbianus</i>	tundra swan
<i>Aix sponsa</i>	wood duck
<i>Anas strepera</i>	gadwall*
<i>A. americana</i>	American wigeon*
<i>A. rubripes</i>	American black duck
<i>A. platyrhynchos</i>	mallard*
<i>A. discors</i>	blue-winged teal*
<i>A. cyanoptera</i>	cinnamon teal*
<i>A. clypeata</i>	northern shoveler*
<i>A. acuta</i>	northern pintail*
<i>A. crecca</i>	green-winged teal*
<i>Aythya valisineria</i>	canvasback*
<i>A. americana</i>	redhead*
<i>A. collaris</i>	ring-necked duck*
<i>A. affinis</i>	lesser scaup*
<i>Melanitta fusca</i>	white-winged scoter
<i>Clangula hyemalis</i>	long-tailed duck
<i>Bucephala albeola</i>	bufflehead*
<i>B. clangula</i>	common goldeneye
<i>B. islandica</i>	Barrow's goldeneye
<i>Lophodytes cucullatus</i>	hooded merganser
<i>Mergus merganser</i>	common merganser
<i>M. serrator</i>	red-breasted merganser
<i>Oxyura jamaicensis</i>	ruddy duck*
<b>Accipitridae</b>	<b>Osprey, kites, hawks, and eagles</b>
<i>Pandion halliaetus</i>	osprey
<i>Haliaeetus leucocephalus</i>	bald eagle (threatened)
<i>Circus cyaneus</i>	northern harrier
<i>Accipiter striatus</i>	sharp-shinned hawk
<i>A. cooperii</i>	Cooper's hawk
<i>A. gentilis</i>	northern goshawk
<i>Buteo platypterus</i>	broad-winged hawk
<i>B. swainsoni</i>	Swainson's hawk
<i>B. jamaicensis</i>	red-tailed hawk*
<i>B. regalis</i>	ferruginous hawk
<i>B. lagopus</i>	rough-legged hawk
<i>Aquila chrysaetos</i>	golden eagle*
<b>Falconidae</b>	<b>Falcons and caracaras</b>
<i>Falco sparverius</i>	American kestrel
<i>F. columbarius</i>	merlin
<i>F. rusticolus</i>	gyrfalcon
<i>F. peregrinus</i>	peregrine falcon
<i>F. mexicanus</i>	prairie falcon
<b>Phasianidae</b>	<b>Gallinaceous birds</b>
<i>Perdix perdix</i>	gray partridge (introduced)
<i>Phasianus colchicus</i>	ring-necked pheasant (introduced)
<i>Centrocercus urophasianus</i>	greater sage-grouse
<i>Tympanuchus phasianellus</i>	sharp-tailed grouse
<i>Meleagris gallopavo</i>	wild turkey
<b>Rallidae</b>	<b>Rails</b>
<i>Rallus limicola</i>	Virginia rail
<i>Porzana carolina</i>	sora
<i>Fulica americana</i>	American coot

Scientific name	Common name
<b>Gruidae</b>	<b>Cranes</b>
<i>Grus canadensis</i>	sandhill crane
<b>Charadriidae</b>	<b>Plovers</b>
<i>Pluvialis squatarola</i>	black-bellied plover
<i>P. dominica</i>	American golden-plover
<i>Charadrius semipalmatus</i>	semipalmated plover
<i>C. melodus</i>	piping plover (threatened)
<i>C. vociferous</i>	killdeer
<i>C. montanus</i>	mountain plover
<b>Recurvirostridae</b>	<b>Stilts and avocets</b>
<i>Himantopus mexicanus</i>	black-necked stilt
<i>Recurvirostra americana</i>	American avocet
<b>Scolopacidae</b>	<b>Sandpipers and phalaropes</b>
<i>Tringa melanoleuca</i>	greater yellowlegs
<i>T. flavipes</i>	lesser yellowlegs
<i>T. solitaria</i>	solitary sandpiper
<i>Actitis macularius</i>	spotted sandpiper
<i>Catoptrophorus semipalmatus</i>	willet
<i>Artramia longicauda</i>	upland sandpiper
<i>Numenius borealis</i>	Eskimo curlew (extirpated)
<i>N. phaeopus</i>	whimbrel
<i>N. americanus</i>	long-billed curlew
<i>Limosa fedoa</i>	marbled godwit
<i>Arenaria interpres</i>	ruddy turnstone
<i>Calidris alba</i>	sanderling
<i>C. pusilla</i>	semipalmated sandpiper
<i>C. mauri</i>	western sandpiper
<i>C. minutilla</i>	least sandpiper
<i>C. fuscicollis</i>	white-rumped sandpiper
<i>C. bairdii</i>	Baird's sandpiper
<i>C. melanotos</i>	pectoral sandpiper
<i>C. alpine</i>	dunlin
<i>C. himantopus</i>	stilt sandpiper
<i>Limnodromus scolopaceus</i>	long-billed dowitcher
<i>Phalaropus tricolor</i>	Wilson's phalarope
<i>P. lobatus</i>	red-necked phalarope
<i>Tryngites subruficollis</i>	buff-breasted sandpiper
<i>Gallinago delicata</i>	Wilson's snipe
<b>Laridae</b>	<b>Gulls, terns, and jaegers</b>
<i>Larus pipixcan</i>	Franklin's gull
<i>L. philadelphia</i>	Bonaparte's gull
<i>L. delawarensis</i>	ring-billed gull
<i>L. californicus</i>	California gull
<i>L. thayeri</i>	Thayer's gull
<i>L. hyperboreus</i>	glaucous gull
<i>L. canus</i>	mew gull
<i>L. argentatus</i>	herring gull
<i>L. glaucescens</i>	glaucous-winged gull
<i>L. marinus</i>	great black-backed gull
<i>Sterna caspia</i>	Caspian tern
<i>S. hirundo</i>	common tern
<i>S. forsteri</i>	Forster's tern
<i>S. antillarum</i>	least tern (endangered)
<i>Chlidonias niger</i>	black tern
<i>Xema sabini</i>	Sabine's gull

<i>Scientific name</i>	<i>Common name</i>
<i>Rissa tridactyla</i>	black-legged kittiwake
<i>Stercorarius pomarinus</i>	pomarine jaeger
<b>Columbidae</b>	<b>Pigeons and doves</b>
<i>Columba livia</i>	rock dove (introduced)
<i>C. fasciata</i>	band-tailed pigeon
<i>Zenaida macroura</i>	mourning dove
<i>Ectopistes migratorius</i>	passenger pigeon (extinct)
<b>Cuculidae</b>	<b>Cuckoos and anis</b>
<i>Coccyzus erythrophthalmus</i>	black-billed cuckoo
<b>Strigidae</b>	<b>Owls</b>
<i>Bubo virginianus</i>	great horned owl
<i>Nyctea scandiaca</i>	snowy owl
<i>Surnia ulula</i>	northern hawk-owl
<i>Athene cunicularia</i>	burrowing owl
<i>Asio otus</i>	long-eared owl
<i>A. flammeus</i>	short-eared owl
<i>Glaucidium gnoma</i>	northern pygmy-owl
<i>Aegolius acadicus</i>	northern saw-whet owl
<b>Caprimulgidae</b>	<b>Goatsuckers and allies</b>
<i>Chordeiles minor</i>	common nighthawk
<i>Phalaenoptilus nuttallii</i>	common poorwill
<b>Apodidae</b>	<b>Swifts</b>
<i>Chaetura pelagica</i>	chimney swift
<i>Aeronautes saxatalis</i>	white-throated swift
<b>Trochilidae</b>	<b>Hummingbirds</b>
<i>Archilochus colubris</i>	ruby-throated hummingbird
<i>Selasphorus rufus</i>	rufous hummingbird
<b>Alcedinidae</b>	<b>Kingfishers</b>
<i>Ceryle alcyon</i>	belted kingfisher
<b>Picidae</b>	<b>Woodpeckers</b>
<i>Melanerpes erythrocephalus</i>	red-headed woodpecker
<i>Picoides pubescens</i>	downy woodpecker
<i>P. villosus</i>	hairy woodpecker
<i>Colaptes auratus</i>	northern flicker
<i>Sphyrapicus nuchalis</i>	red-naped sapsucker
<b>Tyrannidae</b>	<b>New World flycatchers</b>
<i>Contopus sordidulus</i>	western wood-pewee
<i>Empidonax traillii</i>	willow flycatcher
<i>E. minimus</i>	least flycatcher
<i>E. oberholseri</i>	dusky flycatcher
<i>E. occidentalis</i>	Cordilleran flycatcher
<i>Sayornis saya</i>	Say's phoebe
<i>Tyrannus verticalis</i>	western kingbird
<i>T. tyrannus</i>	eastern kingbird
<i>T. vociferans</i>	Cassin's kingbird
<b>Laniidae</b>	<b>Shrikes</b>
<i>Lanius ludovicianus</i>	loggerhead shrike
<i>L. excubitor</i>	northern shrike
<b>Vireonidae</b>	<b>Vireos</b>
<i>Vireo gilvus</i>	warbling vireo
<i>V. philadelphicus</i>	Philadelphia vireo
<i>V. olivaceus</i>	red-eyed vireo
<b>Corvidae</b>	<b>Crows, jays, and magpies</b>
<i>Cyanocitta cristata</i>	blue jay
<i>Pica hudsonia</i>	black-billed magpie

Scientific name	Common name
<i>Corvus brachyrhynchos</i>	American crow
<i>C. corax</i>	common raven
<i>Gymnorhinus cyanocephalus</i>	pinyon jay
<i>Nucifraga columbiana</i>	Clark's nutcracker
<b>Alaudidae</b>	<b>Larks</b>
<i>Eremophila alpestris</i>	horned lark
<b>Hirundinidae</b>	<b>Swallows</b>
<i>Tachycineta bicolor</i>	tree swallow
<i>Stelgidopteryx serripennis</i>	northern rough-winged swallow
<i>Riparia riparia</i>	bank swallow
<i>Petrochelidon pyrrhonota</i>	cliff swallow
<i>Hirundo rustica</i>	barn swallow
<i>Tachycineta thalassina</i>	violet-green swallow
<b>Paridae</b>	<b>Chickadees and titmice</b>
<i>Poecile atricapilla</i>	black-capped chickadee*
<i>P. gambeli</i>	mountain chickadee
<b>Sittidae</b>	<b>Nuthatches</b>
<i>Sitta canadensis</i>	red-breasted nuthatch
<i>S. carolinensis</i>	white-breasted nuthatch
<b>Certhiidae</b>	<b>Creepers</b>
<i>Certhia americana</i>	brown creeper
<b>Troglodytidae</b>	<b>Wrens</b>
<i>Troglodytes aedon</i>	house wren
<i>Cistothorus palustris</i>	marsh wren
<i>Salpinctes obsoletus</i>	rock wren
<b>Cinclidae</b>	<b>Dippers</b>
<i>Cinclus mexicanus</i>	American dipper
<b>Regulidae</b>	<b>Kinglets</b>
<i>Regulus satrapa</i>	golden-crowned kinglet
<i>R. calendula</i>	ruby-crowned kinglet
<b>Turdidae</b>	<b>Thrushes</b>
<i>Sialia sialis</i>	eastern bluebird
<i>S. currocooides</i>	mountain bluebird
<i>Myadestes townsendi</i>	Townsend's solitaire
<i>Catharus fuscescens</i>	veery
<i>C. minimus</i>	gray-cheeked thrush
<i>C. ustulatus</i>	Swainson's thrush
<i>C. guttatus</i>	hermit thrush
<i>Turdus migratorius</i>	American robin
<b>Mimidae</b>	<b>Mockingbirds, thrashers, and allies</b>
<i>Dumetella carolinensis</i>	gray catbird
<i>Toxostoma rufum</i>	brown thrasher
<i>Mimus polyglottos</i>	northern mockingbird
<i>Oreoscoptes montanus</i>	sage thrasher
<b>Sturnidae</b>	<b>Starlings</b>
<i>Sturnus vulgaris</i>	European starling (introduced)
<b>Motacillidae</b>	<b>Wagtails and pipits</b>
<i>Anthus ruescens</i>	American (water) pipit
<i>A. spragueii</i>	Sprague's pipit
<b>Bombycillidae</b>	<b>Waxwings</b>
<i>Bombycilla garrulus</i>	Bohemian waxwing
<i>B. cedrorum</i>	cedar waxwing
<b>Parulidae</b>	<b>New World warblers</b>
<i>Vermivora peregrina</i>	Tennessee warbler
<i>V. celata</i>	orange-crowned warbler

<i>Scientific name</i>	<i>Common name</i>
<i>Dendroica petechia</i>	yellow warbler
<i>D. magnolia</i>	magnolia warbler
<i>D. tigrina</i>	Cape May warbler
<i>D. coronata</i>	yellow-rumped warbler
<i>D. townsendi</i>	Townsend's warbler
<i>D. palmarum</i>	palm warbler
<i>D. striata</i>	blackpoll warbler
<i>Mniotilta varia</i>	black-and-white warbler
<i>Setophaga ruticilla</i>	American redstart
<i>Seiurus aurocapillus</i>	ovenbird
<i>S. noveboracensis</i>	northern waterthrush
<i>Oporornis tolmiei</i>	MacGillivray's warbler
<i>Geothlypis trichas</i>	common yellowthroat
<i>Wilsonia pusilla</i>	Wilson's warbler
<i>W. canadensis</i>	Canada warbler
<i>Icteria virens</i>	yellow-breasted chat
<b>Thraupidae</b>	<b>Tanagers</b>
<i>Piranga ludoviciana</i>	western tanager
<b>Emberizidae</b>	<b>Buntings and seedeaters</b>
<i>Pipilo maculatus</i>	spotted towhee
<i>Spizella arborea</i>	American tree sparrow
<i>S. passerina</i>	chipping sparrow
<i>S. pallida</i>	clay-colored sparrow
<i>S. breweri</i>	Brewer's sparrow
<i>S. pusilla</i>	field sparrow
<i>Poocetes gramineus</i>	vesper sparrow
<i>Chondestes grammacus</i>	lark sparrow
<i>Calamospiza melanocorys</i>	lark bunting
<i>Passerculus sandwichensis</i>	Savannah sparrow
<i>Ammodramus savannarum</i>	grasshopper sparrow
<i>A. bairdii</i>	Baird's sparrow
<i>Melospiza melodia</i>	song sparrow
<i>M. lincolni</i>	Lincoln's sparrow
<i>Zonotrichia alicollis</i>	white-throated sparrow
<i>Z. querula</i>	Harris' sparrow
<i>Z. leucophrys</i>	white-crowned sparrow
<i>Junco hyemalis</i>	dark-eyed junco
<i>Calcarius mccownii</i>	McCown's longspur
<i>C. lapponicus</i>	Lapland longspur
<i>C. ornatus</i>	chestnut-collared longspur
<i>Plectrophenax nivalis</i>	snow bunting
<i>Pipilo chlorurus</i>	green-tailed towhee
<i>Melospiza georiana</i>	swamp sparrow
<i>Zonotrichia atricapilla</i>	golden-crowned sparrow
<b>Cardinalidae</b>	<b>Saltators, cardinals, and allies</b>
<i>Pheucticus ludovicianus</i>	rose-breasted grosbeak
<i>P. melanocephalus</i>	black-headed grosbeak
<i>Passerina amoena</i>	lazuli bunting
<i>Cardinalis cardinalis</i>	northern cardinal
<i>Passerina cyanea</i>	indigo bunting
<b>Icteridae</b>	<b>Blackbirds and orioles</b>
<i>Dolichonyx oryzivorus</i>	bobolink*
<i>Agelaius phoeniceus</i>	red-winged blackbird*
<i>Sturnella neglecta</i>	western meadowlark*
<i>Xanthocephalus xanthocephalus</i>	yellow-headed blackbird*

Scientific name	Common name
<i>Euphagus carolinus</i>	rusty blackbird
<i>E. cyanocephalus</i>	Brewer's blackbird*
<i>Quiscalus quiscula</i>	common grackle*
<i>Molothrus ater</i>	brown-headed cowbird*
<i>Icterus spurius</i>	orchard oriole*
<i>I. galbula</i>	Baltimore oriole*
<i>I. bullockii</i>	Bullock's oriole
<b>Fringillidae</b>	<b>Finches and crossbills</b>
<i>Pinicola enucleator</i>	pine grosbeak
<i>Carduelis flammea</i>	common redpoll
<i>C. hornemanni</i>	hoary redpoll
<i>C. pinus</i>	pine siskin
<i>C. tristis</i>	American goldfinch
<i>Leucosticte tephrocotis</i>	gray-crowned rosy-finch
<i>Pinicola enucleator</i>	pine grosbeak
<i>Loxia curvirostra</i>	red crossbill
<i>L. leucoptera</i>	white-winged crossbill
<i>Coccothraustes vespertinus</i>	evening grosbeak
<b>Passeridae</b>	<b>Old World sparrows</b>
<i>Passer domesticus</i>	house sparrow (introduced)

## MAMMALS

Sources: Burt and Grossenheider (1980), Hoffman and Pattie (1968), Foresman (2001), and Montana Natural Heritage Program.

<b>Soricidae</b>	<b>Shrews</b>
<i>Sorex cinereus</i>	cinereus (masked) shrew*
<i>S. merriami</i>	Merriam's shrew
<i>S. haydeni</i>	Hayden's shrew (R)
<i>S. monticolus</i>	montane shrew
<b>Vespertilionidae</b>	<b>Vesper bats</b>
<i>Myotis evotis</i>	long-eared myotis
<i>M. lucifugus</i>	little brown myotis*
<i>M. ciliolabrum</i>	western small-footed myotis
<i>M. thysanodes</i>	fringed myotis
<i>M. volans</i>	long-legged myotis
<i>Lasiurus borealis</i>	eastern red bat
<i>L. cinereus</i>	hoary bat
<i>Lasionycteris noctivagans</i>	silver-haired bat
<i>Eptesicus fuscus</i>	big brown bat
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat
<b>Leporidae</b>	<b>Hares and rabbits</b>
<i>Sylvilagus nuttalli</i>	mountain cottontail
<i>S. audubonii</i>	desert cottontail
<i>Lepus townsendii</i>	white-tailed jackrabbit*#
<b>Sciuridae</b>	<b>Squirrels</b>
<i>Tamias minimus</i>	least chipmunk
<i>T. amoenus</i>	yellow-pine chipmunk
<i>T. ruficaudus</i>	red-tailed chipmunk
<i>Spermophilus richardsonii</i>	Richardson's ground squirrel*#
<i>S. tridecemlineatus</i>	thirteen-lined ground squirrel*#
<i>Cynomys ludovicianus</i>	black-tailed prairie dog
<i>Marmota flaviventris</i>	yellowbelly marmot (R)
<b>Geomyidae</b>	<b>Pocket gophers</b>
<i>Thomomys talpoides</i>	northern pocket gopher*#
<b>Heteromyidae</b>	<b>Pocket mice and kangaroo rats</b>
<i>Perognathus fasciatus</i>	olive-backed pocket mouse*#

<i>Scientific name</i>	<i>Common name</i>
<i>Dipodomys ordii</i>	Ord's kangaroo rat
<b>Castoridae</b>	<b>Beavers</b>
<i>Castor canadensis</i>	American beaver*
<b>Muridae</b>	<b>Mice, voles, rats, and lemmings</b>
<i>Reithrodontomys megalotis</i>	western harvest mouse
<i>Peromyscus leucopus</i>	white-footed mouse
<i>P. maniculatus</i>	deer mouse*#
<i>Onychomys leucogaster</i>	northern grasshopper mouse*#
<i>Neotoma cinerea</i>	bushy-tailed woodrat
<i>Mus musculus</i>	house mouse*
<i>Microtus ochrogaster</i>	prairie vole*
<i>Lemmyscus curtatus</i>	sagebrush vole*
<i>Ondatra zibethicus</i>	common muskrat*#
<i>Microtus longicaudus</i>	long-tailed vole
<b>Dipodidae</b>	<b>Jumping mice</b>
<i>Zapus princeps</i>	western jumping mouse(#?)
<b>Erethizontidae</b>	<b>New World porcupines</b>
<i>Erethizon dorsatum</i>	common porcupine*
<b>Canidae</b>	<b>Wolves, coyotes, and foxes</b>
<i>Canis latrans</i>	coyote*#
<i>C. lupus</i>	gray wolf*# (extirpated)
<i>Vulpes velox</i>	swift fox*#
<i>V. vulpes</i>	red fox*
<b>Ursidae</b>	<b>Bears</b>
<i>Ursus americanus</i>	black bear*
<i>U. arctos</i>	grizzly (brown) bear* (extirpated)
<b>Procyonidae</b>	<b>Raccoons</b>
<i>Procyon lotor</i>	raccoon*
<b>Mustelidae</b>	<b>Weasels</b>
<i>Mustela frenata</i>	long-tailed weasel*#
<i>M. nigripes</i>	black-footed ferret
<i>M. nivalis</i>	least weasel*
<i>M. vison</i>	American mink*
<i>M. ermine</i>	short-tailed weasel
<i>Gulo gulo</i>	wolverine*
<i>Taxidea taxus</i>	American badger*#
<i>Lontra canadensis</i>	northern river otter
<b>Mephitidae</b>	<b>Skunks</b>
<i>Mephitis mephitis</i>	striped skunk*#
<b>Felidae</b>	<b>Cats</b>
<i>Felis catus</i>	feral cat* (introduced)
<i>Lynx rufus</i>	bobcat*
<i>Puma concolor</i>	mountain lion
<b>Cervidae</b>	<b>Deer, moose, and elk</b>
<i>Cervus elephus</i>	Wapiti (elk)*
<i>Odocoileus hemionus</i>	mule deer*
<i>O. virginianus</i>	white-tailed deer*
<i>Alces alces</i>	moose
<b>Antilocapridae</b>	<b>Pronghorn</b>
<i>Antilocapra americana</i>	pronghorn*#
<b>Bovidae</b>	<b>Bison, goats, and sheep</b>
<i>Bos bison</i>	American bison (extirpated)
<i>B. taurus</i>	domestic cattle
<i>Ovis canadensis</i>	bighorn sheep

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