Glossary

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

adaptive management—the rigorous application of management, research, and monitoring to gain information and experience necessary to assess and modify management activities. A process that uses feedback, from refuge research and monitoring and evaluation of management actions, to support or modify objectives and strategies at all planning levels.

alternatives—different sets of objectives and strategies or means of achieving refuge purposes and goals, helping fulfill the Refuge System mission and resolving issues.

amphibians—a class of cold-blooded vertebrates including frogs, toads, and salamanders.

APHIS—U.S. Department of Agriculture's Animal and Plant Health Inspection Service.

ARPA—Archaeological Resources Protection Act.

ATV—all-terrain vehicle.

bald eagle disturbance—any human-elicited response that induces a behavioral or physiological change in a bald eagle contradictory to those that facilitate survival and reproduction. Disturbance may include elevated heart or respiratory rate, flushing from a perch or events that cause a bald eagle to avoid an area or nest site. (MBEWG 1994)

bald eagle nest—any platform within the breeding area that may have been built or used by a bald eagle, usually as a focus for reproductive behavior and activity. Bald eagle nests are usually built by mated pairs, are made of sticks, and are situated in trees. Nests may be constructed by single eagles or other species and composed exclusively or in part of grass, forbs, or human-constructed material and situated on cliffs, structures (windmills, utility poles), or the ground. (MBEWG 1994)

bald eagle nest site management zone—local geographic areas surrounding active and alternate bald eagle nests in which human activities are likely to disrupt normal breeding activity. Zones involve application of spatial and temporal human activity restrictions, progressively less restrictive with increasing distance from the nest site. (MBEWG 1994)

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

big game—large animals sought for hunting or fishing for sport including white-tailed deer, pronghorn, mule deer, elk, moose, bighorn sheep, black bear, and mountain lion.

biological control, *also* **biocontrol**—reduction in numbers or elimination of unwanted species by the introduction of natural predators, parasites, or diseases.

biological integrity—composition, structure, and function at the genetic, organism, and community levels consistent with natural conditions and the biological processes that shape genomes, organisms, and communities.

biomass—the total amount of living material, plants and animals, above and below the ground in a particular habitat or area.

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

Bonneville Power Administration—a federal agency under the U.S. Department of Energy that markets wholesale electrical power and operates and markets transmission services in the Pacific Northwest. The power comes from 31 federal hydro-projects, 1 nonfederal nuclear plant, and several other nonfederal power plants. The hydro-projects and the electrical system are known as the Federal Columbia River Power System. <http://www.bpa.gov/corporate/kc/home/facts/>

Breeding Bird Survey—a cooperative program of the U.S. Fish and Wildlife Service and the Canadian Wildlife Service for monitoring population changes in North American breeding birds by using point counts along roads (Koford et al. 1994).

Cabinet/Yaak ecosystem (CYE)—encompasses about 2,720 square miles of northwestern Montana and northern Idaho. The Cabinet Mountains comprise about 58 percent of the ecosystem and lie south of the Kootenai River, with the Yaak River to the north. Two 7.2-mile-wide corridors link the Yaak with the Cabinet Mountains. <http://www.r6.fws.gov/endspp/grizzly/cabyaakprogrept2002.pdf>

CCP—*see* comprehensive conservation plan.

CFR—Code of Federal Regulations.

cfs—cubic feet per second.

climax—a community that has reached a steady state under a particular set of environmental conditions; a relatively stable plant community; the final stage in ecological succession.

cm—centimeter; equivalent to 0.39 inch.

colony—the nests or breeding place of a group of birds (such as herons) occupying a limited area.

compatibility—a wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the refuge manager, will not materially interfere with or detract from the fulfillment of the mission of the Refuge System or the purposes of the refuge (Draft USFWS Manual 603 FW 3.6). A compatibility determination supports the selection of compatible uses and identified stipulations of limits necessary to ensure compatibility. A use (recreational or nonrecreational) of a refuge is incompatible if, in the sound professional judgment of the director of the Service, it will materially interfere with or detract from the fulfillment of the mission of the Refuge System or the purposes of the refuge. Incompatible uses are not allowed to occur on Service areas.

comprehensive conservation plan (CCP)—a document that describes the desired future conditions of the refuge. Provides long-range (15-year) guidance and management direction for the refuge manager to accomplish the purposes of the refuge, contribute to the mission of the Refuge System, maintain and, where appropriate, restore the biological integrity, diversity, and environmental health of each refuge and the Refuge System, and meet other mandates. (602 FW 3). For refuges established after October 8, 1997, CCPs are prepared when the refuge obtains staff and acquires a land base sufficient to achieve refuge purposes, but no later than 15 years after establishment of the refuge. Refuges convert long-range management plans (e.g., master plans and refuge management plans) approved prior to October 9, 1997 into CCPs with appropriate public involvement and NEPA compliance, no later than October 2012.

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 (65–85°F). Examples of cool-season grasses at refuge are bluebunch wheatgrass, Idaho fescue, and rough fescue.

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

CSKT—Confederated Salish and Kootenai Tribes.

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

cultural resource inventory—a professionally conducted study designed to locate and evaluate evidence of cultural resources present within a defined area. Inventories may involve various levels including background literature search (class I), sample inventory of project site distribution and density over a larger area (class II), or comprehensive field examination to identify all exposed physical manifestation of cultural resources (class III).

CYE—*see* Cabinet/Yaak ecosystem.

defoliation—the removing of vegetative parts; to strip vegetation of leaves; removal can be caused by weather, mechanical, animals, and fire.

depredation—damage inflicted on agricultural crops or ornamental plants by wildlife. Depredation can also refer to the taking of wildlife, including destruction of nests or dens, and eggs or young.

depredation by wolves—killing or serious maiming by one or more wolves of lawfully present domestic livestock or other domestic animals on federally and state-managed lands or private lands, accompanied by the threat that additional livestock or domestic animals will be killed or maimed by wolves.

dm—decimeter; equivalent to 3.94 inches.

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 diversity—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 (USFWS Manual 052 FW 1.12B).

ecosystem—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.

EIS—environmental impact statement.

emergent—a plant rooted in shallow water and having most of the vegetative growth above water. Examples are cattail and hardstem bulrush.

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

endangered species, state—a plant or animal species listed under the federal Endangered Species Act that is located in Montana. See listings at: http://www.fwp.state.mt.us/wildthings/t%26e.asp

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

environmental assessment (EA) —a concise public document, prepared in compliance with the National Environmental Policy Act, that briefly discusses the purpose and the need for an action, alternative to such action. An EA provides sufficient evidence and analysis of impacts to determine whether to prepare an environmental impact statement or finding of no significant impact (40 CFR 4508.9).

environmental health—natural composition, structure, and functioning of the physical, chemical, and other abiotic elements, and the abiotic processes that shape the physical environment.

EPA—U.S. Environmental Protection Agency.

ESA—Endangered Species Act.

ESO—ecological services office.

EVS—education and visitor services.

extinction—the complete disappearance of a species from the earth; no longer existing (Koford et al. 1994).

extirpate—the elimination of a species from an island, local area, or region (Koford et al. 1994); to destroy completely; wipe out.

fauna—all the vertebrate and invertebrate animals of an area; the animals' characteristic of a region, period, or special environment.

fen, *also* **alkaline bog**—wetland primarily composed of organic soil material (peat or muck) that took thousands of years to develop.

FERC—Federal Energy Regulatory Commission.

finding of no significant impact (FONSI)—a document prepared in compliance with the National Environmental Policy Act, supported by an environmental assessment, that briefly presents why a federal action will have no significant effects on the human environment and for which an environmental impact statement will not be prepared (40 CFR 1508.13).

fire regime—a description of the frequency, severity, and extent of fire that typically occurs in an area or vegetative type.

flora—all the plant species of an area; plant or bacterial life characteristic of a region, period, or special environment.

FMP—fire management plan.

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.

forest—a group of trees with their crown overlapping (generally forming 60–100 percent cover).

"friends group"—any formal organization whose mission is to support the goals and purposes of its associated refuge and the National Wildlife Refuge System. This includes "friends" organizations and cooperating and interpretive associations.

FTE—full-time equivalent employee.

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 (i.e., points, lines and polygons) with nongeographic attributes such as species and age (Koford et al. 1994).

GIS—*see* geographic information system.

global positioning system (GPS)—a system that, by using satellite telemetry, can pinpoint exact locations of places on the ground.

goal—descriptive, open-ended, and often broad statements of desired future conditions that convey a purpose but do not define measurable units (Draft USFWS Manual 620 FW 1.5).

GPS—*see* global positioning system.

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

GYA—Greater Yellowstone Area.

habitat—the place or environment where a plant or animal naturally or normally lives and grows.

habitat development plan—a dynamic working document that provides refuge managers a decision-making process; guidance for the management of refuge habitat; and long-term vision, continuity, and consistency for habitat management on refuge lands. Each plan incorporates the role of refuge habitat in international, national, regional, tribal, state, ecosystem, and refuge goals and objectives; guides analysis and selection of specific habitat management strategies to achieve those habitat goals and objectives; and uses key data, scientific literature, expert opinion, and staff expertise. (USFWS Manual 620 FW 1)

The habitat development plan for Lost Trail National Wildlife Refuge is a result of a FERC-approved settlement between the Department of the Interior, the MPC, and the CSKT for mitigation of habitat and wildlife losses on Flathead WPA caused by past and future operations of Kerr Dam by the MPC. The refuge has 3,112 acres because of this mitigation process. The habitat development plan addresses planned habitat enhancements on the refuge per the "Stipulation and Agreement" (December 12, 1997) and the "Order Approving Settlement." These developments and enhancements are the result of nearly 15 years of study, assessment, planning, and negotiations between the MPC, the CSKT, and the Service.

habitat fragmentation—the alteration of a large habitat, creating isolated patches of the original habitat that are interspersed with a variety of other habitat types (Koford et al. 1994); the process of reducing the size and connectivity of habitat patches, making movement of individuals or genetic information between parcels difficult or impossible.

herbivore—an animal feeding on plants.

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. <www.fws.gov /refuges/policymakers/mandates/hr1420/index.html>

indicator species—a species of plant or animal that is assumed to be sensitive to habitat changes and represents the needs of a larger group of species.

integrated pest management (IPM)—the control of pest species (plant or animal) using a practical, economical, and scientifically based combination of biological, mechanical, cultural, or chemical control methods. A balanced approach to controlling pest species' populations.

intermittently flooded—substrate usually exposed, but surface water is present for variable periods without seasonal periodicity.

introduced species—a species present in an area due to deliberate release by humans (including reintroductions, transplants, and restocked species) or due to accidental release through escape or indirect assistance (Koford et al. 1994).

introduction—the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity.

invasive species—a species that is nonnative to the ecosystem; a species whose introduction causes or is likely to cause environmental or economic harm, or harm to human health.

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

IPM—*see* integrated pest managment.

issue—any unsettled matter that requires a management decision, e.g., an initiative, opportunity, resource management problem, threat to the resources of the unit, conflict in uses, public concern, or the presence of an undesirable resource condition.

lawfully present livestock—livestock (cattle, sheep, horses, and mules) occurring on private lands or on legal allotments (not trespassing) on federal lands.

Lincoln County tansy ragwort management program—an invasive plant grant program in conjunction with the Montana Department of Agriculture that has a continued focus on containment, control, and eradication of tansy ragwort infestations. Techniques include revegetation of disturbed logging sites, mapping infestations, spot treatment with herbicides, and continued release of biocontrol agents (Montana Department of Natural Resources Biennial Noxious Weed Summary Report FY 01–02).

maintenance management system (MMS)—a national database that contains the unfunded maintenance needs of each refuge. Projects include those required to maintain existing equipment and buildings and to correct safety deficiencies for the implementation of approved plans, and to meet goals, objectives, and legal mandates.

MBEWG—Montana Bald Eagle Working Group.

MCC—Montana Conservation Corps.

mechanical control—reduction in numbers or elimination of unwanted species through the use of mechanical equipment such as mowers and clippers.

mesic—characterized by, relating to, or requiring a moderate amount of moisture; having a moderate rainfall.

MFWP—Montana Department of Fish, Wildlife and Parks.

migration—regular extensive, seasonal movements of birds between their breeding regions and their wintering regions (Koford et al. 1994); 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 winter grounds. Waterfowl, shorebirds, raptors, and songbirds are all migratory birds.

mitigation—measures designed to counteract environmental impacts or to make impacts less severe.

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

mm—millimeter; equivalent to 0.04 inch.

MMS—*see* maintenance management system.

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

MOYOCO—Upper Missouri, Yellowstone, Upper Columbia River ecosystem.

MPC—Montana Power Company.

MPIF—Montana Partners in Flight.

NAAQS—national ambient air quality standards.

National Bison Range Complex—National Wildlife Refuge System land and programs including: National Bison Range, Ninepipe National Wildlife Refuge (NWR), Pablo NWR, Swan River NWR, Lost Trail NWR, and Northwest Montana Wetland Management District (includes 15 waterfowl production areas, as well as a conservation easement program).

national wildlife refuge (NWR)—"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." Find a complete listing of all units of the Refuge System in the current "Annual Report of Lands Under Control of the U.S. Fish and Wildlife Service."

National Wildlife Refuge System (Refuge System, NWRS)—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 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, or waterfowl production areas.

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

native species—species that are part of the original plant and animals of an area. In general, meaning from the same continent (Johnson and Larson 1999).

NCDE—*see* northern Continental Divide ecosystem.

NCTC—National Conservation Training Center.

Neotropical migratory bird (NTMB)—a bird species that breeds north of the United States and Mexican border and winters primarily south of this border.

NEPA—National Environmental Policy Act.

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

NHPA—National Historic Preservation Act.

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

North American Waterfowl Management Plan—the North American Waterfowl Management Plan, signed in 1986, recognizes that the recovery and perpetuation of waterfowl populations depends on restoring wetlands and associated ecosystems throughout the United States and Canada. It established cooperative international efforts and joint ventures composed of individuals; corporations; conservation organizations; and local, state, provincial, and federal agencies drawn together by common conservation objectives. Lost Trail National Wildlife Refuge falls into the "Prairie Pothole Joint Venture."

northern Continental Divide ecosystem (NCDE)—this is 32,300 square kilometers (8 million acres) of extremely diverse habitats, much of it being heavily forested, mountainous, and a largely roadless wilderness along the Rocky Mountains from the Canadian border south to Lincoln, Montana. <http://www.nrmsc.usgs.gov/research/NCDEbear dna_detail.htm>

Northern Rocky Mountain Wolf Recovery Plan—a document prepared by a team of individuals with expertise regarding the biological and habitat requirements of the wolf, outlining the tasks and actions necessary to recover the species within parts of its former range in the Rocky Mountain region. Original plan completed in 1980. Revised recovery plan approved August, 3 1987.

NRCS—Natural Resources Conservation Service.

NTMB—*see* Neotropical migratory bird.

NWI—national wetland inventory.

NWR—*see* national wildlife refuge.

NWRS—*see* National Wildlife Refuge System.

objective—a concise statement of what is to be achieved, when and where it is to be achieved, and who is responsible for the work. Objectives are derived from goals and provide the basis for determining management strategies. Objectives should be attainable, time-specific, and measurable.

Partners in Flight—a Western Hemisphere program designed to conserve Neotropical migratory birds and officially endorsed by numerous federal and state agencies and nongovernmental organizations; also known as the Neotropical Migratory Bird Conservation Program (Koford et al. 1994).

PCTC—Plum Creek Timber Company.

perennial—plants that live for 3 years or more (Johnson and Larson 1999).

permanently flooded—surface water is present throughout the year in all years.

P.L.—public law.

planning team—teams that are interdisciplinary in membership and function. Teams generally consist of a planning team leader; refuge manager and staff biologists; a state natural resource agency representative; and other appropriate program specialists (e.g., social scientist, ecologist, recreation specialist). Other federal and tribal natural resource agencies are asked to provide team members, as appropriate. The planning team prepares the comprehensive conservation plan and appropriate National Environmental Policy Act documentation.

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

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

Pleasant Valley ecosystem—the plants, wildlife, and associated life cycles associated with the land area of the Pleasant Valley watershed.

Pleasant Valley watershed—land area drained by water (rivers, stream, lakes) that flows into the water sources located in Pleasant Valley and its major water sources (Dahl and Lynch lakes, and Pleasant Valley Creek) ending at the confluence of the Pleasant Valley–Fisher River.

predation—a mode of life in which food is primarily obtained by the killing or consuming of animals.

prescribed fire—controlled application of fire to the landscape that allows the fire to be confined to a predetermined area while producing the intensity of heat and rate of spread required to achieve planned management objectives.

priority public uses—six wildlife-dependent recreational public uses authorized by the Improvement Act to have priority and are found to be appropriate for refuges. They are hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation. Compatibility of these uses needs to be determined for each refuge.

problem wolves—wolves that have depredated on lawfully present livestock, domestic animals (pets), or other member of a group; pack of wolves including adults, yearlings, and young-of-the-year that were directly involved in the depredation, or fed upon the remains, of livestock that were a result of the depredation.

proposed action—the alternative proposed by the Service as best achieving the refuge purpose, vision, and goals; contributing to the Refuge System mission and addressing the significant issues; and consistent with principles of sound fish and wildlife management.

purposes of the refuge—"The purposes specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge, refuge unit, or refuge subunit."

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

refuge operating needs system (RONS)—a national database that contains the unfunded operational needs of each refuge. Projects include those required to implement approved plans and meet goals, objectives, and legal mandates.

Refuge System—*see* National Wildlife Refuge System.

resident species—a species inhabiting a given locality throughout the year; nonmigratory species. Examples for Lost Trail National Wildlife Refuge include Columbian ground squirrel, black-capped chickadee, great horned owl, moose, and coyote.

richness, *also* **species richness**—the absolute number of species in an assemblage or community; the number of species in a given area (Koford et al. 1994).

riparian area *or* **zone**—the area adjacent to water; the area influenced by water associated with streams or rivers.

RMEF—Rocky Mountain Elk Foundation.

RMP—Rocky Mountain population.

RONS—*see* refuge operating needs 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, or glaciers.

semipermanently flooded—surface water is present throughout the growing season in most years.

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

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

SHPO—state historic preservation office.

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

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

species of concern, federal—species that (1) are documented or have apparent population declines; (2) are small or restricted populations; or (3) depend on restricted or vulnerable habitats.

step-down management plan—step-down management plans provide the details (strategies and implementation schedules) necessary to meet goals and objectives identified in the comprehensive conservation plan (CCP). CCPs will either incorporate or identify step-down plans required to carry out the CCP. After completion of the CCP, existing step-down plans will be modified as needed to accomplish stated goals and objectives. (602 FW 4).

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

tansy ragwort—*Senecio jacobaea* is an Eurasian invasive plant in the sunflower family (Asteraceae). It spreads primarily by seed—a single tansy ragwort plant may produce up to 150,000 seeds, which may remain viable for up to 15 years. All parts of this plant are poisonous. It causes liver damage to cattle and horses, while sheep are affected to a lesser extent. <http://www.oneplan.org/index.htm>

temporarily flooded—surface water is present for brief periods during the growing season.

THPO—tribal historical preservation office.

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

threatened species, state—a plant or animal species listed under the federal Endangered Species Act that is located in Montana. See listings at <http://www.fwp.state.mt.us/wildthings/t%26e.asp>

USDA—U.S. Department of Agriculture.

U.S. Fish and Wildlife Service (Service, USFWS)—the principal federal agency responsible for conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people. The Service manages the 93-million-acre National Wildlife Refuge System comprised of more than 540 national wildlife refuges and thousands of waterfowl production areas. It also operates 65 national fish hatcheries and 78 ecological service field stations. The agency enforces federal wildlife laws, manages migratory bird populations, restores national significant fisheries, conserves and restores wildlife habitat such as wetlands, administers the Endangered Species Act, and helps foreign governments with their conservation efforts. It also oversees the federal aid program that distributes millions of dollars in excise taxes on fishing and hunting equipment to state wildlife agencies.

U.S. Fish and Wildlife Service mission—The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.

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.

vision statement—a concise statement of what the planning unit should be, or what the Service hopes to do, based primarily on the Refuge System mission, specific refuge purposes, and other mandates. In addition, the vision statement is tied to the maintenance and restoration of biological integrity, diversity, and environmental health of each refuge and the Refuge System.

visual obstruction reading (VOR)—a measurement of the density of a plant community; the height of vegetation that blocks the view of predators to a nest.

VOR—*see* visual obstruction reading.

waders, *also* **wading birds**—birds having long legs that enable them to wade in shallow water. Includes egrets, great blue herons, black-crowned night-herons, and bitterns.

warm-season grasses—grasses that begin growth later in the season (early June). These grasses require warmer soil temperatures to germinate and actively grow when temperatures range from approximately 85 to 95°F. Examples of warm-season grasses are red threeawn (*Aristida longiseta*) and mountain brome (*Bromus carinatus*).

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

waterfowl production area (WPA)—prairie wetland with associated upland that is managed to provide nesting areas for waterfowl, which is owned in fee title by the Service. These lands are purchased from willing sellers with funds from Duck Stamp sales. They are open to public hunting, fishing, and trapping according to state and federal regulations.

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

wetland easement—a perpetual agreement entered into by a landowner and the Service. The easement covers only the wetlands specified in the agreement. In return for a single lump-sum payment, the landowner agrees not to drain, burn, level, or fill wetlands covered by the easement.

wetland management district (WMD)—land that the Refuge System acquires (with federal Duck Stamp funds), restores, and manages primarily as prairie wetland habitat critical to waterfowl and other wetland birds. The Northwest Montana WMD, as part of the National Bison Range Complex, includes 15 waterfowl production areas and an easement program located in Flathead and Lake counties.

wetland reserve program (WRP)—voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. The Natural Resources Conservation Service provides technical and financial support to help landowners with their wetland restoration efforts. The NRCS goal is to achieve the greatest wetland functions and values, along with optimum wildlife habitat, on every acre enrolled in the program. This program offers landowners an opportunity to establish long-term conservation and wildlife practices and protection. <http://www.nrcs.usda.gov/programs/wrp/>

wildlife-dependent recreational use—"A use of a refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation." These are the six priority public uses of the Refuge System as established in the National Wildlife Refuge System Administration Act, as amended. Wildlife-dependent recreational uses, other than the six priority public uses, are those that depend on the presence of wildlife. Other uses will be considered in the preparation of a comprehensive conservation plan; however, the six priority public uses always will take precedence.

WG—wage grade schedule (pay rate schedule for certain federal positions).

WMD—*see* wetland management district.

wolf den—a place where wolves rear their pups, usually for the first six weeks. Dens are often used year after year, but wolves may also dig new dens or use some other type of shelter, such as a cave.

wolf pack—a group of wolves, usually consisting of a male, a female, and their offspring.

wolf recovery team—a designated group working on the recovery of wolves to an area in compliance with the Endangered Species Act.

wolf rendezvous site—a place where wolves gather after the young have left the den site.

woodland—open stands of trees with crowns not usually touching (generally forming 25–60 percent cover).

WPA—*see* waterfowl production area.

WRP—*see* wetland reserve program.

WUI—wildland-urban interface.

Appendix A—Background Information

This appendix includes background information related to the refuge and its management, as follows:

- key legislation and policy
- refuge establishment history
- public use
- water rights
- species of concern
- cultural resources

Key Legislation and Policy

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

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

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

Criminal Code of Provisions of 1940, as amended, (18 U.S.C. 41): States the intent of Congress to protect all wildlife within federal sanctuaries, refuges, fish hatcheries, and breeding grounds. Provides that anyone (except in compliance with rules and regulations promulgated by authority of law) who hunts, traps, or willfully disturbs any such wildlife, or willfully injures, molests, or destroys any property of the United States on such land or water, shall be fined up to $500 or imprisoned for not more than 6 months or both.

Emergency Wetland Resources Act of 1986: Authorizes the purchase of wetlands from Land and Water Conservation Fund moneys, removing a prior prohibition on such acquisitions. The Act also requires the Secretary to establish a national wetlands priority conservation plan, requires the states to include wetlands in their comprehensive outdoor recreation plans, and transfers to the Migratory Bird Conservation Fund amount equal to import duties on arms and ammunition.

Endangered Species Act of 1973 and recent amendments (16 U.S.C. 1531–1543; 87 Stat. 884), as amended (establishing legislation): Provides for conservation of threatened and endangered species of fish, wildlife, and plants by federal action and by encouraging state programs. Specific provisions include:

> the listing and determination of critical habitat for endangered and threatened species and consultation with the Service on any federally funded or licensed project that could affect any of these agencies;
>
> prohibition of unauthorized taking, possession, sale, transport, etc., of endangered species;
>
> an expanded program of habitat acquisition;
>
> establishment of cooperative agreements and grants-in-aid to states that establish and maintain an active, adequate program for endangered and threatened species;
>
> assessment of civil and criminal penalties for violating the Act or regulations.

Environmental Education Act of 1990 (20 U.S.C. 5501–5510; 104 Stat. 3325): Public law (P.L.) 101-619, signed November 16, 1990, established the Office of Environmental Education within the U.S. Environmental Protection Agency (EPA) to develop and administer a federal environmental education program. Responsibilities of the office include developing and supporting programs to improve understanding of the natural and developed environment, and the relationships between humans and their environment; supporting the dissemination of educational materials; developing and supporting training programs and environmental education seminars; managing a federal grant program; and administering an environmental internship and fellowship program. The office is required to develop and support environmental programs in consultation with other federal natural resource management agencies, including the Service.

Executive Order 11988—Floodplain Management: This executive order, signed May 24, 1977, prevents federal agencies from contributing to the "adverse impacts associated with occupancy and modification of floodplains" and the "direct or indirect support of floodplain development." In the course of fulfilling their respective authorities, federal agencies "shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains."

Executive Order 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 system.

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

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

Fish and Wildlife Act of 1956 (70 Stat. 1119; 16 U.S.C. 742a–742j), as amended: Establishes a comprehensive fish and wildlife policy and directs the Secretary of the Interior to provide continuing research; and extension and conservation of fish and wildlife resources.

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

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

Migratory Bird Conservation Act of 1929 (16 U.S.C. 715–715d, 715e, 715f–715r): Establishes the Migratory Bird Conservation Commission, which consists of the Secretaries of the Interior (chair), Agriculture, and Transportation; two members from the House of Representatives; and an ex-officio member from the state in which a project is located. The commission approves acquisition of land and water, or interests therein, and sets the priorities for acquisition of lands by the Secretary of the Interior for sanctuaries or for other management purposes. Under this Act, to acquire lands or interests therein, the state concerned must consent to such acquisition by legislation. Such legislation has been enacted by most states.

Migratory Bird Conservation Act of 1929 (16 U.S.C. 715s, 45 Stat. 1222), as amended: Authorizes acquisition, development, and maintenance of migratory bird refuges; cooperation with other agencies in conservation; and investigations and publications on North American birds. Authorizes payment of 25 percent of net receipts from administration of national wildlife refuges to the country or counties in which such refuges are located.

Migratory Bird Hunting and Conservation Stamp Act of 1934 (16 U.S.C. 718–718h; 48 Stat. 51), as amended: The "Duck Stamp Act," as this March 16, 1934 authority is commonly called, requires each waterfowl hunter 16 years of age or older to possess a valid federal hunting stamp. The Act authorized the requirement of an annual stamp for the hunting of waterfowl. Proceeds go towards the purchase of habitat for waterfowl and other wildlife. Duck stamps are also purchased: (1) for entry into some refuges; (2) by conservationists; and (3) for stamp collections. Receipts from the sale of the stamp are deposited in a special Treasury account known as the Migratory Bird Conservation Fund and are not subject to appropriations.

Migratory Bird Treaty Act of 1918 (16 U.S.C. 703–711; 50 CFR subchapter B), as amended: Implements treaties with Great Britain (for Canada) and Mexico for protection of migratory birds whose welfare is a federal responsibility. The act provides for regulations to control taking, possession, selling, transporting, and importing of migratory birds and provides penalties for violations. This Act enables the setting of seasons and other regulations (including the closing of areas, federal or nonfederal) related to the hunting of migratory birds.

National and Community Service Act of 1990 (42 U.S.C. 12401; 104 Stat. 3127): P.L. 101-610, signed November 16, 1990, authorizes several programs to engage citizens of the United States in full and part-time projects designed to combat illiteracy and poverty, provide job skills, enhance educational skills, and fulfill environmental needs. The Act will make grants to states for the creation of programs for citizens over 17 years of age. Programs must be designed to fill unmet educational, human, environmental, and public safety needs. Initially, participants will receive postemployment benefits of up to $1000 per year for part-time and $2,500 for full-time participants.

Several provisions are of particular interest to the Service:

> *American Conservation and Youth Service Corps:* As a federal grant program established under subtitle C of the law, the corps offers an opportunity for young adults between the ages of 16 and 25, or in the case of summer programs, between 15 and 21, to engage in approved human and natural resources projects that benefit the public or are carried out on federal or Indian lands. To be eligible for

assistance, natural resources programs will focus on improvement of wildlife habitat and recreational areas, fish culture, fishery assistance, erosion, wetlands protection, pollution control, and similar projects. A stipend of not more than 100 percent of the poverty level will be paid to participants. A commission established to administer the Youth Service Corps will make grants to states, the Secretaries of Agriculture and Interior, and the Director of ACTION to carry out these responsibilities.

Thousand Points of Light: Creates a nonprofit Points of Light Foundation to administer programs to encourage citizens and institutions to volunteer to solve critical social issues, discover new leaders, and develop institutions committed to serving others.

National Historic Preservation Act of 1966 (16 U.S.C. 470–470b, 470c–470n): P.L. 89-665, approved October 15, 1966 (80 Stat. 915), and repeatedly amended, provides for preservation of significant historical features (buildings, objects, and sites) through a grants-in-aid program to the states. It establishes the National Register of Historic Places and a program of matching grants under the existing National Trust for Historic Preservation (16 U.S.C. 468–468d). The Act establishes the Advisory Council on Historic Preservation, which was made a permanent independent agency in P.L. 94-422, approved September 28, 1976 (90 Stat. 1319). That Act also creates the Historic Preservation Fund. Federal agencies are directed to take into account the effects of their actions on items or sites listed or eligible for listing in the National Register. As of January 1989, 91 historic sites on national wildlife refuges have been placed on the National Register.

There are various laws for the preservation of historic sites and objects.

Antiquities Act (16 U.S.C. 431–433): The Act of June 8, 1906 (34 Stat. 225) authorizes the President to designate as national monuments objects or areas of historic or scientific interest on lands owned or controlled by the United States. The Act required that a permit be obtained for examination of ruins, excavation of archaeological sites, and the gathering of objects of antiquity on lands under the jurisdiction of the Secretaries of Interior, Agriculture, and Army, and provided penalties for violations.

Archeological and Historic Preservation Act (16 U.S.C. 469–469c): P.L. 86-523, approved June 27, 1960 (74 Stat. 220) as amended by P.L. 93291, approved May 24, 1974 (88 Stat. 174) to carry out the policy established by the "Historic Sites Act" (see below), directed federal agencies to notify the Secretary of the Interior whenever they find a federal or federally assisted, licensed, or permitted project may cause loss or destruction of significant scientific, prehistoric, or archaeological data. The Act authorizes use of appropriated, donated, and transferred funds for the recovery, protection, and preservation of such data.

Archaeological Resources Protection Act (16 U.S.C. 470aa–470ll): P.L. 96-95, approved October 31, 1979 (93 Stat. 721): Largely supplants the resource protection provisions of the Antiquities Act for archaeological items. This Act establishes detailed requirements for issuance of permits for any excavation for or removal of archaeological resources from federal or Indian lands. It also establishes civil and criminal penalties for the unauthorized excavation, removal, or damage of any such resources; for any trafficking in such resources removed from federal or Indian land in violation of any provision of federal law; and for interstate and foreign commerce in such resources acquired, transported, or received in violation of any state or local law.

Historic Sites, Buildings and Antiquities Act (16 U.S.C. 461–462, 464–467): The Act of August 21, 1935 (49 Stat. 666), popularly known as the "Historic Sites Act," as amended by P.L. 89-249, approved October 9, 1965 (79 Stat. 971), declares it a national policy to preserve historic sites and objects of national significance, including those located on refuges. It provides procedures for designation, acquisition, administration, and protection of such sites. Among other things, National Historic and Natural Landmarks are designated under authority of this Act. As of January 1989, 31 national wildlife refuges contained such sites.

P.L. 100-588, approved November 3, 1988 (102 Stat. 2983): Lowers the threshold value of artifacts triggering the felony provisions of the Act from $5,000 to $500; makes attempting to

> commit an action prohibited by the Act a violation; and requires the land managing agencies to establish public awareness programs regarding the value of archaeological resources to the Nation.

National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321–4347, January 1, 1970, 83 Stat. 852) as amended by P.L. 94-52, July 3, 1975, 89 Stat. 258, and P.L. 94-83, August 9, 1975, 89 Stat. 424: 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 the implementation of all actions, federal agencies must integrate the Act with other planning requirements, and to prepare appropriate documents to facilitate better environmental decision making (40 CFR 1500). The Act declares national policy to encourage a productive and enjoyable harmony between humans and their environment. Section 102 of that Act directs that "to the fullest extent possible:

> the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act, and
>
> all agencies of the Federal Government shall...insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic technical considerations..."

Section 102(2)c of NEPA requires all federal agencies, with respect to major federal actions significantly affecting the quality the quality of the human environment, to submit to the Council on Environmental Quality a detailed statement of:

> the environmental impact of the proposed action;
>
> any adverse environmental effect that cannot be avoided should the proposal be implemented;
>
> alternatives to the proposed action;
>
> the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity;
>
> any irreversible and irretrievable commitments of resources that would be involved in the proposed action, should it be implemented.

National Wildlife Refuge System Administration Act of 1966 (P.L. 89-669; 80 Stat. 929; 16 U.S.C. 668dd–668ee), as amended: This Act defines the National Wildlife Refuge System as including wildlife refuges, areas for protection and conservation of fish and wildlife that are threatened with extinction, wildlife ranges, game ranges, wildlife management areas, and WPAs. The Secretary is authorized to permit any use of an area provided such use is compatible with the major purposes for which such area was established. The purchase considerations for rights-of-way go into the Migratory Bird Conservation Fund for the acquisition of lands. By regulation, up to 40 percent of an area acquired for a migratory bird sanctuary may be opened to migratory bird hunting unless the Secretary finds that the taking of any species of migratory game birds in more than 40 percent of such area would be beneficial to the species. The Act requires an Act of Congress for the divestiture of lands in the system, except for (1) lands acquired with Migratory Bird Conservation Commission funds, and (2) lands that can be removed from the system by land exchange, or if brought into the system by a cooperative agreement, then pursuant to the terms of the agreement.

National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57, October 9, 1997, Amendment to the National Wildlife Refuge System Administration Act of 1966): Sets the mission and the administrative policy for all refuges in the National Wildlife Refuge System. Clearly 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; and requires a CCP for each refuge by the year 2012. This Act amended portions of the Refuge Recreation Act and the National Wildlife Refuge System Administration Act of 1966.

Key provisions include the following:

- a requirement that the Secretary of the Interior ensures maintenance of the biological integrity, diversity, and environmental health of the National Wildlife Refuge System
- the definition of compatible wildlife-dependent recreation as "legitimate and appropriate general public use of the [National Wildlife Refuge] System"
- the establishment of hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation as "priority public uses" where compatible with the mission and purpose of individual national wildlife refuges
- the refuge managers' authority to use sound professional judgment in determining which public uses are compatible on national wildlife refuges and whether or not they will be allowed (a

formal process for determining "compatible use"" is currently being developed)

- the requirement of open public involvement in decisions to allow new uses of national wildlife refuges and renew existing ones, as well as in the development of CCPs for national wildlife refuges

National Wildlife Refuge System Volunteer and Community Partnership Enhancement Act of 1998: The purposes of this Act are: (1) to encourage the use of volunteers to assist the Service in the management of refuges within the Refuge System; (2) to facilitate partnerships between the Refuge System and nonfederal entities to promote public awareness of the resources of the Refuge System and public participation in the conservation of those resources; and (3) to encourage donations and other contributions by persons and organizations to the Refuge System. (P.L. 105-242; 112 Stat. 1575)

North American Wetlands Conservation Act (103 Stat. 1968; 16 U.S.C. 4401–4412): P.L. 101-233, enacted December 13, 1989: An act to conserve North American wetland ecosystems, waterfowl and other migratory birds, fish, and wildlife that depend on such habitats. The Act established a council to review project proposals and provided funding for the projects. The Act provides funding and administrative direction for implementation of the North American Waterfowl Management Plan and the Tripartite Agreement on wetlands between Canada, United States, and Mexico. The Act converts the Pittman–Robertson account into a trust fund, with the interest available without appropriation through the year 2006 to carry out the programs authorized by the Act, along with an authorization for annual appropriation of $15 million plus an amount equal to the fines and forfeitures collected under the Migratory Bird Treaty Act. Available funds may be expended, upon approval of the Migratory Bird Conservation Commission, for payment of not to exceed 50 percent of the United States share of the cost of wetlands conservation projects in Canada, Mexico, or the United States (or 100 percent of the cost of projects on federal lands). At least 50 percent and no more than 70 percent of the funds received are to go to Canada and Mexico each year.

Refuge Recreation Act of 1962: Authorizes the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use, when such uses do not interfere with the areas' primary purposes. It authorizes construction and maintenance of recreational facilities and the acquisition of land for incidental fish and wildlife oriented recreational development or protection of natural resources. It also authorizes the charging of fees for public uses.

Refuge Recreation Act of 1966 (P.L. 87-714; 76 Stat. 653–654; 16 U.S.C. 460k et seq.): Authorizes appropriate, incidental, or secondary recreational use on conservation areas administered by the Secretary of the Interior for fish and wildlife purposes.

Refuge Revenue Sharing Act (16 U.S.C. 715s): Section 401 of the Act of June 15, 1935 (49 Stat. 383) provides for payments to counties in lieu of taxes, using revenues derived from the sale of products from refuges.

P.L. 88-523, approved August 30, 1964 (78 Stat. 701): Makes major revisions by requiring that all revenues received from refuge products such as animals, timber and minerals, or from leases or other privileges, be deposited in a special Treasury account and net receipts distributed to counties for public schools and roads.

P.L. 93-509, approved December 3, 1974 (88 Stat. 1603): Requires that moneys remaining in the fund after payments be transferred to the Migratory Bird Conservation Fund for land acquisition under provisions of the Migratory Bird Conservation Act.

P.L. 95-469, approved October 17, 1978 (92 Stat. 1319): Expands the revenue-sharing system to include national fish hatcheries and Service research stations. It also includes in the Refuge Revenue Sharing Fund receipts from the sale of salmonid carcasses. Payments to counties were established as follows:

— On acquired land, the greatest amount calculated on the basis of 75 cents per acre, ¾ of 1 percent of the appraised value, or 25 percent of the net receipts produced from the land

— On land withdrawn from the public domain, 25 percent of net receipts and basic payments under P.L. 94-565 (31 U.S.C. 1601–1607, 90 Stat. 2662), payment in lieu of taxes on public lands

This amendment also authorizes appropriations to make up any difference between the amount in the Fund and the amount scheduled for payment in any year. The stipulation that payments be used for schools and roads was removed, but counties were required to pass payments along to other units of local government within the county that suffer losses in revenues due to the establishment of Service areas.

Refuge Trespass Act of June 28, 1906 (18 U.S.C. 41; 43 Stat. 98, 18 U.S.C. 145): Provides the first federal protection for wildlife on national wildlife refuges. This Act makes it unlawful to hunt, trap, capture, willfully disturb, or kill any bird or wild animal, or take or destroy the eggs of any such birds, on any lands of the United States set apart or reserved as refuges or breeding grounds for such birds or animals by any law, proclamation, or executive order, except under rules and regulations of the Secretary. The Act also protects government property on such lands.

Refuge Trespass Act of June 25, 1948 (18 U.S.C. 41. Stat 686), section 41 of the Criminal Code, title 18: Consolidates the penalty provisions of various acts from January 24, 1905 (16 U.S.C. 684–687; 33 Stat. 614), through March 10, 1934 (16 U.S.C. 694–694b; 48 Stat. 400) and restates the intent of Congress to protect all wildlife within federal sanctuaries, refuges, fish hatcheries, and breeding grounds. The Act provides that anyone (except in compliance with rules and regulations promulgated by authority of law) who hunts, traps, or willfully disturbs any wildlife on such areas, or willfully injures, molests, or destroys any property of the United States on such lands or waters, shall be fined, imprisoned, or both.

Rehabilitation Act of 1973 (29 U.S.C. 794), as amended: Title 5 of P.L. 93-112 (87 Stat. 355), signed October 1, 1973, prohibits discrimination on the basis of handicap under any program or activity receiving federal financial assistance.

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

Wilderness Act of 1964: P.L. 88-577, approved September 3, 1964, directs the Secretary of the Interior, within 10 years, to review every roadless area of 5,000 or more acres and every roadless island (regardless of size) within National Wildlife Refuge System and National Park Service for inclusion in the National Wilderness Preservation System.

National Wildlife Refuge System

Administration of national wildlife refuges is governed by bills passed by the United States Congress and signed into law by the President of the United States, and by regulations promulgated by the various branches of the government. Following is a brief description of some of the most pertinent laws and statues establishing legal parameters and policy direction for the National Wildlife Refuge System.

Fish and Wildlife Conservation Act of 1980 (P.L. 96-366, September 29, 1980, 16 U.S.C. 2901–2911, as amended 1986, 1988, 1990, and 1992): Creates a mechanism for federal matching funding of the development of state conservation plans for nongame fish and wildlife. Subsequent amendments to this law require that the Secretary monitor and assess migratory nongame birds, determine the effects of environmental changes and human activities, identify birds likely to be candidates for endangered species listing, and identify conservation actions that would prevent this from being necessary. In 1989, Congress also directed the Secretary to identify lands and waters in the Western Hemisphere, the protection, management, or acquisition of which would foster conservation of migratory nongame birds. All of these activities are intended to assist the Secretary in fulfilling the Secretary's responsibilities under the Migratory Bird Treaty Act and the Migratory Bird Conservation Act, and provisions of the ESA implementing the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere.

Refuge Revenue Sharing Act of 1978 [P.L. 95-469, October 17, 1978, (amended 16 U.S.C. 715s); 50 CFR, part 34]: Changes the provisions for sharing revenues with counties in a number of ways. It makes revenue sharing applicable to all lands administered by the Service, whereas previously it was applicable only to areas in the National Wildlife Refuge System. The new law makes payments available for any governmental purpose, whereas the old law restricted the use of payments to roads and schools. For lands acquired in fee simple, the new law provides a payment of 75 cents per acre, ¾ of 1 percent of fair market value or 25 percent of net receipts, whichever is greatest, whereas the old law provided a payment of ¾ of 1 percent adjustment cost or 25 percent of net receipts, whichever was greater. The new law makes reserve (public domain) lands entitlement lands under P.L. 94-565 (16 U.S.C. 1601–1607, and provides for a payment of 25 percent of net receipts. The new law authorizes appropriations to make up any shortfall in net receipts, to make payments in the full amount for which counties are eligible. The old law provided that if net receipts were insufficient to make full payment, payment to each county would be reduced proportionality.

Section 401 of the Federal Water Pollution Control Act of 1972 (P.L. 92-500; 86 Stat. 816, 33 U.S.C. 1411): Requires any applicant for a federal license or permit to conduct any activity that may result in a discharge into navigable waters to obtain a certification from the state in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over navigable waters at the point where the discharge originates or will originate, that

the discharge will comply with applicable effluent limitations and water quality standards. A certification obtained for construction of any facility must also pertain to subsequent operation of the facility.

Section 404 of the Federal Water Pollution Control Act of 1972 (P.L. 92-500, 86 Stat. 816): Authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits, after notice and opportunity for public hearing, for discharge of dredged or fill material into navigable waters of the United States, including wetlands, at specified disposal sites. Selection of disposal sites will be in accordance with guidelines developed by the Administrator of the Environmental Protection Agency in conjunction with the Secretary of the Army. Furthermore, the Administrator can prohibit or restrict use of any defined area as a disposal site whenever she/he determines, after notice and opportunity for public hearings, that discharge of such materials into such areas will have an unacceptable adverse effect on municipal water supplies, shellfish beds, fishery areas, wildlife, or recreational areas.

National Wildlife Refuge Regulations for the most recent fiscal year (50 CFR 25-35, 43 CFR 3103.2 and 3120.3–3): Provides regulations for administration and management of national wildlife refuges including mineral leasing, exploration, and development.

Rights-of-way General Regulations (50 CFR 29.21; 34 FR 19907, December 19, 1969): Provides for procedures for filing applications. Provides terms and conditions under which rights-of-way over, above, and across lands administered by the Service may be granted.

Use of Off-road Vehicles on Public Lands (Executive Order 11644, Federal Reg. Vol. 37, No. 27, February 9, 1972): Provides policy and procedures for regulating off-road vehicles.

RECREATIONAL USE

The following are laws and executive orders that regulate recreational use on Refuge System lands.

Alaska National Interest Lands Conservation Act of 1980 (16 U.S.C. 410 hh3233 and 43 U.S.C. 1602–1784)
Alaska Native Claims Settlement Act (43 U.S.C. 1601–1624)
Antiques Act of 1906 (16 U.S.C. 431–433)
Archaeological and Historic Preservation Act of 1960 (16 U.S.C. 469–469c), as amended
Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa–470mm)
Comprehensive Environmental Responses, Compensation and Liability Act of 1980
Endangered Species Act of 1973 (16 U.S.C. 1531–1544), as amended
The Fish and Wildlife Act of 1956 (16 U.S.C. 742f (a) (4), as amended
Fish and Wildlife Conservation Act (16 U.S.C. 2901–2911), as amended
The Fish and Wildlife Coordination Act [16 U.S.C. 661(1)–662(c)]
Fish and Wildlife Improvement Act of 1978 (16 U.S.C. 7421)
Historic Sites, Building and Antiquities Act of 1935 (16 U.S.C. 461–462, 464–467)
Land and Water Conservation Fund [16 U.S.C. 460(l–4)–(l–11)], as amended.
Migratory Bird Conservation Act of 1929 (16 U.S.C. 715–715d, 715e, 715f–715r), as amended
National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–669ee), as amended
National Wildlife Refuge System Improvement Act of 1997
Natural Historic Preservation Act of 1966 (16 U.S.C. 470–470b, 470c–470n), as amended
Refuge Recreation Act of 1962 (16 U.S.C. 460k–460k4), as amended
Refuge Recreation Act of 1969 (16 U.S.C. 460k–460k4), as amended
Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, as amended
Wild and Scenic Rivers Act (16 U.S.C. 1271–1287), as amended
Wilderness Act of 1964 (16 U.S.C. 1131–1136)
Executive Order 11593—Protection and Enhancement of the Cultural Environment
Executive Order 11593—Protection of Historical, Archaeological and Scientific Properties
Executive Order 11644—Use of Off-road Vehicles on Public Lands
Executive Order 11988—Floodplain Management
Executive Order 11990—Protection of Wetlands
Executive Order 12372—Intergovernmental Review of Federal Program
Executive Order 12962—Recreational Fisheries
Executive Order 12996—Management and General Public Use of the National Wildlife Refuge System
Executive Order 13006—Locating Federal Facilities On Historic Properties In Our Nation's Central Cities
Executive Order 13007—Indian Sacred Sites
Executive Order 13287—Preserve America

Refuge Establishment History

The MPC owned and operated Kerr Dam, a hydro-generating facility located on the Flathead River approximately 2.5 miles southwest of the southern end of Flathead Lake. In 1976, the MPC filed an application with the FERC for a new license to operate the Kerr project. Kerr Dam is located within the exterior boundaries of the Flathead Indian Reservation (CSKT). Subsequent to the MPC re-license application, the CSKT filed a competing application for operation of the dam. From 1980 to 1985, the MPC operated the Kerr project under successive annual operating licenses, pending resolution of a number of legal and environmental issues and studies.

In 1985, FERC issued an EA that evaluated the environmental effects of issuing a license for the Kerr Project. The EA further identified hydro-project impacts to aquatic and wildlife resources and wildlife habitat on the Flathead WPA located at the north end of Flathead Lake. These impacts included severe wave action erosion of wildlife habitats on the WPA due to seasonal increases in lake levels. The WPA is administered as an entity of the National Wildlife Refuge System, thus national wildlife trust resources were impacted by hydro-operations that began in 1938.

After a period of review, biological studies, assessments, and subsequent litigation; the MPC, CSKT, and Department of Interior (DOI) ultimately reached a settlement in 1985 that was approved by FERC and incorporated into a new 50-year license issued jointly to the MPC and the CSKT. Article 47 of the new license required the MPC to study and develop mitigation and management measures for the loss of wildlife habitat on the Flathead WPA. In May 1990, after consultation with the CSKT and the Service, the MPC issued a mitigation and management plan. Subsequent to review of this plan, and determination that the MPC's plan would constitute a major federal action, FERC issued an environmental impact statement (EIS). In 1994, under authority of the Federal Power Act, the DOI submitted 4e conditions, which would provide for adequate protection and use of the Flathead Indian Reservation and the Flathead WPA. In 1998, FERC issued an "Order Approving Settlement" that required the MPC to acquire 3,911 acres of suitable replacement habitat as partial mitigation for wildlife losses and impacts on the WPA. This replacement habitat acreage was to be conveyed to the Service in fee title.

In 1985, the Service identified the need to evaluate the future of land acquisition in Flathead and Lake counties, Montana. This need resulted from pending MPC mitigation due to identified habitat losses and wildlife impacts on the Flathead WPA. In 1986, the Service prepared a land acquisition and development plan. This document delineated over 11,000 acres of potential wetland and upland tracts in the Flathead Valley that would be suitable for wetland-dependent wildlife production and management. The 160acre Dahl Lake and surrounding habitats, located in the Pleasant Valley, were identified in the document.

Establishment of the Lost Trail National Wildlife Refuge began in June of 1996 when the MPC purchased the Lost Trail Ranch with the intent of conveying 3,112 acres to the Service per the FERC order requiring replacement of lost habitat. Two separate parcels of the ranch were identified as mitigative replacement habitat:

- 160-acre Dahl Lake with 2,452 acres of surrounding habitat
- 500 acres of restorable wetlands located on the west end of the ranch

After review of the proposed conveyed parcels and in consideration of additional wildlife needs within the area, the Service proposed acquisition of the remaining ranch tracts for establishment of a national wildlife refuge. The MPC readily agreed to this concept. In early 1998, a preliminary project proposal, conceptual management plan, and acquisition EA were prepared. The acquisition EA listed several alternatives:

- No action—acceptance of the two mitigation parcels (3,112 acres) to be managed as a WPA
- Acceptance of the mitigation parcels to be managed as a national wildlife refuge
- Mitigation and fee-title acquisition of lands as a national wildlife refuge

Alternative C was the preferred alternative. A scoping meeting was held in Kalispell, Montana, on May 20, 1998, to solicit public comment concerning Service acquisition of Lost Trail Ranch. The concept of establishment of a national wildlife refuge received little opposition.

After considerable efforts by the Service's realty division (Denver), acquisition of the Lost Trail National Wildlife Refuge was completed on August 24, 1999.

During the interim acquisition period (1998–1999), the NRCS, in conjunction with the MPC, acquired a WRP easement on 1,770 acres of the ranch. This easement allows for the restoration of the hydrology of the area. Restoration efforts will be federally funded through NRCS in coordination with the Service.

Public Use

The Improvement Act of 1997, the organic legislation of the Refuge System, recognizes six wildlife-dependent "priority public uses" that are

most appropriate for national wildlife refuges. These are hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation. National refuge policy encourages refuges to offer these opportunities and to seek out additional resources when needed to do so. There is a special focus on these activities because they help foster an appreciation and understanding of wildlife and the outdoors.

Wildlife conservation is always the top obligation of national wildlife refuges, and refuges must go through several steps when evaluating a public use. If a use is not one of the priority public uses, the first step is to evaluate it against several criteria to determine whether the use is appropriate for a specific national wildlife refuge. All uses must also be determined to be compatible—meaning that they will not materially detract from or interfere with the refuge's establishing purpose or Service mission. The third step is to determine whether the refuge has the resources to administer the use safely and responsibly. If a priority public use is appropriate and compatible, but the refuge staff lacks the resources to administer the use, refuge managers are encouraged to seek additional resources from outside sources, such as nonprofit partner organizations and state natural resource agencies.

The priority uses are first in line for the refuge's available public use staff and financial resources. If conflicts arise between priority uses and other uses, refuge managers must eliminate the nonpriority use or modify that use to reduce conflict.

Refuge managers may allow (with written justification) other compatible public uses. When considering other uses, the refuge manager will prepare a compatibility determination when necessary. Non-wildlife-dependent activities can be allowed when needed to provide access to, help implement, or sustain a priority use when no other way is practicable. Refuge managers must determine the appropriateness as well as compatibility of such uses before allowing them to occur on Refuge System lands. For example, camping may be necessary to facilitate hunting on large remote refuges but may not be necessary to facilitate hunting on refuges near developed areas where camping or other lodging is available.

Refuge managers may establish use limits and/or zones for specific activities, disperse or restrict use, or use other means to minimize or eliminate conflict between uses that occur at refuges. Nonpriority uses, if allowed, must not interfere with or diminish the opportunity for, or quality of, priority wildlife-dependent recreational uses. Using zones or the establishment of limits, the Service can generally provide a balanced recreation program and avoid favoring one priority recreational opportunity over another when both are compatible.

It is recognized, however, that some refuges may not support public use. Many refuges only support limited public use and not every priority use can be accommodated on every refuge. If it is determined that a refuge can support one or more of these uses, the priority wildlife-dependent recreational use must receive preferential consideration in refuge planning and management before the refuge manager analyzes other appropriate recreational opportunities.

The "appropriate use" test for nonpriority public uses occurs before the refuge manager begins a compatibility determination. The appropriate use test is designed to screen out uses that are not among the priority public uses and which are clearly not related to the refuge's wildlife conservation mission. Compatibility reviews determine whether any use will detract from the refuge's ability to meet its conservation obligations. If an existing or proposed use is determined to be appropriate, then the use must still be reviewed for compatibility before it may be allowed or continued to be allowed. If a use is not appropriate, then a compatibility determination is not necessary. A use should not be allowed simply because it is a historical use but should go through this process to determine appropriateness and compatibility.

An appropriate use of a refuge is a proposed or existing use that meets at least one of the following three conditions:

1. The use is a priority public use or is necessary for the safe, practical, and effective conduct of a priority public use on a refuge.
2. The use contributes to the Refuge System mission, or the refuge purposes, goals, or objectives as described in a refuge management plan (such as this CCP) approved after the passage of the refuge Improvement Act.
3. The refuge manager has determined the use to be appropriate after evaluating 11 factors designed to screen out uses that could conflict with stewardship responsibilities for the wildlife conservation mission of the Refuge System, interfere with priority public uses, or which do not contribute to an overall understanding and appreciation of wildlife resources.

The 11 factors a refuge manager would use to determine if a use is appropriate follow.

1. Does the use comply with applicable laws and regulations?
2. Is the use consistent with applicable executive orders and Department and Service policies?
3. Is the use consistent with refuge goals and objectives documented in an approved refuge management plan?

4. Has an earlier documented analysis not denied the use?
5. Is the use consistent with public safety?
6. Is the use manageable within available budget and staff?
7. Is the use consistent with other resource or management objectives?
8. Will the use be easy to control in the future?
9. Is the refuge the only place where this activity can reasonably occur?
10. Does the use contribute to the public's understanding and appreciation of the refuge's wildlife or cultural resources, or is the use beneficial to the refuge's wildlife or cultural resources?
11. Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality wildlife-dependent recreation into the future?

If the answer is "no" to any of these questions, the Service will generally not allow the use. If the answers are consistently "yes" to these questions, or if there are compelling reasons why the refuge manager believes the use is appropriate on the refuge, the refuge manager then prepares written justification, and obtains concurrence from his/her supervisor.

Refuge managers, with assistance from regional offices as well as the public, must adequately monitor recreational activities on the Refuge System lands. Monitoring programs must focus on the impacts of recreational activities on wildlife, habitat, and the quality of experience for the public. By implementing successful monitoring techniques, the Service can evaluate and adaptively manage to meet established standards and ensure that activities continue to be appropriate, compatible, and of high quality.

The following general criteria (from the "Draft Wildlife-dependent Recreational Uses Policy Pursuant to the Improvement Act") will help refuge managers decide what recreational activities to allow, encourage, or develop, and at what level. Refuge managers must eliminate—with adequate consultation, documentation, and cooperation with affected federal, state, tribal, local authorities, and groups—programs that do not meet these criteria.

- *Ensure appropriateness.* Refuge managers, in consultation with regional offices when deemed necessary, must first consider if a use is appropriate on Refuge System lands. Refuge managers must be able to show why the requested use supports the Refuge System mission and the purpose of the refuge before investing additional resources for a compatibility determination.
- *Ensure compatibility.* Refuge managers must:
  - exercise sound professional judgment (compatibility determinations are inherently complex and require the refuge manager to consider their field experiences and knowledge of a refuge's resources, particularly its biological resources, and make conclusions that are consistent with principles of sound fish and wildlife management and administration, available scientific information, and applicable laws);
  - consider the extent to which available resources (funding, personnel, and facilities) are adequate to develop, manage, and maintain the proposed use to ensure compatibility (the refuge manager must make reasonable efforts to ensure that the lack of resources is not an obstacle to permitting otherwise compatible wildlife-dependent recreational uses—hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation);
  - under no circumstances (except emergency provisions necessary to protect the health and safety of the public or any fish or wildlife population), authorize any use not determined to be compatible.
- *Focus on wildlife.* Wildlife conservation is the first priority of the Refuge System, and new and ongoing recreational use programs should help visitors focus on wildlife and other natural resources. Activities should make visitors aware of the most important resource issues at the refuge, be supportive of management plans that address those issues, and show how the refuge contributes to the mission of the Refuge System.
- *Tailor programs to refuge needs and ability to administer the program.* Refuge managers will determine and document:
  - the design and scope of a refuge recreational use program after evaluating the wildlife-dependent uses that are appropriate, compatible, and practical at that refuge; the amount and type of visitation; constraints of the location; traditions/viewpoints of the local populace; legal commitments; other opportunities in the area; public interest; resource management concerns; and other criteria;
  - a realistic demand for the activity (this is important because activities generally are harder to curtail or stop than to begin; refuge managers must have an eye to the future and be ready for possible changes in staffing, funding, or other program elements that may occur).

- *Follow an approved plan.* Before administering priority uses or identifying and allowing mandated or nonpriority uses at a refuge, the refuge manager should consult the refuge's CCP, visitor-service management plan, and other applicable step-down plans. The documents will outline program objectives and other specific information that will provide the guidance needed to manage these activities.
- *Ensure adequate resources.* Refuge managers will:
  - offer wildlife-dependent recreational use programs only to the extent that staff and funds are sufficient to develop, operate, and maintain the program to safe, quality standards (refuge managers should remember that, in general, the greater the scope and complexity of a program, the greater the need for staff and money; where wildlife-dependent recreational uses cannot occur at a refuge due to insufficient resources, refuge managers will try to facilitate these programs through user fee programs and cooperative efforts, including memorandums of understanding, cost-share agreements, sharing personnel with nearby refuges, and others; conservation partnerships or other groups can help refuge managers more effectively finance and administer recreational use programs on refuges by providing labor, funds, or other types of support; where available and appropriate, refuge managers should work with cooperating associations, volunteers, contractors, businesses, local communities, educational institutions, state and tribal governments, other federal agencies, conservation groups, other organizations, and the public to minimize or reduce the costs of conducting recreational use programs; the community relations benefits of such an approach are effective and far-reaching);
  - seek opportunities to develop formal agreements, contracts, cooperative ventures, and community sponsorships to fund equipment and supplies, maintain facilities, conduct training, provide technical assistance, and help with other aspects of a quality recreational use program (refuge managers should not enter into agreements that unnecessarily encumber lands and facilities or hinder meeting the resource management objectives).

Hunting

The Service recognizes hunting as a healthy, traditional outdoor pastime, deeply rooted in American heritage, and when managed appropriately, can instill a unique understanding and appreciation of wildlife, their behavior, and their habitat needs. Hunting also is an important wildlife management tool on refuges. The Service relies on close cooperation and coordination with state fish and wildlife management agencies in managing hunting opportunities on refuges and in setting management goals and objectives for refuge populations. Regulations permitting hunting of resident wildlife within the Refuge System shall be, to the extent practicable, consistent with state fish and wildlife laws, regulations, and management plans. The Service encourages refuge staff to develop and take full advantage of opportunities to work with other partners who have an interest in helping promote quality hunting programs on refuges.

The Service defines a quality hunting experience as one that:

> maximizes safety for hunters and other visitors;
>
> encourages the highest standards of ethical behavior in taking or attempting to take wildlife;
>
> is available to a broad spectrum of the hunting public;
>
> contributes positively to or has no adverse effect on population management of resident or migratory species;
>
> reflects positively on the individual refuge, the Refuge System, and the Service;
>
> provides hunters uncrowded conditions by minimizing conflicts and competition among hunters;
>
> provides reasonable challenges and opportunities for taking targeted species under the described harvest objective established by the hunting program; it also minimizes the reliance on motorized vehicles and technology designed to increase the advantage of the hunter over wildlife;
>
> minimizes habitat impacts;
>
> creates minimal conflict with other priority wildlife-dependent recreational uses or refuge operations;
>
> incorporates a message of stewardship and conservation in hunting opportunities.

Prior to establishment as a national wildlife refuge, Lost Trail had always been in private ownership. Although ranch owners and invited guests hunted the area, public hunting was not permitted. Opening the refuge to hunting and other public uses may negatively affect large mammal populations on the refuge and in the Pleasant Valley ecosystem. Monitoring will help managers assess the impacts of public use and other management decisions.

Hunt Environmental Assessment

The refuge developed a hunt EA and hunt plan during 2001. In summary, the 2001 hunt EA contained six alternatives. Alternative A (limited hunting) provided for archery-only hunting of elk and deer, as well as turkey and mountain grouse hunting, within designated areas. Alternative B (designated areas) was selected as the preferred alternative and provides for archery and rifle hunting of deer and elk, as well as turkey and mountain grouse, within designated areas. Alternative C (maximum allowable hunting) would have allowed hunting throughout the refuge for big game (elk, deer, moose, bear, lion), turkey, and upland game birds as well as predators. Alternative D (special permit hunting) provided for deer and elk hunting throughout the refuge under a permit season, as well as allowing turkey and grouse hunting. Alternative E (MFWP proposal) was suggested by the MFWP and would have allowed gun and archery hunting of deer and elk, waterfowl hunting on 40 percent of the refuge, turkey and grouse hunting, and rifle/shotgun hunting of furbearers. Alternative F (no action) would have continued the closure of the refuge to any form of hunting. These alternatives are explained in detail in the EA. Copies are available at the National Bison Range (406/644 2211) or at <http://bisonrange.fws.gov/losttrail/lastea.pdf>.

The preferred alternative selected from the hunt EA released in 2001 is alternative B (designated areas) with modifications. This alternative allows for hunting of elk, deer, mountain grouse (ruffed, spruce, and blue) and turkey following MFWP regulations and seasons except for designated closed areas (appendix G). No hunting will be allowed between the county road (Pleasant Valley Road) and the South Pleasant Valley Road. Hunting will be permitted on refuge lands south or east of the South Pleasant Valley Road (southeast pond area) and north of the county road. Shotgun hunting for turkey and mountain grouse will be limited to nontoxic shot. Hunting of moose, mountain lion, black bear, coyote, ground squirrels, furbearers, and waterfowl will not be allowed. Vehicle access will be permitted on roads currently open to the public including the north 1019 road and the county road. Hunters will be required to park in designated parking areas to access areas open to hunting (appendix G).

Special youth hunting and access for hunters with disabilities will be encouraged and accommodated following MFWP regulations. Youth hunting will be further encouraged by limiting the first week of archery deer and elk season and the first week of the general deer and elk season to youths 12–14 years of age accompanied by an adult or guardian who is at least 21 years of age. Hunters with disabilities in possession of a MFWP permit to hunt from a vehicle will be provided limited access to refuge management roads and trails.

The refuge manager—whenever necessary to protect the resources of the area or in the event of an emergency endangering life or property—may close all or any part of the refuge to hunting. In addition, according to refuge policy (8RM 5.3B, 5.3F, and 5.5N), yearly evaluation and monitoring for impacts from the hunt program will occur to determine if modifications to the hunt plan are necessary.

One step-down management plan has already been completed for the refuge—the hunt plan. During the acquisition process and in the acquisition EA, the Service stated that hunting would be evaluated and potentially allowed within 1 year after purchase. The Service missed that deadline but the development of a hunt EA and hunt plan were then accelerated to open the refuge to hunting for the fall 2002 season, concurrently with the development of the CCP. The approved preferred alternative in the hunt EA served as the guideline for the development of the step-down hunt plan. It outlines the specific details of how the hunt program is carried out. The hunt EA and hunt step-down plan can be viewed online at <http://bisonrange.fws.gov/losttrail/> or a copy can be obtained by writing to the refuge.

Fishing

The Service recognizes fishing as a traditional outdoor pastime that is deeply rooted in America's natural heritage. The objectives of the Refuge System's fishing program are to: effectively maintain healthy and diverse fish population resources through the use of scientific management techniques; to promote public understanding of, and increase public appreciation for, America's natural resources and the Service's role in managing the Refuge System; to provide opportunities for quality recreational and educational experiences; and to minimize conflicts between anglers and other visitors.

A quality fishing experience is one that contributes to management objectives and accomplishes the following:

1. maximizes safety for anglers and other visitors;
2. causes no adverse impact on populations of resident or migratory species, native species, threatened and endangered species, or habitat;
3. encourages the highest standards of ethical behavior in regard to catching, attempting to catch, and releasing fish;
4. is available to a broad spectrum of the public that visits, or potentially would visit, the refuge;

5. provides reasonable accommodations for individuals with disabilities to participate in refuge fishing activities;
6. reflects positively on the Refuge System;
7. provides uncrowded conditions;
8. creates minimal conflict with other priority wildlife-dependent recreational uses or refuge operation;
9. provides reasonable challenges and harvest opportunities;
10. increases the visitors' understanding and appreciation for the fishery's resource.

Wildlife Photography and Observation

Wildlife photography and observation are legitimate and appropriate public uses of the Refuge System, and along with the other priority public uses in the Improvement Act, will receive enhanced consideration over other uses. The objectives of the Refuge System's wildlife photography and observation program are to promote public understanding of and increase public appreciation for America's natural resources and the Refuge System by providing safe, enjoyable, attractive, and accessible wildlife-viewing and photographic opportunities and facilities.

Essential elements of a quality wildlife photographic or observation experience include the following:

- Opportunities occur in places with the least amount of disturbance to wildlife.
- Opportunities occur in a primitive setting or use safe facilities and provide an opportunity to photograph and view wildlife and its habitat in a natural environment.
- Facilities or programs maximize opportunities to photograph and view the spectrum of wildlife species and habitats of the refuge.
- Photographic and viewing opportunities, in conjunction with interpretive and educational opportunities, promote public understanding of and increase public appreciation for America's natural resources and the role of the Refuge System in managing and protecting these resources.
- Viewing and photographic opportunities are tied to interpretive and educational messages related to stewardship and key resource issues.
- If provided, most facilities blend with the natural setting, station architectural style, and provide viewing and photographic opportunities for all visitors, including persons with disabilities.
- Design of observation facilities minimizes disturbance to wildlife while facilitating the visitor's views and photographic opportunities of the spectrum of species found on the refuge.
- Photographers and observers understand and follow procedures that encourage the highest standards of ethical behavior.
- Viewing and photographic opportunities exist for a broad spectrum of the public.
- Observers and photographers have minimal conflict with other priority wildlife-dependent recreational uses or refuge operations.

Interpretation

Refuges will promote public awareness and advocacy of resources and management activities that conserve the region's natural, cultural, and historical resources through interpretive products. Service objectives for interpretive programs are to develop and maintain interpretive programs on refuges to:

1. increase public understanding and support for the Refuge System;
2. develop a sense of stewardship leading to actions and attitudes that reflect concern and respect for wildlife resources, cultural resources, and the environment;
3. provide an understanding of the management of our natural and cultural resources;
4. provide safe, enjoyable, accessible, meaningful, and quality experiences for visitors increasing their awareness, understanding, and appreciation of fish, wildlife, plants, and their habitats.

Well-designed interpretive services can be our most effective and inexpensive resource management tool. For many visitors, taking part in one or more interpretive activities is their primary contact with refuge staff, their chance to find out about refuge messages, and could be their first contact with the refuge, conservation, and wildlife. Through these contacts, the Service has the opportunity to influence visitor's attitudes toward the Service and their behaviors when visiting units of the Refuge System. Interpretive planning and subsequent activities and products can:

1. help visitors understand the impacts of their actions, minimizing unintentional resource damage and wildlife disturbance;
2. communicate rules and regulations so they relate to visitors, solving or preventing potential management problems;
3. help us make management decisions and build public support by providing insight into management practices.

There are two broad categories of interpretive activities: self-guided and personal services. Self-guided interpretation includes brochures, exhibits, kiosks, audiovisual media (including computer programs), and self-guided trails. Personal services

interpretation includes information desk duty, group presentations, guided talks and tours, and special events. Variety in interpretive experiences will appeal to a broad spectrum of interests and learning styles. Refuges should strive for:

quality, self-guided services, since they reach a larger audience, are more readily available, and visitors can use them at their own pace;

quality personal contact to initiate conversation and answer questions;

a variety of interpretive experiences that appeal to varying visitor interests.

Environmental Education

The refuge's goal for environmental education is to teach awareness, understanding, and appreciation of our trust resources and develop a sense of stewardship for natural and cultural resources and their management at the refuge, in the ecosystem and on other lands in the Refuge System.

To advance and support the National Wildlife Refuge System mission and goals, refuges will develop programs based on the following guidelines.

1. Connect people's lives to the health of the environment.
2. Advance science literacy through an interdisciplinary educational approach.
3. Strengthen the Refuge System through science learning.
4. Help participants experience the wonder of fish, wildlife, plants, and cultural and historical resources.
5. Stress the role and importance of refuges and emphasize the relationship between wildlife and associated ecosystems.
6. Be outcome-based, going beyond attending a program to resulting in something of value for both refuge resources and participants.
7. Pursue outreach and partnership opportunities enhancing programs on and off refuges and expanding our levels of educational expertise and staffing.
8. Include lesson plans and refuge activity guides that incorporate, complement, and focus on local school curricula allowing participants to use refuges as living laboratories.
9. Train educators, volunteers, and partners in resource issues in order to multiply Service efforts across a broader spectrum of students.
10. Establish, maintain, and promote environmental study sites and outdoor classrooms where they are compatible with refuge purpose(s), goals, and objectives.
11. Involve underserved populations like urban or rural schools, Native Americans, non-English-speaking populations, senior citizens, people with disabilities, and groups in the educational community other than K–12 such as colleges and universities.
12. Expand the Service's capability through technology such as web pages and electronic field trips.
13. Use appropriate formats for visitors with disabilities (learning, visual, hearing).

Refuge environmental education programs will:

provide appropriate materials, equipment, facilities, and study locations to support environmental education, where compatible;

allow program participants to demonstrate learning through refuge-specific stewardship tasks as well as projects that they can carry over into their everyday lives;

establish partnerships to support environmental education on refuges open to the public;

incorporate local, state, and national educational standards in our programs with an emphasis on wildlife conservation;

assist refuge staff and volunteers to attain the knowledge, skills, and abilities to support environmental education at a minimum level;

teach awareness, understanding and appreciation of our trust resources;

serve as a means by which refuge employees are seen as role models for environmental stewardship through a continually developing positive relationship with the community.

While reference materials provide good background to the refuge, the Refuge System and the Service, nothing is more effective in fostering appreciation and understanding of the resource than hands-on experiences. The EPA recommends moving away from textbook-driven instruction by using "hands-on, learner-centered, and cooperative learning" approaches where students are actively engaged in the learning process (EPA 1999). Involving students in some simple monitoring projects will instill a sense of ownership and stewardship to the resources. This is a good way to advance science literacy through an interdisciplinary educational approach.

For refuges that have staffs of less than 5 full-time equivalent (FTE) employees and do not have any positions solely dedicated to public use activities, the Service recommends that field station environmental education programs, at a minimum, should include:

- creating or providing a lending library of materials and resources for teachers and other educators;
- designating a trained staff contact person for environmental education;
- designating a study site and providing stewardship opportunities;
- helping local educators identify refuge resources and develop programs;
- forming partnerships or recruiting and training volunteers including senior citizens and people with disabilities to conduct environmental education activities.

For refuges that have staffs of approximately 5–9 FTEs, do not have any positions solely dedicated to public use, and have a refuge manager position at the GS-11 to GS-12 level, the Service recommends field stations to:

- conduct and/or host teacher training workshops;
- provide educators with refuge-specific curriculum, activities, and lesson plans;
- develop accessible outdoor classrooms;
- establish formal partnerships with school districts and community groups to assist with development and implementation of refuge environmental education programming;
- recruit and train volunteers to assist in developing and presenting environmental education programming;
- conduct regular environmental education program evaluation;
- provide opportunities to contribute to refuge management goals through learning and stewardship activities;
- establish a lending library of educational materials including but not limited to book, trunk, and multimedia resources;
- conduct some on-site and occasional off-site environmental education programming;
- employ key staff who has acquired the skills to develop and conduct environmental education activities.

For refuges that have staffs of approximately 10–14 FTEs with 1 position solely dedicated to public use, and have a refuge manager at the GS-12 to GS-13 level. At the enhanced level, the Service encourages field stations to:

- develop a multidisciplinary environmental education program with integrated curricula meeting national and state educational standards;
- adapt the refuge's program to increase participant learning and connect environmental health with quality of life;
- develop multiple facilities or study sites, with materials and equipment, that support refuge goals and objectives;
- seek to hire professionally trained refuge environmental education staff;
- conduct refuge-specific workshops, special events, and symposia, including day camps, after-school and off-site programs, elder hostels, and extended learning opportunities;
- provide environmental education training and mentoring opportunities for educators, Service staff, and others;
- have an environmental education program that demonstrates student learning through measurable objectives;
- create an extensive environmental education outreach program for reaching participants outside the local area;
- allow the environmental education staff to continue to develop professionally by attending training;
- use technology to interface with off-site participants through the Internet, distance learning, and websites;
- establish partnerships beyond local communities.

Field stations will establish educational program priorities based on their objectives and mandates, as well as local, state, and national priorities. As part of refuge planning, the Service evaluates educational programs and offer differing levels of environmental education based in part on the number of staff with public use duties as well as other available resources. Other factors that determine the level of involvement include demand for educational programs, the number of schools near a refuge, and their willingness to participate.

WATER RIGHTS

The refuge is nestled near the headwaters of Pleasant Valley Creek, a tributary to the Fisher River, which is a tributary to the Columbia River. The earliest stock water and irrigation claims for the ranch date back to 1890 and 1899, respectively. The amended ranch irrigation claims describe 1,572 acres irrigated with 10,930 acre-feet per annum. The combined irrigation diversion rate at the western edge of the ranch is 20 cfs. This flow value does not include areas that are subirrigated by check structures with no flow rate claimed on the water right. The largest irrigation claim is on Dahl Lake. Historically, the lake was backed up, causing the small valley to flood; after a short time, water was released downstream in Pleasant Valley Creek. It is also important to note that the irrigated acreage figure does not include a number of the ranch's natural wetlands (see figure 8). Filing on naturally subirrigated pasture and wetlands was not required under the statute establishing the adjudication. For the last several years, the refuge staff has been monitoring streamflows and pond elevations to understand better the available water. However, it has been very dry during this period.

The Temporary Preliminary Decree for the Fisher River Basin (76C) was issued in 1985. Some of the water rights were not accurately described in the preliminary decree. When the MPC negotiated transfer of the property to the Service, a water rights specialist was retained to review and amend the ranch's water rights. The water rights were verified through field checks and interviews with a number of local water users. The validity of the water rights was documented, but a few errors were found. The clerical errors were corrected with DNRC, but the process of change for the larger issues is still before the water court.

WATER AVAILABILITY

Jerry Cundall managed the property from 1993 to 1999. He says that water availability has not been a problem since he has managed the ranch. His tenure does include at least one dry year, 1994. In addition, the claims filed by the Lost Trail Ranch received no objections from any other users during the adjudication of the basin that occurred in the 1980s, which is an indication that the ranch and general area experience few water conflicts.

Summary of Water Rights on Lost Trail National Wildlife Refuge, Montana

Source Name	*Rate or Storage**	*Administrative No.*	*Appropriation Date*
Unnamed tributary, Dahl Lake	0.06 cfs	76CW109542	09/27/1890
Unnamed tributary, Dahl Lake	8.75 cfs	76CW109536	09/27/1890
Unnamed tributary, Dahl Lake	30.00 gpd/au	76CW109532	09/27/1890
Unnamed tributary, Dahl Lake	4.80 cfs	76CW109540	12/31/1971
Unnamed tributary, Dahl Lake	30.00 gpd/au	76CW109531	12/31/1971
Pleasant Valley Creek	3.10 cfs	76CW007495	06/29/1886
Pleasant Valley Creek	321.00 af	76CB214633	06/30/1949
Pleasant Valley Creek	220.00 af	76CW141573	08/31/1956
Pleasant Valley Creek	5.00 gpm	76CW109544	08/30/1961
Pleasant Valley Creek	433.00 af	76CW109539	08/30/1961
Pleasant Valley Creek	30.00 gpd/au	76CW109535	08/30/1961
Pleasant Valley Creek	0.06 cfs	76CW109543	08/30/1961
Unnamed tributary, Pleasant Valley Creek	3.50 cfs	76CW109538	12/31/1910
Unnamed tributary, Pleasant Valley Creek	35.00 gpm	76CW109533	12/31/1910
Unnamed tributary, Pleasant Valley Creek	2,029.00 af	76CW109541	06/01/1954
Unnamed tributary, Pleasant Valley Creek	30.00 gpd/au	76CW109534	12/31/1972
Unnamed tributary, Pleasant Valley Creek	1.30 cfs	76CW109537	12/31/1972
Unnamed tributary, Pleasant Valley Creek	1.00 af	76CP103961	03/03/1998
Unnamed tributary, Pleasant Valley Creek	10.00 af	76CC30015698	07/05/2005
Unnamed tributary, Pleasant Valley Creek	9.00 af	76CC30015699	07/05/2005
Well	7.00 gpm/9.50 af	76CC076531	12/17/1990
Well	12.00 gpm/4.22 af	76CC076900	01/15/1991
Well	25.00 gpm	76CP103958	03/03/1998

**Rate and storage units:*
af=acre-feet
au=animal unit
cfs=cubic feet per second
gpd=gallons per day
gpm=gallon per minute

The Service is starting a process to predict water availability. Outlined on the topographic maps are three basin drainage areas for the ranch (see figure 8). These three drainage areas are only a presumption of points that might be useful to predict runoff. These drainage areas will be used to predict stream runoff. The closest sites in this drainage that have had USGS continuous stream gauges are Fisher River at Jennings and Libby. Their drainage sizes are 780 and 838 square miles respectively, or 14–15 times larger than Lost Trail Ranch's drainage area. Therefore, these sites would be difficult to use to predict what occurs in a small, headwater drainage.

Species of Concern

Background and biological information is described below for species of concern that may occur within the refuge.

Grizzly Bear

Grizzly bears (*Ursus arctos horribilis*) are a part of America's rich wildlife heritage with an estimated 50,000 grizzly bears inhabiting the western United States prior to European settlement (USFWS 1993). Loss of habitat, livestock depredation control, commercial trapping, unregulated hunting, and protection of human life have eliminated the grizzly bear from all but approximately 2 percent of its historical range in the lower 48 states (USFWS 1993). Today, only 800–1,000 grizzly bears remain in a few fragmented populations in Montana, Idaho, Wyoming, and Washington. Approximately 75 percent of the population of grizzly bears in the lower 48 states occurs in Montana.

Where grizzly bears once roamed throughout the entire Rocky Mountain ecosystem, human settlement and development has fragmented habitat resulting in isolated island populations. Today, there are six distinct recovery areas (ecosystems) in the conterminous United States. These are areas where grizzly bears were known to reside in 1975 and where adequate space and habitat remains to maintain viable self-sustaining populations. These recovery areas include the northern Cascades in Washington; the Selkirk, the CYE and NCDE in Montana; the Bitterroot in Idaho and Montana; and the Greater Yellowstone in Montana, Wyoming, and Idaho.

The grizzly bear was listed as a threatened species in the lower 48 states under the ESA in 1975 (Federal Register, V.40, No.14, Part IV-3173-4). The Service is mandated by Congress to conserve listed species and the ecosystems upon which they depend. The Revised Grizzly Bear Plan (USFWS 1993) identified actions necessary for the conservation and recovery of the species. Recovery criteria was developed for each recovery zone. The criteria were based on the number of females with cubs observed annually, distribution of family groups within the recovery zone, and a limit on human-caused mortality. The species will be delisted when the populations in all established recovery zones have obtained their goals.

Populations that are dramatically reduced in size and isolated from one another have an increased risk of extinction. Small populations are less able to absorb losses caused by random environmental, genetic, and demographic changes (Serveen et al. 2001). Linkage zones are areas between separated populations that provide adequate habitat for low densities of individuals to exist and move between isolated populations. The resulting exchange of genetic material helps maintain demographic vigor and diversity, increasing the viability of individual populations. For the grizzly bear, preserving the linkage between populations is as critical to long-term conservation of the species as managing the individual populations.

For recovery and management purposes, all habitats within each of the recovery areas were classified into one of three management situations. Management situation I contains grizzly bear population centers and/or habitat that is needed for the survival and recovery of the species. The needs of grizzlies are given priority. Land uses that affect grizzly bears and their habitat must be compatible with the needs of the species. Management situation II lands are comprised of less suitable habitat where grizzly bears may occur but population centers do not exist. In these areas, the needs of the grizzly bear are weighed against other uses and they will be accommodated when feasible but may not be given the highest priority to the exclusion of other uses. Human–bear conflict minimization will be given high priority. Management situation III contains lands that are unsuitable for grizzly bears such as residential and high recreation areas. Grizzly use of these areas is rare and will be discouraged.

Grizzly Bear Biology

Grizzly bears are a long-lived species of up to 40 years and they exhibit one of the lowest reproductive rates among terrestrial mammals. The limited reproductive capacity prevents a rapid increase in the population. Females first age of breeding is between 3.5 and 8.5 years of age and averages 5.5 years. Breeding occurs on an average of every 3 years after the first litter with from one to four cubs produced. Average litter size is two. Age of first reproduction and litter size varies and may be related to nutritional state (Herrero 1978). Males sexually mature at age 4½. Mating appears to occur from late May through mid-July, peaking in mid-June.

Adult bears lead a solitary existence with social affiliations generally restricted to family groups of mother and offspring, siblings that may stay

together for several years after being weaned, and an occasional alliance of subadults or several females and their offspring. Mating season is the only time that adult males and females tolerate one another. The home ranges of adult bears frequently overlap. Home ranges also appear to be smaller while cubs are present, but expand when the cubs are yearlings in order to meet increased foraging demands (Kemp 1972, Pearson 1975, Russell et al. 1978). Home range sizes vary in relation to food availability, weather conditions, and interactions with other bears.

Humans are the only major cause of mortality to bears both directly and indirectly through habitat destruction. Bears will occasionally kill one another or be killed by other large predators such as wolves. Parasites and diseases are not a significant factor in limiting grizzly bear populations.

Grizzly bears are omnivores consuming both vegetation and animal matter. Vegetation tends to dominate the diet in all areas. However, animal matter (fish, mammals, and insects) can serve as an important supplement to the grizzly bear diet. When bears emerge from their dens in the spring, they tend to forage on immature green vegetation or animal matter. Bears select habitats of specific elevation, aspect, and moisture gradients to obtain these emergent foods. Plants that generally appear early in the growing season, such as grasses, sedges, horsetail, and clover tend to be important foods until more nutritious foods become available. Green vegetation has also been documented as important during late seasons. Selection of vegetation at this time coincides with the use of mesic habitats such as stream bottoms and receding snow-bed communities. Succulent vegetation in these mesic habitats has higher protein content than similar plant species in exposed areas.

The underground roots, corms, and bulbs of foods such as *Herdysarum* ssp., *Claytonia* spp., *Erythronium* spp. (glacier lily), *Lomatium* spp. or *Perieridia* spp. (yampah) are also selected at a specific time or in a specific habitat when nutrient quality is high and fiber content is low. Equisetum is selected in all regions of North America and during all seasons. *Heraclium lanatum* (cow parsnip), *Trifolium* spp. and *Taraxaum* ssp. are important in the NCDE early and midseason.

Fruit and berries are vital mid- and late-season as they provide bears with an abundant source of sugar prior to denning. During the period of fruit availability, bears must not only gain sufficient weight to survive denning, but must also store energy for the following spring. This is especially true for adult males that tend to forsake spring foraging opportunities to seek and mate with females (Sizemore 1980). In northwestern Montana *Vaccinium* spp. (huckleberry), and *Shepherdia* (buffaloberry) are important natural sources of berries. Overwintering berries of *Arctostaphylos* spp. (bearberry) are also consumed during the spring in some areas (Hamer et al. 1977, Hechtel 1985, Mace and Jonkel 1980) and may have higher sugar content than during the previous autumn (Hamer et al. 1977).

Because it is highly digestible and high in protein, meat is often preferred over vegetal foods. Local concentrations of large ungulates constitute an important source of protein when available.

Rodents, primarily ground squirrels and microtines either may be a dietary supplement (Hamer et al. 1978, Stelmock 1981, Mace and Jonkel 1980) or may constitute a major protein source prior to denning (Nagy et al. 1983, Hechtel 1985). The restricted availability of animal protein may limit grizzly populations.

The search for food has a prime influence on movement. Upon emergence from the den, grizzly bears seek the lower elevation, drainage bottoms, avalanche chutes, and ungulate winter ranges where their food requirements can be met. Throughout late spring and early summer, they follow plant phenology back to higher elevations. In late summer and fall, there is a transition to fruits and nut sources, as well as herbaceous materials. This is a generalized pattern though and it should be kept in mind that bears are individuals trying to survive and will go where their food requirements are met.

Grizzly bears are occasionally sighted in the Pleasant Valley area. PCTC biologists report that a male grizzly bear resided in the Pleasant Valley–Lost Prairie area in 1994 and 1995. In the fall of 2001, a grizzly bear was observed at Island Lake and Coniff Creek approximately 2 miles from the refuge. The bear was frequently observed in an area being actively logged on PCTC land throughout the fall (Laurie Woods, PCTC Forest Unit Manager, personal communication). According to grizzly bear recovery biologists, the refuge could serve as a linkage area between the NCDE and the CYE.

Livestock grazing can have a significant impact on grizzly bears. In the NCDE, livestock depredation was the most common offense for which a bear was relocated (Thier and Sizemore 1981). Furthermore, these relocations were much less successful than relocations for other offenses (success being no return and no further conflict). Knight et al. (1985) reported that depredations (livestock and property) were the leading cause of nonhunting mortality in the NCDE from 1975 to 1984. Unreported grizzly bear mortality related to livestock operations may be a significant part of the overall mortality. Jorgensen (1979) reported that only 41 percent and 17 percent of known bear kills in 1976 and 1977, respectively, were ever reported.

Several studies have addressed the question of whether grizzly bears can coexist with livestock without depredation. Knight and Judd (1983)

reported that all radio-tracked bears (except one orphaned cub) that encountered sheep killed them. However, Claar et al. (1999) found that only 2 out of 20 marked grizzly bears in the Mission Mountains (NCDE) were involved in sheep depredations although almost all were in proximity to livestock during spring and fall. Several investigations observed that depredation behavior was apparently a learned process (Johnson and Griffel 1982, Jorgensen 1983, Knight and Judd 1983). Regional differences in depredation may be related to learned behavior and previous levels of control on depredating bears (Johnson and Griffel 1982).

Livestock can also affect grizzly bears through direct competition for early spring browse and by degradation of quality habitat by trampling and grazing. Livestock grazing can affect bears by displacing them off quality habitat as they avoid areas of human activity.

Recreational activities, directly or indirectly, can affect the survival of grizzly bears. Grizzly bears can be directly taken in the defense of human life and through mistaken identity during black bear hunting seasons. In the Swan Range in northwestern Montana, out of 19 known human-caused grizzly bear deaths, mistaken identity was the cause of 6 deaths and self defense was the cause 3 deaths. Indirectly, recreationists can displace bears off quality habitat onto less desirable habitat. This may result in reduced reproduction by displaced bears, higher mortality rates due to food stress or lower security, and smaller bear populations due to reduced carrying capacity of remaining habitat (Serveen et al. 2001).

Conversely, grizzlies may become habituated to humans. Habituation generally leads to mortality of the bear as these bears are more likely to come in conflict with humans, are more vulnerable to hunters and poachers, and have an increased chance of becoming involved in a collision with a motor vehicle (Claar et al. 1999). The greatest impact of roads on grizzly bears is an increase in human access into grizzly habitat. Bears react differently to roads depending on habituation and security cover. Roads bring people into contact with bears, may cause bears to avoid habitats, or may habituate bears to humans.

Habitat fragmentation is usually accompanied by habitat loss, increased disturbance and increased human–wildlife conflicts. The primary causes of fragmentation in grizzly habitat are human activities such as road building and residential, recreational, and commercial development.

The grizzly bear has an increased risk of extinction because the population consists of a limited number of individuals that live in several distinct populations geographically isolated from one another. Small populations are less able to absorb losses caused by random environmental, genetic, and demographic changes (Serveen et al. 2001).

Linkage zones are areas between separated populations that provide adequate habitat for low densities of individuals to exist and move between isolated populations. The resulting exchange of genetic material helps maintain demographic vigor and diversity, increasing the viability of individual populations.

Gaining support and confidence of people who live in or near grizzly habitat is one of the greatest challenges to grizzly bear recovery. Efforts that address the attitudes and concerns of the local public serve to foster tolerance and positive attitudes toward grizzly bears in communities throughout grizzly bear habitat. These efforts include intensive education programs, proactive livestock and garbage management projects that reduce bear attractants on private land, and the maintenance of personal contact between citizens and state and federal wildlife biologists who live and work together in local communities and rural areas near grizzly habitat.

Gray Wolf

Prior to European settlement, the gray wolf existed across most of North America. Early settlers perceived the gray wolf as a threat to human life and property, especially livestock. Wolves also competed for deer and elk upon which many early settlers were dependant for food. By the 1930s, poisoning, trapping and shooting, spurred in part by government bounties, extirpated the gray wolf from 95 percent of its range in the conterminous United States. Gray wolf populations were eliminated from Montana, Idaho, and Wyoming, as well as adjacent southwestern Canada.

After human-caused mortality of wolves in southwestern Canada began to be regulated in the 1960s, the population began expanding southward (Carbyn 1983). Dispersing individuals occasionally reached the northern Rocky Mountains of the United States (Ream and Mattson 1982, Nowak 1983), but were not protected and soon disappeared. The ESA of 1973 provided the needed protection and recolonization became possible.

In 1986, wolves that had migrated from Canada successfully raised a litter of pups in Glacier National Park, Montana, and a small population was soon established (Ream et al. 1991). The third pack of wolves to recolonize naturally into Montana from Canada formed in Pleasant Valley in 1988. The wolves denned on private land within 0.25 mile of what is now the refuge. In 1989, there were three adults and three pups in the pack. Unfortunately, they started to prey on livestock and were controlled both lethally and through relocation.

A second pack formed in 1996 in Pleasant Valley and had pups again in 1997 and 1998. Once again, they started to prey on livestock and were removed in 1999. All control actions were either carried out prior to the establishment of the refuge or conducted off the refuge after establishment. After the removal of the Pleasant Valley Pack in 1999, the "Little Wolf Pack" moved down from the north and began killing cattle in the Pleasant Valley area. Four wolves from the "Little Wolf Pack" were killed in two control actions in 2000.

In 1998, the Lost Trail Ranch was purchased by the MPC and eventually became Lost Trail National Wildlife Refuge. At the same time, the NRCS, working with neighboring landowners, purchased WRP easements on 5,765 acres of former grazing lands. The formation of the refuge and the purchase of these WRP easements will greatly reduce the number of cattle being grazed in this area and should decrease wolf–livestock conflicts.

Much controversy has surrounded wolf recovery in Montana and throughout the northern Rockies. Although wolves primarily feed on deer and elk, they will occasionally prey on livestock. Once a wolf has identified livestock as a source of food, it may continue to prey on livestock and teach other wolves in the pack to do the same. A private program compensates ranchers fair-market-value for confirmed losses and about one-half fair market value for probable wolf kills of livestock and livestock guard animals. However, livestock carcasses are often eaten or decomposed when located, making it difficult to confirm wolf depredation. On open range, carcasses may never be found, resulting in actual losses much higher than what can be confirmed.

Sometimes livestock producers who have confirmed livestock losses caused by wolves may also discover some other livestock missing after the fall roundup. This leads ranchers to infer that wolves were responsible for the missing livestock even if there are no signs of depredation. This perceived human–wildlife conflict creates a climate of mistrust for the Service's mandate to protect and recover wolves.

The Service strives to maintain good relations with adjacent landowners, including coordination efforts and addressing the concerns of private property owners. These efforts are geared towards the recovery and conservation of this listed species as required by the ESA. The refuge is part of the historical range of the gray wolf and is geographically situated between areas designated for recovery. Thus, this refuge is in a position to contribute to the overall recovery and maintenance of this species by acting as a corridor or as a possible site for wolf recolonization.

On April 1, 2003, the Service issued "take" regulations under section 4d of the ESA detailing the context and designated personnel that may take gray wolves. These regulations replaced those found in the 1999 control plan. Some of the reasons why a gray wolf may be lethally taken include scientific research, protecting human safety, and proven depredation of domestic cattle. In this last case, before any wolf control action is initiated, an investigation must be conducted to confirm that a depredation has occurred and that wolves were indeed responsible for the depredation.

Wolves may not necessarily be determined problem wolves if depredations occur on livestock that are lawfully present on federal lands or in areas or at times, which are critically important to wolves. Under such conditions, control of wolves will occur only if all other options for resolution of the conflict have been exhausted. This criterion applies only to the refuge and other federal lands in northwestern Montana. Areas or habitat components important to wolves include areas within 1 mile of known or highly suspected wolf dens or rendezvous sites from March 15 to July 1, ungulate calving/fawning areas from May 1 to July 1, and ungulate winter ranges from December 1 to April 15 (USFWS 1999c). Refuge personnel will apply these conservation measures.

Most of the controversy surrounding wolf conservation revolves around wolves that feed on domestic cattle and sheep. It is the Service's intention to manage wolves in northwestern Montana in a way that allows nondepredating wolves to be the "building blocks" of the population. Nondepredating wolves should cause little or no conflict with humans. The Service intends to build its recovery program around these animals. Animals that habitually depredate on livestock are not desirable for use in establishing or bolstering wolf populations. Therefore, wolves that are chronic problem wolves and direct their hunting behavior toward livestock will be removed from the population. While already recovered in this area, the recovery plan indicates that, if necessary, the state of Montana and the Service may use lethal control methods to stop depredations. No control efforts will be conducted on the refuge; however, problem wolves may den on the refuge or seek refuge there and be taken when on private land.

The recovery plan for the wolf in the northern Rockies of the United States (USFWS 1987) identified northwestern Montana, central Idaho, and the Greater Yellowstone Area (GYA) as recovery areas. The biological goal for delisting is greater than or equal to 10 breeding pairs of wolves in each of these three areas for 3 consecutive years.

Monitoring data indicates that this goal was attained in 2000 with 30 breeding pairs of wolves successfully raising two or more young to December 2000. Preliminary data indicates that at least 30 breeding pairs were also successful in 2001. Thus, if 30 breeding pairs are again documented in December

2002, the Service could propose to delist wolves from the ESA. Wolves cannot be removed from federal protection until the states in which they reside develop approved conservation and management plans. The state of Montana drafted a conservation and management plan in January of 2002. This document has been submitted for review and can be obtained from MFWP.

Gray Wolf Biology

Wolves are social animals, normally living in packs of 2–10 members. Packs are primarily family groups consisting of a breeding pair, their pups from the current year, offspring from the previous year, and occasionally an unrelated wolf.

Packs occupy and defend from other packs and individual wolves a territory of 20–210 square miles. In the northern Rocky Mountains, territories tend to be larger, typically 200–400 square miles. Normally only the top-ranking male and female in each pack breed and produce pups.

Litters are born from early April into May and can consist of 1–11 pups, but generally consist of 4–6 pups. In late April until September, pups are moved to rendezvous sites where they remain while the adults hunt and return with food. Rendezvous sites are located in meadows or forest openings generally near the den, but they can be several miles away. Pups travel and hunt with the pack by September. Yearling wolves frequently disperse from their natal packs. Dispersers may become nomadic and cover large areas as lone animals, or they may locate suitable unoccupied habitat and a member of the opposite sex and begin their own territorial pack.

When the wolf recovery plan was written, it was believed that wolves would occupy higher elevation public lands far from the presence of humans (Fritts et al. in press). However, wolves demonstrated a much greater tolerance of human activity than anticipated. While some packs have established territories in protected areas such as national parks and wilderness, most prefer lower elevations where prey is more abundant (Boyd-Heger 1997).

Several studies on wolf and their prey have been initiated since the wolf recovery plan has been in place. Wolves in the GYA are preying primarily on elk (90 percent of all wolf kills) (Smith et al. 2000), and kill rates are slightly higher (12–15 ungulates/wolf/year) than predicted (12 ungulates/wolf/year) in the EIS. In the Gros Ventre River drainage in Wyoming, of 51 located kills, 48 were elk, 2 were coyotes, and 1 was a beaver. In a study west of Salmon, Idaho, elk was again the preferred prey with a kill on average every 3.45–4.98 days.

Researchers believe these kill rates may be underestimated due to loss of contact with the pack for various lengths of time. Studies in the River of No Return Wilderness in central Idaho also indicated elk as the primary prey followed by mule deer (Mack and Laudon 1998). In the north fork of the Flathead River drainage, white-tailed deer comprised 87 percent of the wolf kills examined from 1992 to 1995 (Kunkel et al. 1999). Researchers concluded that ungulate species compose different proportions of wolf diets, depending on the relative abundance and distribution of available prey within the territory. Wolves will also prey on smaller species such as rabbits and ground squirrels, as well as on carrion, vegetation, and insects. Wolves may also kill and feed on domestic livestock such as cattle, horses, and sheep.

No wild animals habitually prey on gray wolves. Occasionally, wolves will be killed by large prey such as deer or moose or by a competing predator such as a mountain lion. Other wolves are the largest cause of natural predation among wolves. Other causes of natural mortality include old age, disease, starvation, or accidents. In northwestern Montana, natural mortality probably does not regulate populations (USFWS 2001).

Humans are the largest cause of wolf mortality and the only cause that can significantly affect populations at recovery levels (USFWS 2001). Human-caused mortality consists of authorized control actions, legal killing in defense of life or property, illegal killing, and car and train collisions. Control actions accounted for most human-caused mortalities in Montana.

In the studies of wolves in Montana, Idaho, and Wyoming to date, disease and parasites have not appeared to be a significant factor affecting wolf population dynamics. Just like wolves in all other parts of North America, wolves in the northern Rocky Mountains will occasionally die from a wide variety of canid diseases. However, it is doubtful that wolf populations in the northern Rocky Mountains would be significantly impacted, because wolf exposure to these diseases has been occurring for decades.

A demonstration of the importance of an abundant natural prey base to wolf survival can be found in the examination of wolf–prey relationships in northwestern Montana. White-tailed deer populations started to increase in the 1970s and remained high until the winter of 1996–97. Wolf numbers and distribution also expanded during this period. Record hunter harvest in the fall of 1996 followed by one of the most severe winters on record significantly decreased ungulate populations. This was followed by a corresponding increase in wolf depredation on livestock and subsequent wolf control. Conflicts between wolves and livestock during 1997 represented nearly 50 percent of all confirmed livestock depredations and lethal wolf control in northwestern Montana since 1987 (Bangs et al. 1998).

Evaluation of wolf management in the northern Rocky Mountains has shown that successful wolf recovery does not depend upon land use restrictions on private land due to the wolves' ability to thrive in a variety of land uses. There is little, if any, need for land use restrictions to protect wolves in most situations, with the possible exception of temporary restrictions around active den sites on federal lands. Additionally, the public is much more tolerant of wolf recolonization if the presence of wolves does not result in restrictive government regulations.

There are nonlethal management techniques to discourage wolves from preying on livestock (e.g., electronic training collars). However, none of the techniques tested to date has proven 100 percent effective and none of the existing techniques has worked for extended periods.

Hunting success and regulations for large ungulates are directly related to prey populations. One of the greatest concerns the public had with wolf reintroduction was the effect that wolves would have on deer, elk and moose populations (USFWS 2001). Thus, human attitudes and tolerance, which vary widely across different stakeholders, is probably the most important factor to long-term gray wolf survival and conservation (Sime 2002).

Canada Lynx

The Canada lynx (*Lynx canadensis*) was listed as a threatened species in the contiguous United States under the ESA in 2000. According to the Service, the factor threatening the lynx in the contiguous United States is the lack of guidance to conserve lynx and its habitat in federal land management plans.

Lynx inhabit marginally suitable habitat in the contiguous United States that decreases in quality and availability the further south the habitat occurs. Historical reports from western Montana indicate that lynx were numerous in recent times. MFWP records indicate trappers statewide took 990 lynx from 1959 to 1967 (Hoffman et al. 1969). Since 1977, Montana's largest lynx harvest was 62 lynx trapped in 1979 and again in 1984 (McKelvey et al. 1999, Giddings 1995). Quotas were established in 1982 and lynx trapping was closed in Montana in 1999. Lynx are most common in the northwestern areas of the state.

Canada Lynx Biology

Snowshoe hare are the primary food of lynx comprising from 35 to 97 percent of their diet throughout the year (McCord and Cardoza 1984). Lynx also feed on mice, squirrels, grouse and ptarmigan, especially during the summer months (McCord and Cardoza 1984). There have been several observations of lynx hunting Columbian ground squirrels including a report by Barash (1971) of two adult and one juvenile lynx cooperatively hunting ground squirrels in Glacier National Park.

Lynx habitat is composed of Englemann spruce (*Pinus englemannii*), subalpine fir (*Abies lasiocarpa*), lodgepole pine (*Pinus contorta*) and aspen forests (*Populous tremuloides*) above 1,400 meters. In the western mountains, the management of habitat for snowshoe hares is an important component of lynx conservation efforts due to the relatively low hare densities in boreal forest habitats of western mountains, and because of the importance of hare availability for successful lynx reproduction.

Snowshoe hare habitat consists of coniferous forests with dense understory (Berrie 1973, Koehler 1990, Ruggiero et al. 1999). These conditions are usually found in early successional stands with high stem densities. For denning, lynx require mature forests that contain large woody debris such as fallen trees or upturned stumps. Thus, high quality lynx habitat in the western mountains consists of a mosaic of early successional habitats with high hare densities, and late-successional stands with downed woody debris for thermal and security cover for denning.

The refuge contains only marginally suitable Canada lynx habitat. Northwestern Montana is at the southern range of the lynx and thus lynx only exists at the highest elevations. Lynx in Montana are generally found in forest communities between 1,200 and 2,100 meters. Douglas-fir, western larch, and lodgepole pine dominate on lower elevations with subalpine fir, whitebark pine, and Engelmann spruce at higher elevations. Maximum elevation on the refuge is 1,280 meters and only 4,121 acres of forest habitat exists. Further, open grasslands across the valley floor are a barrier to lynx movement across the refuge. Snowshoe hare populations are unknown for the refuge, but hares have frequently been observed in forested areas of the refuge and surrounding PCTC lands.

Canada lynx are specialized predators adapted to northern latitude and high elevation habitats with abundant winter snows. Conclusions from the "Ecology and conservation of lynx in the United States" (Ruggiero et al. 1999), are that a snowshoe hare density greater than 0.5 hare/hectare is required for lynx.

Bald Eagle

Historically, bald eagles were present across North America from Alaska and Canada south to northern Mexico. Persecution of bald eagles and golden eagles in livestock producing areas of the west prompted passage of the Bald Eagle Protection Act of 1940 (16 U.S.C. 668). Further protection was afforded in 1972 with inclusion of raptors under the Migratory Bird Treaty Act (16 U.S.C. 703, 1918). The effects of the pesticide DDT decimated populations during the 1960s and, by the early 1970s, bald eagle breeding range was limited to remote forested areas. DDT was banned in 1973 and bald eagle populations started to recover. Because of severe population

declines induced by pesticide residues, the northern subspecies of the bald eagle was afforded protection under the ESA in 1978.

The bald eagle was classified as endangered in Montana in 1978. The ESA of 1973 mandated the formation of regional recovery teams charged with preparation of plans that outline specific conservation and management actions to achieve and maintain recovery of endangered species in specific recovery areas. Montana includes seven recovery zones (in the Pacific States recovery area) (MBEWG 1994b).

Surveys indicate that the population of nesting bald eagles in Montana is increasing. From 1978 to 1995, the number of breeding pairs increased from 12 to 166, surpassing the recovery goal of 99 breeding pairs cited in the 1986 Bald Eagle Recovery Plan. As of July 1994, Montana contained the seventh largest breeding bald eagle population and largest concentration of autumn migrants in the lower 48 conterminous states. On July 12, 1995, the bald eagle was reclassified from "endangered" to "threatened" in Montana (MFWP 2002).

The management goal for Montana is to facilitate population growth until the number of viable bald eagle breeding areas peaks. Thereafter, the goal is to provide secure habitat for bald eagles to maintain a viable, healthy, self-sustaining population as close to peak level as possible in perpetuity (MBEWG 1994b).

Within the context of the management goal, the habitat objective is to provide sufficient habitat to maintain peak numbers of viable bald eagle breeding areas in Montana. The population objective is to maintain at least 68 percent of the peak number of viable breeding areas as active (MBEWG 1994b).

Bald Eagle Biology

Bald eagles are associated with aquatic environments although they may forage in uplands. Bald eagles are opportunistic with prey consisting of fish, ground squirrels, waterfowl, carrion, and rabbits (Snow 1973, Todd et al. 1982, Stalmaster 1987, Watson et al. 1991, Mersmann et al. 1992).

In Montana, bald eagles typically nest within one mile of the shore of lakes larger than 80 acres or major rivers. Nest sites are generally in older trees of large diameter in stands greater than three acres (MBEWG 1994b).

Bald eagles can be sensitive to human disturbances such as recreation, research, and development. Response varies from temporary avoidance of an area to total reproductive failure and abandonment of the breeding site. Bald eagles can also tolerate what appear to be significant disturbances. Relationships of human activity and eagle responses are highly complex, difficult to quantify, and often site specific. Responses vary depending on type, intensity, duration, timing, predictability, and location of the human activity. Some bald eagles are more tolerant of human activity than others are. Tolerance threshold is usually site, pair, and activity specific and a function of type, intensity, and proximity of disturbance over time (MBEWG 1994b).

A pair of bald eagles has nested in an aspen stand on the north shore of Dahl Lake since 1995. This pair has fledged average of two young per year. The eagle nest was blown out of the tree in a severe windstorm during the summer of 2000. Two adult eagles constructed a nest in the same vicinity in 2001 but no young were produced.

Bald eagles are highly sensitive to disturbance from the nest building stage until hatching. After hatching, eagles are less sensitive to disturbance and are less likely to abandon or neglect young.

The management goal for Montana is to facilitate population growth until the number of breeding pairs peaks. After that, the management goal is to provide secure habitat to maintain a healthy self-sustaining population as close to peak levels as possible (MBEWG 1994b).

Trumpeter Swan

The trumpeter swan is considered a threatened species and of special concern by MPIF (Casey 2000). Although this species was petitioned to be listed under the ESA, the Service determined the petition did not contain substantial information.

Trumpeter swans were once common in the United States but were decimated by commercial harvest for feathers and skins and by loss of habitat. A small population of swans managed to survive in the tri-state area of Montana, Wyoming, and Idaho due to the areas remoteness and geothermal activity that kept water open over the winter months. In 1935 only 69 trumpeter swans were know to exist; however, it was later discovered that unrecorded flocks also inhabited parts of Alaska and Canada. Although populations have increased, the trumpeter swan is still at risk from continued loss of wintering habitat, over population and concentration of swans on remaining wintering areas, and lack of migration in several wild and restored flocks (Mitchell 1994).

A priority of the Service's Trumpeter Swan Working Group is to restore nesting trumpeter swans to unoccupied historic breeding habitat and encourage broader winter distribution. Winter habitat seems to be the limiting factor for the United States portion of the RMP. A congregation of approximately 30 percent of the population in a small area at Harriman State Park and large congregations at Red Rock Lakes National Wildlife Refuge and other wintering areas within the tri-state area leave the trumpeters vulnerable to disease. (Federal Register/Vol. 55, No. 81/Thursday, April 26, 1990/Proposed Rules).

The Service recognizes the need to continue to expand winter range of the RMP trumpeter swans. It also indicated there was a need to maintain viable segments, or subpopulations, of the RMP in order to expand the species to where it is sufficiently widespread that a catastrophic event in any one part of the population's range will not threaten the existence of the population. With new breeding areas occupied, new migratory paths may be established. The "pioneering spirit" results in young traveling to and from specific breeding and wintering areas with their parents, which may foster a wintering migratory path different from into the tri-state management area, where there have been problems with lack of adequate wintering habitat.

Trumpeter Swan Biology

Trumpeter swan habitat needs are not well defined, but suggest shallow interconnected wetland complexes, irregular shorelines, and water depths of less than 1.2 meters with dense stands of emergent vegetation. Swans need muskrat mounds, abandoned beaver lodges, or sedge hummocks for nest sites. (Casey 2000)

Preferred forage species listed under the Targee National Forest Plan (1997) include sego pondweed (*Potamogeton rectinatis*) and waterweed (*Elodea canadensis*). However, trumpeters readily adapt to new food sources and virtually all available species are consumed. In Yellowstone, dominant food consisted of *Chara* spp., *Elodea canadensis*, and *Potamogeton* spp. (Squires and Anderson 1997). Cygnets feed mainly on aquatic insects and invertebrates from 2 to 5 weeks of age (Mitchell 1994). This protein rich food source in important to the cygnets' rapid growth.

The Wisconsin Department of Natural Resources developed a habitat suitability index for trumpeter swans during restoration efforts in the state. Criteria developed for trumpeter swan restoration to an area included: abundant and diverse submergent and emergent aquatic plant food (especially *Elodea*, *Sagittaria*, *Najas*, *Nitella*, *Potamogeton*, *Zizania*, *Sparganium*); presence of shrubby or emergent plants suitable for escape cover; loafing sites; absence of utility lines along potential flight paths; minimal waterfowl-hunting history during years when lead shot was legal; and limited access and minimal uncontrolled human use. Breeding habitat required suitable nesting substrate, especially rich submergent and emergent food supply, and more escape cover, more isolation from human contact, and more protected shallow water and shoreline feeding areas (for broods) than nonbreeding sites, which could include more open water.

The only trumpeter swans that have been recently documented in the Pleasant Valley area are two swans that attempted to nest at Island Lake. They were observed throughout the summer by a neighboring landowner.

Trumpeter swans are long-lived, social birds that are highly dependant upon strong family bonds and traditional patterns of habitat use that are passed down through generations (USFWS 1995a). Severe losses could occur from disease outbreaks, severe winter weather, and lack of forage. In 1989, more than 100 swans died in the tri-state area when a blizzard swept through a major wintering area. Since then winters have been mild, but the possibility of another hard winter always exists.

As the swan population increases, the limited resources in the area are taxed and may not recover to provide forage for the next year. It is important to the survival of the RMP to relearn and rebuild migratory patterns that were lost when swans were exterminated from much of their range. The ultimate goal is to reacquaint trumpeter swans with wintering grounds, breeding areas, and migratory routes that were lost when the population neared extinction in the early 1900s. This will be accomplished through natural pioneering and through transplant of swans to suitable habitat.

Nesting trumpeter swans have been shown to be sensitive to human disturbance during the nesting season. Birdwatching, photography, research, and other activities in or near nesting areas may cause nest failure or cygnet loss by disturbing adults (Mitchell 1994). In Yellowstone National Park, human intrusion was the most significant known cause of egg failure in trumpeter nests (Banko 1960).

Important requirements for successful breeding of trumpeter swans includes: room for take off (approximately 100 meters); accessible forage; shallow, stable levels of unpolluted, fresh water; emergent vegetation, muskrat island, or other structure for nest site; low human disturbance, highly irregular shorelines; water depth of less than 1.2 meters; abundant and diverse communities of aquatic plants; and abundant invertebrate populations (Mitchell 1994, Hansen et al. 1971, Maj 1983, Squires 1991, Lockman et al. 1987).

Black Tern

Black terns are listed as a Service nongame bird of management concern (USFWS 1995b). They were listed as a candidate 2 species for review under the ESA; however, they were removed from ESA consideration when the category 2 list was discontinued. Statewide they are listed as a species of special concern with a ranking of vulnerable under the Natural Heritage Program classification system (Shuford 1999). Black tern populations have been declining since the 1960s across North America. Declines are thought to be related to a loss of wetlands, and a decrease in food supply caused by insect control and over fishing in the winter range (Dunn and Agro 1995).

Dahl Lake was surveyed for black tern by MFWP in 1999. Approximately 50–60 adults were observed. Nesting was confirmed by the presence of juveniles. Nests were located in Alkali bulrush (Ryan Rauscher, MFWP, personal communication).

Black Tern Biology

Black terns nest in biologically rich shallow freshwater marshes with abundant emergent vegetation. They prefer marshes or marsh complexes comprised of semipermanent ponds greater than 20 hectares in size. Ponds can be located in open or forested country up to 1,540 meters in elevation (Dunn and Agro 1995, Shuford 1999). Black terns feed on insects and fresh water fishes.

Black terns arrive on the breeding grounds mid- to late May initiating nesting in late May or early June. Most hatching is completed by late June or early July, with fledging occurring mid- to late July. Black terns leave the breeding grounds for foraging sites by early August.

Black terns are semicolonial nesters. Generally, nests are located in still water from 25 to 134 centimeters deep in marshes with from 25 to 75 percent emergent vegetation (Gould 1974, Stern 1987, Shuford 1999). Nest site selection is correlated more to the density of emergent vegetation than to the type of plant or water depth. Vegetation is not usually so dense as to prevent a canoe from being forced through it (Dunn and Agro 1995).

Nests are built on floating substrate comprised of matted dead marsh vegetation, detached root masses, boards, or muskrat-built feeding platforms of fresh-cut vegetation. Occasionally nests are located on nonfloating material such as muskrat lodges, small mud patches of rooted but flattened vegetation, or abandoned nests of other marsh birds. (Dunn and Agro 1995). Nests are often flimsy, and are easily destroyed by wind or changing water levels. If the nest is destroyed, renesting may occur at the same site or at another site up to 42 kilometers away.

Predominant emergent vegetation is usually cattails (*Typha* spp.), bulrush (*Scirpus* spp.), or less often burreed (*Sparganium* spp). Nests have also been located in sedge (*Carex* spp.), reed canarygrass (*Phalaris arundinacea*), marsh horsetail (*Equisetum fluviatile*), rushes (*Juncus* spp.) hairgrass (*Deschampsia* spp.), and spatterdock (*Nuphar* spp.). Emergent vegetation is <0.25–0.5 meter high when the nests are initiated and often grows to 1 meter before hatching occurs. Snags and posts are used for copulation, resting, and feeding fledglings (Dunn and Agro 1995).

Black terns nest in shallow, freshwater wetlands in emergent vegetation. They prefer wetland complexes greater than 20 hectares, in areas with 25–75 percent surface covered with emergent vegetation, water depths between 0.5 and 1.2 meters, and nesting substrate within 0.52 meters of open water (Dunn and Agro 1995). Nests are often lost to bad weather, effects of winds and waves and changing water levels. Known predators include great horned owl, mink, northern harrier, ring-billed gull, American crow, common raven, raccoon, muskrat, long-tailed weasel, otter, and snapping turtle (Gerson 1988, Novak 1992, Dunn and Agro 1995). Nest success will be monitored to document production.

Degradation of lake habitat may occur by succession, raising or lowering water levels, introducing exotic species, and reductions in water quality (Novak 1992). Nest platforms can be flooded out by rising water levels. Low water levels may increase likelihood of nest predation by mammals. Black terns may shift breeding sites from year to year in response to changes in hydrologic cycles and emergent vegetation (Shuford 1999). In most cases, WPA managers can provide suitable nesting habitat for black terns without any major changes to their water management (Casey 2000).

Spalding's Catchfly

Spalding's catchfly (*Silene spaldingii*) is a long-lived perennial herb that reproduces by seed only. It is a natural component of native Palouse prairie from 1,750 to 5,100 feet in elevation. Palouse prairie has been reduced by 98 percent of its historic levels due to conversion to crop, hay and pastureland, and urbanization.

Today, there are only 53 known populations of Spalding's catchfly located in remnant Palouse prairie habitat in Washington, Idaho, Oregon, and Montana. Nine of these populations are located in western Montana (Flathead, Lincoln, Sanders, and Lake counties). Threats to these remaining populations include continued habitat destruction and fragmentation, grazing and trampling by domestic livestock and native herbivores, herbicide treatment, competition from nonnative plants, altered fire regimes, and competition for pollinators.

Grazing affects Spalding's catchfly directly through trampling and consumption of seed heads and indirectly by altering species composition of available habitat. Soil disturbance associated with grazing gives biennial plants and nonnatives that are adapted to disturbance a competitive advantage over Spalding's catchfly (Benner 1995). If grazing is heavy enough, Spalding's catchfly will likely disappear from an area. Grazing of inflorescence by livestock and native herbivores has been observed and is considered a significant threat to the species (Federal Register/Vol. 66 No. 196. 50 CFR 17 RIN 1018AF79 10/02). Grazing by rodents has also been found to be significant factor influencing the survival of Spalding's catchfly. In eastern Washington, plants

that were marked as part of a monitoring project were found broken or missing when examined at a latter date. Damage was attributed to rodents (Benner 1999).

Spalding's catchfly is predominantly found at sites free of nonnative plant species. Nonnative invasive plant species such as St. Johnswort (*Hypericum perforatum*), Yellow starthistle, Canada Thistle (*Cirsium arvense*), sulfur cinquefoil (*Potentilla recta*), and cheatgrass (*Bromus tectorum*) outcompete Spalding's catchfly for water, nutrients, light, and pollinators. At one site in Montana, the number of plants decreased from 30 in 1983 to only 11 in 1990 after an invasion of spotted knapweed. The survival of Spalding's catchfly is further threatened by efforts to control nonnative invasive plant species. Chemicals used to control most invasive plants will also kill catchfly plants.

Spalding's catchfly requires a pollinator such as the bumblebee (*Bombus fervidus*) to reproduce successfully. When other flowers such as St. Johnswort are abundant in a habitat where catchfly is also present completion for the limited number or pollinators may adversely affect the fecundity of the plant. Conversely, in areas where Palouse prairie has been converted to agricultural production, pollinators such as the bumblebee may not be present because of the scarcity of flowering plants in the area. The presence of pollinators is considered critical for the persistence of Spalding's catchfly (Federal Register/Vol. 66 No. 196. 50 CFR 17 RIN 1018AF79 10/02). Populations of Spalding's catchfly that occupy small areas surrounded by cropland that does not support bumblebees are not likely to persist over the long term (Federal Register/Vol. 66 No. 196. 50 CFR 17 RIN 1018AF79 10/02).

Spalding's catchfly populations have also been influenced by traditional fire suppression philosophies that have promoted an increase in woody vegetation and the build up of litter and duff. Competition from woody plants often reduces the recruitment of native prairie species (Menges 1995).

Spalding's catchfly is found in mesic sites that are neither extremely wet nor extremely dry. Flowers are produced from mid- to late July which is after most other forbs in these habitats are finished flowering.

Threats to Spalding's catchfly that may occur on the refuge include, grazing and trampling by domestic livestock and native herbivores, herbicide treatment, competition from nonnative plants, and competition for pollinators. Prescribed fire may have a positive effect on Spalding's catchfly by removing litter or duff layers and woody plants, improving natural propagation of the plant. Recruitment of Spalding's catchfly was enhanced following prescribed fire in Montana (Lesica 1992, 1999). The effects of fire will vary depending on fuel moisture, species composition, season, and intensity of burning (Lesica 1997). Prescribed fire may also increase invasive nonnative plant populations, which may negatively affect Spalding's catchfly. Therefore, prescribed fire may enhance catchfly survival and recruitment but must be thoroughly evaluated prior to use.

Invasive plants displace the plant and compete with it for water, nutrients, light, and pollinators (Lesica and Heidel 1996 in Delphey and Rey-Zizgirdas 2001; Montana Natural Heritage Program 1998). Many locations of catchfly on the refuge are at risk of being displaced by nearby populations of invasive plants, especially spotted knapweed and sulfur cinquefoil. Herbicide use to control nonnative plants may also harm Spalding's catchfly. An integrated pest management program should be evaluated including hand pulling, hand spraying, and biological control to reduce encroaching invasive plants while not harming the catchfly.

Management tools such as prescribed fire and federal control will benefit the catchfly as long as careful attention is giver to their implementation. Management tools such as grazing, prescribed fire, and spraying may adversely affect Spalding's catchfly populations, even though they could also be critical to its continued existence. A burning program at the wrong time of year or in an area subject to more invasive plant encroachment could create a disadvantage for the catchfly.

Invasive plant control alone is important due to invasive plants displacing and in competition with the catchfly (Lesica and Heidel 1996, Montana Natural Heritage Program 1998). However, herbicide application has to be carefully applied at the right time of year and not in the location of plants to not damage the catchfly. Federal law prohibits modification of critical habitat, and any act that may jeopardize the continued existence of a listed species.

Prior to implementation of any management actions that may affect Spalding's catchfly, a survey must be conducted to determine if this species is in the management area. If the species is located, refuge staff will evaluate the affect that implementing the management action would have on the plant and develop the best management practice.

Cultural Resources

According to the National Historical Preservation Act, the historical and cultural foundation of the Nation should be preserved as a living part of community life and development to give a sense of orientation to the American people.

The Archaeological Resources Protection Act requires the land-managing agencies to establish public awareness programs regarding the value of archaeological resources to the Nation; however,

cultural sites are sensitive, and allowing uncontrolled access by the public to them is unacceptable. These resources are increasingly endangered because of their commercial attractiveness and education is a way to encourage compliance with rules and regulations and increase protection.

In accordance with Executive Order No. 13006, issued May 21, 1996 (61 Federal Register 26071), federal agencies shall, prior to acquiring, constructing, or leasing buildings for purposes of carrying out agency responsibilities, use historic properties available.

Appendix B—Compatibility Determinations

The below information and rationale was used to determine the type and level of public use that is compatible with the purposes of the Lost Trail National Wildlife Refuge.

Public Use

Detailed descriptions of the public use activities that will be allowed on the refuge (below) are stated in the management direction (chapter 4) of the CCP for Lost Trail National Wildlife Refuge. These public use activities are as follows:

- Wildlife observation and photography throughout the refuge including use of a scenic drive, wildlife-viewing areas, and nature trails.
- Recreational hunting of deer, elk, mountain grouse, and turkey in accordance with state of Montana regulations.
- One recreational fishing event per year for youth, in accordance with state of Montana regulations.
- Wildlife-dependent environmental education and interpretation activities with on-site field trips and a day use area for use by educational groups.

Refuge Establishment

Lost Trail National Wildlife Refuge was established in August 1999. The purposes of the refuge are described in the following establishment and acquisition authorities:

- Migratory Bird Conservation Act (16 U.S.C. 715-751r) ...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.
- Fish and Wildlife Conservation Act [16 U.S.C. 661(1)-662(c)] ...for the conservation and enhancement of fish and wildlife.

Refuge Guidance

As part of the National Wildlife Refuge System, the management and use of Lost Trail National Wildlife Refuge is guided by various federal laws and guidance.

Laws, Regulations, and Policy

- National Wildlife Refuge System Improvement Act of 1997
- National Wildlife Refuge System Administration Act of 1966
- Refuge Recreation Act of 1962
- Code of Federal Regulations, Title 50
- U.S. Fish and Wildlife Service Manual
- Endangered Species Act of 1973
- Migratory Bird Hunting and Conservation Stamp Act
- Migratory Bird Treaty Act of 1918
- National Environmental Policy Act of 1969

National Wildlife Refuge System Mission

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

Goals of the National Wildlife Refuge System

- Preserve, restore, and enhance in their natural ecosystems (when practicable) all species of animals and plants that are endangered or threatened with becoming endangered.
- Perpetuate the migratory bird resource.
- Preserve a natural diversity and abundance of fauna and flora on refuge lands.
- Provide an understanding and appreciation of fish and wildlife ecology and man's role in his environment and to provide refuge visitors with high quality, safe, wholesome, and enjoyable recreational experiences oriented toward wildlife to the extent these activities are compatible with the purposes for which the refuge was established.

Refuge Goals

A goal is a descriptive statement of desired future conditions that conveys a purpose.

Riparian Habitat Goal

Restore, enhance, and maintain a mixed deciduous and coniferous riparian habitat to support indigenous wildlife species and perpetuate the ecological integrity of the Fisher River watershed.

Wetland Habitat Goal

Provide breeding, resting, and feeding habitat for wetland-dependent species of northwestern Montana by restoring, maintaining, and enhancing a mosaic of lake, semipermanent, seasonal, temporary, and saturated wetlands.

Grassland Habitat Goal

Restore, enhance, and maintain Intermountain grasslands, with an emphasis on native bunchgrass prairie to provide habitat for migratory birds, species of concern, and associated wildlife species.

Forest Habitat Goal

Enhance and maintain Douglas-fir, ponderosa pine, aspen, and cottonwood forested habitats within the context of the Fisher River watershed for migratory birds, species of concern, and other associated wildlife species.

Invasive Plant Goal

Native plant communities, composition, occurrence, and density exist without degradation by invasive plants, and support associated wildlife.

Migratory Birds Goal

Preserve, restore, and enhance the ecological diversity and abundance of migratory birds of the Intermountain West forest, wetland complexes, riparian habitat, and bunchgrass prairie.

Endemic Wildlife Goal

Restore and maintain resident and endemic wildlife populations of northwestern Montana to maintain and enhance species diversity of Lost Trail National Wildlife Refuge and Fisher River watershed.

Species of Concern Goal

Contribute to the conservation, enhancement, and recovery of endangered, threatened, and species-of-concern populations in Lost Trail National Wildlife Refuge and Fisher River watershed.

Cultural Resources Goal

Protect, manage, and interpret archaeological, cultural, and historical resources present at Lost Trail National Wildlife Refuge for the benefit of present and future generations.

Public Use Goal

Provide quality wildlife-dependent recreational and educational opportunities for persons of all abilities to learn, understand, and enjoy the Intermountain ecosystem of northwestern Montana; the associated fish, wildlife, and plants of Lost Trail National Wildlife Refuge; and the National Wildlife Refuge System in a safe and compatible manner.

Administration Goal

Provide staffing, funding, and facilities to maintain the long-term integrity of habitats and wildlife resources of Lost Trail National Wildlife Refuge in supporting the achievement of ecosystem and National Wildlife Refuge System goals.

Partnership Goal

Promote and develop partnerships with adjacent landowners, public and private organizations, and other interested individuals to preserve, restore, and enhance a diverse and productive ecosystem of which Lost Trail National Wildlife Refuge is an integral part.

Availability of Resources

Current resources and those unmet funding needs defined as RONS projects (appendix I) will be available to administer the CCP, in association with assistance from the MFWP to conduct the hunt program and with partnerships for various refuge projects.

Anticipated Impacts

Since this refuge is new, there is not much biological or public use information available. It is unknown how fast and to what extent the public use opportunities will be used. Wildlife-dependent public use is generally encouraged on national wildlife refuges as long as it is compatible with the purposes for which the refuge was established. Implementation of a CCP has biological and public use monitoring integrated throughout to determine if management activities or public use need to be modified to keep uses within the compatibility threshold.

Following is a short description of the estimated level of wildlife-dependent recreational activities. For a further evaluation of impacts, please see chapter 5 of the EA, titled "Environmental Consequences."

Wildlife Observation and Photography

Wildlife observation and photography are minimal at this time, but anticipated to increase. These activities might result in some disturbance to wildlife especially if visitors venture too close to sensitive areas (e.g., migratory bird nests, elk calving, and moose foraging). Disturbance is expected to be minimal and have an insignificant effect when properly managed (e.g., access limited to trails at times, nest buffer zones, and closures).

Hunting

Please see the compatibility determination completed for the hunt program on the refuge in December 2001. Hunting was considered compatible and had the regional director's signature for concurrence.

Fishing

A single youth fishing event per year is the only fishing that might be allowed. This level of fishing is so minimal there should be very limited, short-lived disturbance to certain species of wildlife and is not expected to negatively impact the refuge. If it is determined that fish population levels cannot provide a quality event, staff will work with partners such as MFWP to sponsor an event off-refuge such as at a nearby WPA. Allowing the public youth to fish will provide environmental education, foster positive public opinion, and help build support for the Service and its natural resource conservation agenda.

Environmental Education and Interpretation

A day use area for environmental education groups will create localized disturbance and removal of vegetation. However, the benefit of educating visitors to the importance of natural resource conservation and learning about wildlife biology outweigh the minimal impact of site development.

Public Review and Comment

The draft compatibility determination was provided for intergovernmental review May 2004 and for public review July 2005.

Determination (Check One Below)

_____ Uses ARE NOT Compatible

__X__ Uses ARE Compatible with the following stipulations

Stipulations Necessary to Ensure Compatibility

Visitors will need to comply with refuge brochures and tear sheets for refuge closures, time of year access limited to trails, and be in accordance with state of Montana regulations and licensing requirements.

Justification for Compatibility Determination

The U.S. Fish and Wildlife Service's current policy is to expand and enhance opportunities for high-quality wildlife-dependent public use, with emphasis on hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation.

These uses are generally considered to be appropriate with the purposes of the refuge and meet the refuge public use goal to provide for compatible wildlife-dependent recreation. Monitoring of biological and public use impacts is stipulated to maintain within the comparability threshold.

Signatures

Ray Wasdhtak 8-24-05

Ray Wasdhtak, Refuge Manager — Date
Lost Trail National Wildlife Refuge

Steven W. Kallin 8/23/05

Steve Kallin, Project Leader — Date
National Bison Range

Concurrence

Steve Berendzen 8/29/05

Steve Berendzen, Refuge Supervisor (MT, UT, WY) — Date
U.S. Fish and Wildlife Service, Region 6

Ron Sharpe 8/30/05

Richard A. Coleman, Ph.D., Asst. Regional Director — Date
National Wildlife Refuge System
U.S. Fish and Wildlife Service, Region 6

Mandatory 10- or 15-year Reevaluation Date: 2020

Appendix C—List of Preparers

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

Team Member		*Current Work Unit*
Ray Washtak	Refuge manager	Lost Trail National Wildlife Refuge, Marion, MT
Steve Kallin	Project leader for the National Bison Range Complex	National Bison Range Complex, Moiese, MT
David Wiseman	*Former* project leader for the National Bison Range Complex	USFWS, Region 6, Lakewood, CO
Lindy Garner	*Former* wildlife biologist for the National Bison Range Complex	North Louisiana Refuge Complex, Farmerville, LA
Lynn Verlanic	Wildlife biologist	Lost Trail National Wildlife Refuge, Marion, MT
Pat Jamieson	Outdoor recreation planner	National Bison Range Complex, Moiese, MT
Stacy Hoehn	*Former* student refuge operations specialist trainee for Lost Trail National Wildlife Refuge	Valley City Wetland Management District, Valley City, ND
Shannon Heath	Outdoor recreation planner	USFWS, Region 6, Helena, MT
Jim Williams	District wildlife manager	Montana Fish, Wildlife and Parks, Kalispell, MT
John Grant	Area manager for the Ninepipes Wildlife Management Area	Montana Fish, Wildlife and Parks, Charlo, MT
Bernardo Garza	Fish and wildlife biologist, planning team leader	USFWS, Region 6, Lakewood, CO
Rhoda Lewis	*Former* regional archaeologist	*Retired*
Sean Fields	*Former* biologist, GIS specialist	Benton Lake National Wildlife Refuge, MT
Mark Ely	Chief of GIS branch	USFWS, Region 6, Lakewood, CO
Deb Parker	Writer-editor	USFWS, Region 6, Lakewood, CO
Barb Shupe	*Former* writer-editor	USFWS, Region 6, Lakewood, CO
Jana Mohrman	Hydrologist	USFWS, Region 6, Lakewood, CO

Besides Mr. Grant and Mr. Williams, the Service acknowledges and expresses gratitude to the MFWP for the relevance of the role played by their members, including Carolyn Sime (gray wolf coordinator), in the CCP planning process . Additionally, the following staffs of Region 6 of the Service were of enormous help through their review and input on the drafts of this document:

— Kevin Beck, fire specialist (MT, UT, WY), National Bison Range Complex
— Steve Berendzen, refuge supervisor (MT, UT, WY)
— John Blankenship, *former* deputy regional director
— Rick Coleman, assistant regional director
— John Cornely, chief, migratory birds
— John Esperance, chief, land protection planning branch
— Sheri Fetherman, chief, education and visitor services
— Jaymee Fojtik, *former* GIS specialist
— Galen Green, fire ecologist
— Toni Griffin, refuge planner
— Lee Jones, biologist, National Bison Range Complex
— Linda Kelly, chief, CCP branch
— Ken Kerr, fire management officer

— Laura King, refuge planner
— Wayne King, biologist
— Greg Langer, *former* refuge supervisor (MT, UT, WY)
— Rachel Laubhan, wildlife biologist
— Brant Loflin, cultural resources specialist (MT)
— Adam Misztal, *former* refuge planner
— Ralph O. Morgenweck, regional director
— Greg Pratschner, fisheries program supervisor, north region
— Bob Rebarchik, zone fire management officer (MT)
— Clay Ronish, refuge law enforcement zone officer (MT, UT)
— Michael Spratt, chief, division of refuge planning
— Bill West, assistant project leader, National Bison Range Complex
— Harvey Wittmier, chief, division of realty

Appendix D—Consultation and Coordination

Consultation

The following individuals were consulted during the development of this document:

Montana Fish, Wildlife and Parks
Lydia Bailey
Jerry Brown
Mike Hensler
Clint Muhlfeld
Jim Williams

Natural Resources Conservation Service
Forest Berg
Mary Price
Angel Rosario
Cal Sibley
Neal Svendsen
Herb Webb

U.S. Geological Survey, Northern Rockies Science Center
Blake Hossack
Rick Sodja

U.S. Department of Agriculture, Forest Service
Maria Mantas

Montana State Lands, Department of Natural Resources Conservation
Jon Dahlberg
Bill Wright

Plum Creek Timber Company
Henning Stabins
Laurie Woods

U.S. Fish and Wildlife Service
Tim Bodurtha
Paul Hanna
Shannon Heath
Jana Mohrman
Karen Nelson
Tom Roffe

Confederated Salish and Kootenai Tribes
Marcia Pablo
Dale Becker

American Bird Conservation
Dan Casey

Private Individuals
4 persons

Public Involvement

Public scoping was initiated for Lost Trail National Wildlife Refuge in January 1998. At this time, issue workbooks were mailed and open houses were held for public input on management to be dealt with in the CCPs for all the refuges of the National Bison Range Complex.

Lost Trail National Wildlife Refuge was in the preliminary stages of being considered for acquisition, yet the Service requested comments on its management as well. Many of the public comments from the open houses and issue workbooks were general comments for all units of the complex being managed as part of the Refuge System. They are included here for Lost Trail National Wildlife Refuge as well.

Another scoping meeting was held only for Lost Trail National Wildlife Refuge in May 1998 to request input from the public about the acquisition and management of the refuge. Twenty-two people attended the Kalispell, Montana meeting. Approximately 48 written comments were received during the entire comment period. Comments identified biological, social, and economic concerns. The issues raised and comments received from the public, the state, and other groups helped the planning team to develop the goals, objectives, and strategies for each of the alternatives contemplated in the draft CCP and EA for the refuge.

During the acquisition process and in the acquisition EA, the Service stated that hunting would be evaluated and potentially allowed within 1 year after purchase. The Service missed that deadline. The development of the EA for hunting and the hunt step-down plan was accelerated to open the refuge to hunting for the fall 2002 season. This occurred concurrently with the development of the CCP.

A public open house was held at the refuge to request public comment on hunting on March 1, 2001. Forty-five people came to the open house and public comments were received in the mail. Most of the input was requesting the refuge be open to big game and waterfowl hunting.

The EA evaluated six alternatives for hunting. The EA and draft hunt plan were released to the public October 30, 2001, for a 30-day comment period. An open house for the public to ask questions and provide input regarding the EA and draft plan was held November 15, 2001. The public provided comments during the open house and by mail. A large number of comments this time were to keep the refuge closed to hunting.

The approved preferred alternative in the hunt EA served as the guideline for the development of the step-down hunt plan. It outlines the specific details of how the hunt program is carried out.

Development of the CCP continued with an EA with four alternatives. The draft CCP and EA was released to the public in July 2005. Throughout the development of the draft CCP and EA, the refuge staff discussed the planning process with local county commissioners, sportsmen and women's groups, and other interested groups. In addition, the refuge staff invited the local tribal and state agencies to participate in the development of the CCP.

Concurrently with the public comment period, the Service held open house meetings in Libby (July 27) and Kalispell (July 28), where the staff provided an overview of the resources in the refuge and of the draft CCP and EA. Service staff answered questions and received comments from the attending public. These open house meetings were advertised in the local media in Montana. Approximately 20 persons attended both meetings during the public review period of the draft CCP and EA.

The planning team received 13 letters, which contained approximately 45 comments (some of them common to more than one commenter). Among these letters, there was one from the Montana House of Representatives.

Public Comments

Public comments were received and used throughout the planning process. Issues and concerns in the draft CCP and EA were identified through discussions with planning team members and key contacts, and through the public scoping process. Comments were received orally at meetings, via email, and in writing.

The refuge staff recognizes and appreciates all input received from the public. To address this input, several clarifications and some changes are reflected in this final CCP.

Comments received during the public review period for the draft CCP and EA have been compiled and summarized, followed by responses from the Service. Individuals, agencies, local governments, and organizations concerned about the natural resources of the refuge provided these issues, concerns, and comments.

Comments about editorial and presentation corrections were addressed in the production of this final CCP, and are not detailed here.

Where there were similar statements from more than one commenter, the statements were grouped into one summarized comment.

Comment 1—The refuge's wetland habitats should be opened to waterfowl hunting. Waterfowl hunting on refuges is allowed under the Migratory Bird Conservation Act of 1929 and parts of the refuge were purchased with Federal Migratory Bird Stamp funds.

Response—Although current waterfowl population numbers are too low to provide hunting opportunities, the refuge expects implementation of this CCP will lead to restoration and enhancement of all refuge habitats. This could lead to increases in waterfowl populations and the opening of refuge habitats to waterfowl hunting in the future. The strategies and rationale for "waterbirds objective 3" further address this in chapter 4.

Comment 2—The refuge should be open to recreational furbearer trapping, as defined in the "State of Montana Fish, Wildlife and Parks Trapping Regulations," with the exception of trapping of badgers. The refuge is a source of Columbian badgers used for augmentation efforts in Canada.

Response—The Service is not opposed to the concept of recreational furbearer trapping. However, one of the purposes for the establishment of the refuge is for the protection and enhancement of federally listed species, as stated in the draft CCP and EA. The refuge lies within the range of several federally listed species (i.e., gray wolf, grizzly bear, Canada lynx) that could be adversely affected or killed inadvertently in traps intended for other animal species. To protect any individual of federally listed species that might wander through or use habitats on the refuge, the Service finds it necessary to ban the use of traps within the limits of the refuge. This ban is in line with the state's request to protect the Columbian badger from trapping.

Comment 3—The proposed action (alternative A) was well developed. The goal and objectives to restore, enhance, and protect habitats, especially wetland habitats, are strongly supported because they will have local and downstream positive effects for vegetation (e.g., riparian corridors) and wildlife (e.g., fisheries).

Response—The Service expects that, when all the habitat goals are met, the results will be positive direct and indirect impacts on vegetation, wildlife, and the quality of human life.

Comment 4—The draft CCP and EA discusses the ESA petition for Columbia redband trout but does not discuss the similar ongoing process for westslope cutthroat trout. The section on species of concern does not mention these fish species.

Response—Because these species are not expected to return to the refuge in the life of this plan, these species were addressed in the riparian habitat section rather than in the section on species of concern. Restoration of Pleasant Valley Creek could eventually lead to Columbia redband trout and westslope cutthroat trout inhabiting the refuge. However, this would not happen until fish passage issues were addressed off-refuge downstream on Pleasant Valley Creek. Westslope cutthroat trout has been through the listing process and the Service has determined that it does not require listing under

the ESA (this clarification has been added to the section on fish in chapter 3 of this final CCP).

Comment 5—The Lund family, who were historically important local figures, were not mentioned in the draft CCP and EA.

Response—The story of the Lunds' role in past management of the lands that today comprise the refuge has been added to the section on cultural resources in chapter 3 of this final CCP.

Comment 6—Part of the definition for a quality hunting experience (appendix A) that deals with "minimizing reliance on motorized vehicles and technology" may be misconstrued as "anything more than bare hands."

Response—The definition provided in appendix A is the Service's definition of a quality hunting experience. It has been reviewed nationally and is unlikely to be misinterpreted or misconstrued. The Service does not intend for it to mean that "minimizing reliance on motorized vehicles and technology" is equal to killing an animal with bare hands or with the use of a knife.

Comment 7—Cattle should not be allowed to graze in the refuge.

Response—Grazing by domestic cattle is a proven and effective habitat management tool currently used, to different degrees, throughout the National Wildlife Refuge system. Grazing, as well as prescribed fire and haying, is one of the tools available to refuge managers. When grazing is used properly in refuge habitats, it is able to simulate similar impacts by other naturally occurring herbivores—impacts that are part of a healthy ecosystem. Like any other habitat management tool available to refuge staffs, grazing is used when it is the most conducive tool to accomplish habitat management goals and objectives.

Comment 8—The formation of a new refuge complex, independent from the National Bison Range Complex, is supported. Will the refuge staff be able to accomplish objectives within proposed time frames?

Response—The refuge will strive to procure all necessary staff and resources, as well as form and maintain partnerships and volunteer groups, to be able to achieve all the goals and objectives stated in this CCP.

Comment 9—How is public input (e.g., scoping of issues and concerns) accommodated in the planning process? How can dog fanciers near the refuge find out about public meetings or similar mechanisms so they can participate to ensure their concerns and issues are taken into consideration?

Response—The first page of this appendix has a summary of how public involvement was implemented during the CCP process. Chapter 2 has further information on the scoping process and the issues that were raised during this process. When the planning team received this comment, a copy of the draft CCP and EA was immediately sent to the commenter via overnight mail, well within the public comment period. However, no subsequent comments from this commenter were received. Leashed dogs are allowed into the refuge as long as their owners are engaged in one of the six priority public uses. A leashed service dog with its owner is allowed during *any* visit to the refuge. A service dog assists persons with visual, auditory, or other physical impairments.

Comment 10—The refuge should accommodate maximum public use because wildlife is adaptable. Refuges are for people as well as wildlife. Wildlife tends to have maximum social and economic value when that wildlife can be hunted, fished, observed, or photographed. Alternative B is supported.

Response—Congress sets guiding principles for the management of public lands by federal agencies. While some federal agencies have multiple-use mandates from Congress, the Service has a specific mandate to put wildlife first. The Service is to accommodate wildlife-oriented public use only when compatible with conservation of wildlife resources and their habitats. The proposed action (alternative A) was selected to implement as the CCP to allow wildlife-oriented public uses while ensuring that the wildlife and their habitats are protected, enhanced, and restored, so that future generations of Americans can continue to enjoy wildlife.

Comment 11—The refuge should be more appropriately named in accordance to its geographical location.

Response— The name of the refuge was selected very early during the acquisition phase. "Lost Trail National Wildlife Refuge" was chosen because the former private lands that now comprise the refuge were known locally as the Lost Trail Ranch. The Service wanted to aid in the public's identification of the refuge. This explanation has been added to chapter 1 of this final CCP.

Comment 12—Public involvement needs to be maximized because the refuge is taxpayer-funded and because openness of the program will foster continued support of further activities.

Response—Please see the response to comment 9. In addition, the goals, objectives, and strategies for the sections on partnerships and administration (chapter 4) exemplify the refuge's continued openness to maximum public involvement in all aspects of refuge management.

Comment 13—Control of invasive weeds should be a priority.

Response—The Service agrees. The refuge developed a goal specific to invasive plant species, with specific objectives and strategies. The CCP

calls for an earnest, well-organized, partnership-oriented, frontal attack on invasive plant species.

Comment 14—Minimize the cost of needed conservation measures through continued use of partnerships.

Response—Please see the responses to comments 12 and 13.

Comment 15—Use haying and livestock grazing to decrease fire danger, maintain plant vigor, provide new growth for those wildlife species dependent on grazing, and provide a more diverse home for waterfowl. Consider using best-management practices when organizing a grazing program and try to use the neighbors of the refuge as partners for the grazing program.

Response—Please see the response to comment 7. In addition, the goals, objectives, and strategies for partnerships and administration (chapter 4) address the coordination needed to effectively manage the refuge. A new appendix, "Fire Management Program," has been added to this final CCP to address fuels management and wildland fire suppression.

Comment 16—The language used under the administration subheading (chapter 1) could be construed as a requirement placed on the Service by the House of Representatives.

Response—The language used in the said section specifies that the House Report 105-106 "encourages," not requires, managers to obtain outside assistance if adequate finances are not available to manage a priority public use in a compatible manner.

Comment 17—The riparian habitat section (chapter 3) describes losses of riparian habitats throughout the western United States, but does not provide specific information about losses of riparian habitat within the refuge.

Response—The information regarding the current status of riparian habitats within the refuge is found throughout the CCP, especially in appendix A.

Comment 18—The structure of the alternatives usually follows the following order: the no-action alternative, followed by all other alternatives in no particular order. The draft CCP and EA for this refuge placed the proposed action first and the no-action alternative last. This added to the confusion caused by the order in which the objectives and strategies were organized.

Response—The planning team chose to place the proposed action first, followed by the rest of the alternatives considered, because the proposed action had the greatest degree of detail. Thus, other alternatives that shared similar elements with the proposed action could be easily referenced back to the first alternative. The planning team has reorganized the objectives, rationales, and strategies to a more traditional and user-friendly format in this final CCP.

Comment 19—The way the map in appendix F of the draft CCP and EA shows the ownership boundary is misleading and should be modified.

Response—The map was produced by the PCTC and is used by permission. Any changes to that map would need to be negotiated with the PCTC.

Comment 20—Some of the adjacent landowners might not be considering conservation easements on their lands.

Response—The refuge is interested in pursuing conservation easements that would benefit wildlife and aid in achieving the purposes and goals of the refuge. The refuge is also aware that adjacent landowners might be too busy or uninterested at this time to pursue such easements. However, the CCP is a 15-year management plan and interest and opportunities to develop such easements might develop in the future.

Comment 21—The draft CCP and EA mentions that Service law enforcement personnel could have jurisdiction and provide law enforcement on adjacent private lands; however, that jurisdiction falls exclusively within the purview of the state of Montana.

Response—Partnerships objective 5 (chapter 4) mentions "law enforcement responsibilities… on and adjacent to the refuge." For clarification in this final CCP, "on public lands" has been added to partnerships objective 5 and strategy 1 under the same objective, and to strategy 15 under operations objective 2. Refuge law enforcement officers do not and cannot perform law enforcement duties outside of Service lands unless the state of Montana specifically asks the refuge and enters into a written agreement. Service law enforcement personnel enforce federal laws on refuge lands. When the Service's law enforcement personnel observe violations on adjacent lands, they proceed to notify the state of Montana.

Comment 22—It is inappropriate for the refuge to not provide a campsite, assuming adjacent lands will absorb that use.

Response— The CCP mentions that state and USDA Forest Service (public) lands near the refuge are open to public camping. The CCP does not mention any private landowner adjacent to the refuge as providing camping to the public. The Service's Region 6 policy on camping is that it is an incompatible public use—camping cannot be allowed on refuges in Region 6.

Comment 23—The impact that maximizing the biological potential of the refuge might have on the refuge's adjacent landowners is not mentioned in the

draft CCP and EA. If it becomes incompatible with forest management on adjacent lands and excessive big game damage occurs, the adjacent landowners would like that to be considered as an undesirable impact and would like the refuge to address the problem.

Response—Achieving the maximum biological potential of the refuge's habitats will result in improved conditions for all resident and migratory species at the refuge. This could result in increased numbers of wildlife visiting or residing in the refuge. Improved habitat conditions at the refuge would act as a magnet for wildlife, lessening the impact on adjacent lands rather than increasing them. Potential impacts that may be caused by excessive numbers of wildlife such as large ungulates can be addressed through hunting pressure, which is an issue the state of Montana deals with through their yearly hunting regulations and quotas.

Comment 24—Additional motorized access use on the refuge is not encouraged. The amount of public use in this area has risen dramatically over the last six years. Adjacent landowners appreciate the refuge's policy on limited motorized access, which has isolated pieces of the refuge that cannot affect other landowners' property. The soils, in conjunction with the gentle topography, provide the opportunity for people to use motorized vehicles inappropriately, resulting in damage to the environment and to the roads. This happens very quickly and the damage is costly. The current use pattern provides a balance between environmental damage and motorized public use.

Response—The Service does not intend to encourage or allow increases in access to the refuge by motorized vehicles.

Comment 25—The Service should try to move away from campground development within national wildlife refuges. Campgrounds, particularly if they are made accessible and made properly for the user, can be a drain on precious refuge resources, both staff and money.

Response—Development of a campground is not part of this final CCP, in compliance with the Service's Region 6 policy that determined camping on a refuge is an incompatible public use. The refuge has decided to no longer pursue its objective to build a campground on refuge lands, as had been proposed in the environmental education section of alternative A of the draft CCP and EA. This also reflects the fact that there are other public lands near the refuge where camping is allowed, as well as reasonably priced hotels and motels within reasonable commute time from the refuge. Also, please see the response to comment 22.

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Representative Rick Maedje
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Yellow Bay, MT

Individuals

142 persons

Appendix E—Environmental Compliance

Environmental Action Statement

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

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

I have determined that the action of implementing the Comprehensive Conservation Plan for Lost Trail National Wildlife Refuge is found not to have significant environmental effects, as determined by the attached Finding of No Significant Impact and the environmental assessment as found with the draft comprehensive conservation plan.

for Ralph O. Morgenweck
Regional Director
U.S. Fish and Wildlife Service
Region 6
Lakewood, Colorado

9/26/05
Date

Richard A. Coleman, Ph.D.
Assistant Regional Director
U.S. Fish and Wildlife Service, Region 6
National Wildlife Refuge System Lakewood, Colorado

9/26/05
Date

for Steve Berendzen
Refuge Program Supervisor (MT, UT, WY)
U.S. Fish and Wildlife Service
Region 6
Lakewood, Colorado

9/26/05
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Steve Kallin
Project Leader
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U.S. Fish and Wildlife Service, Region 6
Moiese, Montana

9/20/05
Date

Ray Washtak
Refuge Manager
Lost Trail National Wildlife Refuge
U.S. Fish and Wildlife Service, Region 6
Marion, Montana

9-15-05
Date

Finding of No Significant Impact

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

Fulfill the Comprehensive Conservation Plan for Lost Trail National Wildlife Refuge

Four management alternatives for the Lost Trail National Wildlife Refuge were assessed as to their effectiveness in achieving the refuge purposes and their impact on the human environment. Alternative A, the Service's proposed action would place management emphasis on the restoration of native vegetation and natural hydrology, and control invasive plants. Compatible wildlife-dependent public uses would be limited when needed to protect wildlife, habitats, and cultural resources.

Alternative B, while similar to the proposed action, would maximize compatible public use instead of pursuing habitat restoration. Alternative C is similar to the proposed action in its emphasis on habitat restoration and wildlife protection, but restricts public use to ensure resource protection. The "no-action" alternative D would continue custodial management of the refuge.

Based on the environmental assessment and comments received, I have selected alternative A for implementation.

The proposed action was selected because it best meets the purposes for which the Lost Trail National Wildlife Refuge was established and is preferable to the "no-action" alternative in light of physical, biological, economic, and social factors. The proposed action will also provide public access for wildlife-dependent recreation, environmental education, and interpretation.

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

The following is a summary of anticipated environmental effects from implementation of the proposed action:

- The proposed action will not adversely impact endangered or threatened species or their habitat.
- The proposed action will not adversely impact archaeological or historical resources.
- The proposed action will not adversely impact wetlands nor does the plan call for structures that could be damaged by or that would significantly influence the movement of floodwater.
- The proposed action will not have a disproportionately high or adverse human health or environmental effect on minority or low-income populations.

The state of Montana and the Confederated Salish and Kootenai Tribes have been notified and given the opportunity to review the comprehensive conservation plan and associated environmental assessment.

for Mary A. Henry — 9/26/05

Ralph Morgenweck
Regional Director
U.S. Fish and Wildlife Service
Region 6
Lakewood, Colorado

Date

Appendix F—List of Animal and Plant Species

This appendix presents a list of animal species present in the Pleasant Valley ecosystem. In addition, plant species mentioned in the CCP are listed.

Species with confirmed sightings on Lost Trail National Wildlife Refuge are followed by an asterisk (*).

ANIMALS

Birds

Loons
- Common loon *(Gavia immer)*

Grebes
- Pied-billed grebe *(Podylimbus podiceps)**
- Horned grebe *(Podiceps autitus)**
- Eared grebe *(P. nigricollis)**
- Red-necked grebe *(P. grisegena)**
- Western grebe *(Aechmophorus occidentalis)*
- Clark's grebe *(A. clarkii)*

Cormorants
- Double-crested cormorant *(Phalacrocorax auritus)*

Herons and Bitterns
- Great blue heron *(Ardea herodias)**
- Black-crowned night-heron *(Nycticorax nycticorax)*
- American bittern *(Botaurus lentiginosus)**

Swans, Geese, and Ducks
- Tundra swan *(Cygnus columbianus)*
- Trumpeter swan *(C. buccinator)*
- Ross' goose *(Chen rossii)*
- Canada goose *(Branta canadensis)**
- Snow goose *(Chen caerulescens)*
- Gadwall *(Anas strepera)**
- Mallard *(A. platyrhyncos)*
- Northern pintail *(A. acuta)*
- American wigeon *(A. americana)**
- Eurasian wigeon *(A. penelope)*
- Wood duck *(Aix sponsa)**
- Northern shoveler *(Anas clypeata)**
- Blue-winged teal *(A. discors)**
- Green-winged teal *(A. crecca)**
- Cinnamon teal *(A. cyanoptera)**
- Canvasback *(Aythya valisineria)**
- Redhead *(A. americana)**
- Ring-necked duck *(A. collaris)**
- Greater scaup *(A. marila)*
- Lesser scaup *(A. affinis)**
- Common goldeneye *(Bucephala clangula)**
- Barrow's goldeneye *(B. islandica)**
- Bufflehead *(B. albeola)**
- Ruddy duck *(Oxyura jamaicensis)**
- Common merganser *(Mergus merganser)**
- Red-breasted merganser *(M. serrator)*
- Hooded merganser *(Lophodytes cucullatus)**

New World Vultures
- Turkey vulture *(Cathartes aura)*

Osprey, Hawks, and Eagles
- Osprey *(Pandion haliaetus)**
- Northern harrier *(Circus cyaneus)**
- Golden eagle *(Aquila chrysaetos)**
- Bald eagle *(Haliaeetus leucocephalus)**
- Sharp-shinned hawk *(Accipiter striatus)*
- Cooper's hawk *(A. cooperii)*
- Northern goshawk *(A. gentiles)*
- Red-tailed hawk *(Buteo jamaicensis)*
- Swainson's hawk *(B. swainsoni)*
- Rough-legged hawk *(B. lagopus)*
- Ferruginous hawk *(B. regalis)*

Falcons
- American kestrel *(Falco sparverius)**
- Merlin *(F. columbarius)*
- Prairie falcon *(F. mexicanus)**
- Peregrine falcon *(F. peregrinus)**
- Gyrfalcon *(F. rusticolus)*

Gallinaceous Birds
- Gray partridge *(Perdix perdix)*
- Wild turkey *(Meleagris gallopavo)**
- Ruffed grouse *(Bonasa umbellus)**
- Spruce grouse *(Falcipennis Canadensis)**
- Blue grouse *(Dendragapus obscurus)**
- White-tailed ptarmigan *(Lagopus leucurus)*

Rails and Coots
- Virginia rail *(Rallus limicola)*
- Sora *(Porzana carolina)**
- American coot *(Fulica americana)**

Cranes
- Sandhill crane *(Grus canadensis)**

Plovers
- Killdeer *(Charadrius vociferus)**

Avocets and Stilts
- American avocet *(Recurvirostra americana)**
- Black-necked stilt *(Himantopus mexicanus)*

Sandpipers and Phalaropes
Greater yellowlegs *(Tringa melanoleuca)**
Lesser yellowlegs *(T. flavipes)*
Solitary sandpiper *(T. solitaria)*
Spotted sandpiper *(Actitis macularia)**
Long-billed curlew *(Numenius americanus)*
Sanderling *(Calidris alba)*
Semipalmated sandpiper *(C. pusilla)*
Western sandpiper *(C. mauri)*
Least sandpiper *(C. minutilla)*
Baird's sandpiper *(C. bairdii)*
Pectoral sandpiper *(C. melanotos)*
Long-billed dowitcher *(Limnodromus scolopaceus)**
Common snipe *(Gallinago gallinago)**
Wilson's phalarope *(Phalaropus tricolor)**
Red-necked phalarope *(P. lobatus)*

Gulls and Terns
Franklin's gull *(L. pipixcan)*
Bonaparte's gull *(L. philadelphia)*
Ring-billed gull *(L. delawarensis)*
California gull *(L. californicus)*
Herring gull *(L. argentatus)*
Forster's tern *(Sterna forsteri)*
Common tern *(S. hirundo)*
Black tern *(Chlidonias niger)**

Pigeons and Doves
Band-tailed pigeon *(Columba fasciata)*
Mourning dove *(Zenaida macroura)**

Cuckoos
Yellow-billed cuckoo *(Coccyzus americanus)*

Typical Owls
Barn owl *(Tyto alba)*
Great horned owl *(Bubo virginianus)**
Barred owl *(Strix varia)*
Great gray owl *(S. nebulosa)**
Snowy owl *(Nyctea scandiaca)*
Western screech-owl *(Otus kennicotti)*
Flammulated owl *(O. flammeolus)*
Northern pygmy-owl *(Glaucidium gnoma)*
Northern saw-whet owl *(Aegolius acadicus)*
Boreal owl *(A. funereus)*
Burrowing owl *(Athene cunicularia)*

Nightjars
Common nighthawk *(Chordeiles minor)**

Swifts
Black swift *(Cypseloides niger)*
Vaux's swift *(Chaetura vauxi)*
White-throated swift *(Aeronautes saxatalis)*

Hummingbirds
Black-chinned hummingbird *(Archilochus alexandri)*
Broad-tailed hummingbird *(Selasphorus platycercus)*
Calliope hummingbird *(Stellula calliope)**
Rufous hummingbird *(Selasphorus rufus)*

Kingfishers
Belted kingfisher *(Ceryle alycon)**

Woodpeckers
Lewis's woodpecker *(Melanerpes lewis)**
Northern flicker *(Colaptes auratus)**
Williamson's sapsucker *(Sphyrapicus thyroideus)*
Red-naped sapsucker *(S. nuchalis)**
Downy woodpecker *(Picoides pubescens)**
Hairy woodpecker *(P. villosus)**
Three-toed woodpecker *(Picoides tridactylus)**
Black-backed woodpecker *(P. arcticus)**
Pileated woodpecker *(Dryocopus pileatus)**

Tyrant Flycatchers
Olive-sided flycatcher *(Contopus cooperi)**
Western wood-pewee *(Contopus virens)**
Willow flycatcher *(Empidonax. traillii)**
Least flycatcher *(E. minimus)**
Hammond's flycatcher *(Amphidonas hammondii)**
Dusky flycatcher *(E. oberholseri)**
Cordilleran flycatcher *(E. occidentalis)*
Say's phoebe *(Sayornis saya)*
Eastern kingbird *(Tyrannus tyrannus)**
Western kingbird *(T. vericalis)*

Shrikes
Loggerhead shrike *(Lanius ludovicianus)*
Northern shrike *(L. excubitor)*

Vireos
Blue-headed vireo *(Vireo solitarius)**
Red-eyed vireo *(V. olivaceous)*
Warbling vireo *(V. gilvus)**

Jays, Magpies, and Crows
Blue jay *(Cyanocitta cristata)*
Stellar's jay *(C. stelleri)*
Gray jay *(Perisoreus canadensis)*
Clark's nutcracker *(Nucifraga columbiana)**
Black-billed magpie *(Pica hudsonia)**
American crow *(Corvus brachyrhynchos)**
Common raven *(C. corax)**

Larks
Horned lark *(Eremophila alpestris)*

Swallows
Tree swallow *(Tachycineta bicolor)**
Violet-green swallow *(T. thalassina)**
Bank swallow *(Riparia riparia)**
Cliff swallow *(Hirundo pyrrhonota)**
Northern rough-winged swallow *(Stelgidopteryx serripennis)**
Barn swallow *(H. rustica)**

Chickadees
Black-capped chickadee *(Parus atricapillus)**
Mountain chickadee *(P. sclateri)**
Chestnut-backed chickadee *(P. rufescens)*
Boreal chickadee *(P. hudsonicus)*

Nuthatches
White-breasted nuthatch *(Sitta carolinensis)**
Red-breasted nuthatch *(S. canadensis)**
Pygmy nuthatch *(S. pygmaea)*

Creepers
Brown creeper *(Certhia americana)*

Wrens
House wren *(Troglodytes aedon)**
Winter wren *(T. troglodytes)*
Rock wren *(Salpinctes obsoletus)*
Canyon wren *(Catherpes mexicanus)*
Marsh wren *(Cistothorus palustris)**

Dippers
American dipper *(Cinclus mexicanus)*

Kinglets
Golden-crowned kinglet *(Regulus satrapa)**
Ruby-crowned kinglet *(R. calendula)**

Thrushes
Western bluebird *(Sialia mexicana)*
Mountain bluebird *(S. currucoides)**
Townsend's solitaire *(Myadestes townsendi)**
Veery *(Catharus fuscescens)*
Swainson's thrush *(C. ustulatus)**
Hermit thrush *(C. guttatus)*
Varied thrush *(Ixoreus naevius)*
American robin *(Turdus migratorius)**

Mimic Thrushes
Gray catbird *(Dumetella carolinensis)**
Sage thrasher *(Areoscoptes montanus)*

Starlings
European starling *(Sturnus vulgaris)**

Pipits
American (water) pipit *(Anthus rubescens)*

Waxwings
Bohemian waxwing *(Bombycilla garrulus)*
Cedar waxwing *(B. cedrorum)*

Wood-warblers
Tennessee warbler *(Vermivora peregrine)**
Orange-crowned warbler *(Ermivora celata)**
Nashville warbler *(V. ruficapilla)*
Yellow-rumped warbler *(Dendrocia coronata)**
Townsend's warbler *(D. townsendi)**
Yellow warbler *(D. petechia)**
MacGillivray's warbler *(Oporornis tolmiei)**
Wilson's warbler *(Wilsonia pusilla)**
Northern waterthrush *(Seiurus noveboracensis)*
Common yellowthroat *(Geothlypis trichas)**
Yellow-breasted chat *(Icteria virens)*
American redstart *(Setophaga ruticilla)*

Tanagers
Western tanager *(Piranga ludocviciana)**

Sparrows and Towhees
Spotted towhee *(Pipilo maculatus)**
American tree sparrow *(Spizella arborea)*
Chipping sparrow *(S. passerina)**
Clay-colored sparrow *(S. pallida)*
Brewer's sparrow *(S. pallida)*
Lark sparrow *(Chondestes grammacus)*
Grasshopper sparrow *(Ammodramus savannarum)**
Le Conte's sparrow *(A. leconteii)*
Fox sparrow *(Passerella iliaca)*
Savannah sparrow *(Passerculus sandwichensis)**
Lincoln's sparrow *(Melospiza lincolnii)*
Song sparrow *(M. melodia)**
Vesper sparrow *(Pooecetes gramineus)**
Harris' sparrow *(Zonotrichia querula)*
White-throated sparrow *(Z. albicollis)*
White-crowned sparrow *(Z. leucophrys)*
Dark-eyed junco *(Junco hyemalis)**
Lapland longspur *(Calcarius lapponicus)*

Grosbeaks and Allies
Snow bunting *(Plectrophenax nivalis)**
Rose-breasted grosbeak *(Pheucticus ludovicianus)*
Black-headed grosbeak *(P. melanocephalus)**
Lazuli bunting *(Passerina amoena)**

Blackbirds and Orioles
Western meadowlark *(Sturnella neglecta)**
Yellow-headed blackbird *(Xanthocephalus xanthocephalus)**
Red-winged blackbird *(Agelaius phoeniceus)**
Common grackle *(Quiscalus quiscula)*
Brewer's blackbird *(Euphagus cyanocephalus)**
Brown-headed cowbird *(Molothrus ater)**
Northern oriole *(Icterus galbula)**

Finches
Cassin's finch *(Carpodacus cassinii)*
Red crossbill *(Loxia curvirostra)**
White-winged crossbill *(L. leucoptera)*
Pine grosbeak *(Pinicola enucleator)*
Pine siskin (*Carduelis pinus)**
American goldfinch *(C. tristis)**
Common redpoll *(C. flammea)*
Hoary redpoll *(C. hornemanni)*
Evening grosbeak *(Coccothraustes vespertinus)**

Old World Sparrows
House sparrow *(Passer domesticus)**

MAMMALS

Badger *(Taxidea taxus)**
Beaver *(Castor canadensis)**
Big brown bat *(Eptesicus fuscus)*
Black bear *(Ursus americanus)**
Bobcat *(Lynx rufus)*
Bushy-tailed woodrat *(Neotoma cinerea)*
California myotis *(Myotis californicus)*
Canada lynx *(Lynx canadensi)**
Columbian ground squirrel *(Spermophilus columbianus)**
Coyote *(Canis latrans)**
Deer mouse *(P. maniculatus)**
Elk *(Cervus elaphus)**
Fisher *(Martes pennanti)*
Golden-mantled ground squirrel *(Spermophilus lateralis)*
Gray wolf *(Canis lupus)**
Grizzly bear *(Ursus arctos)*
Hoary bat *(Lasiurus cinereus)*
Hoary marmot *(Marmota caligata)*
House mouse *(Mus musculus)*
Little brown myotis *(Myotis lucifungus)**
Ling-eared myotis *(M. keenii)*
Long-legged myotis *(M. volans)*
Long-tailed vole *(Microtus longicaudus)*

Long-tailed weasel *(Mustela frenata)*
Marten *(Martes americana)*
Masked shrew *(Sorex cinereus)*
Meadow vole *(Microtus pennsylvanicus)**
Merriam's shrew *(Sorex merriami)*
Mink *(Mustela vison)*
Moose *(Alces alces)**
Mountain cottontail *(Sylvilagus nuttallii)*
Mountain lion *(Puma concolor)**
Mule deer *(Odocoileus hermionus)**
Muskrat *(Ondatra zibethicus)**
Northern bog lemming *(Synaptomys borealis)*
Northern flying squirrel *(Glaucomys sabrinus)*
Northern pocket gopher *(Spermophilus richardsonii)*
Northern river otter *(Lontra canadensis)**
Norway rat *(Rattus norvegicus)*
Pika *(Ochotona princeps)*
Porcupine *(Erethizon dorsatum)*
Preble's shrew *(Sorex preblei)*
Pygmy shrew *(Blarina brevicauda)*
Raccoon *(Procyon lotor)*
Red fox *(Vulpes vulpes)*
Red squirrel *(Tamiasciurus hudsonicus)*
Red-tailed chipmunk *(Tamias ruficaudus)*
Short-tailed weasel *(Mustela erminea)*
Silver-haired bat *(Lasioycteris noctivagans)*
Snowshoe hare *(Lepus americanus)**
Southern red-backed vole *(Clethrionomys gapperi)*
Striped skunk *(Mephitis mephitis)*
Townsend's big-eared bat *(Plecotus townsendii)*
Vagrant shrew *(Sorex vagrans)*
Water shrew *(S. palustris)*
Water vole *(Microtus richardsonii)*
Western heather vole *(Phenacomys intermedius)*
Western jumping mouse *(Zapus princeps)*
White-tailed deer *(Odocoileus virginianus)**
White-tailed jackrabbit *(Lepus townsendii)*
Wolverine *(Gulo gulo)**
Yellow-bellied marmot *(Marmota flaviventris)*
Yellow-pine chipmunk *(Tamias amoenus)*
Yuma myotis *(Myotis yumanensis)*

Amphibians and Reptiles

Amphibians

Boreal toad *(Bufo boreas)**
Bullfrog *(Rana catesbeiana)*
Coeur D'Alene salamander *(Plethodon idahoensis)*
Idaho giant salamander *(Dicamptodon aterrimus)*
Long-toed salamander *(Ambystoma macrodactylum)**
Northern leopard frog *(Rana pipiens)*
Pacific chorus frog *(Pseudacris regilla)**
Roughskin newt *(Taricha granulose)*
Spotted frog *(Rana pretiosa)**
Tailed frog *(Ascaphus truei)*
Tiger salamander *(Ambystoma tigrinum)*
Wood frog *(Rana sylvatica)*

Reptiles

Common garter snake *(Thamnophis sirtalis)**
Northern alligator lizard *(Elgaria coerulea)*
Painted turtle (*Chrysemys picta)**
Racer *(Coluber constrictor)*
Rubber boa *(Charina bottae)*
Western rattlesnake *(Crotalus viridis)*
Western skink *(Eumeces skiltonianus)*
Western terrestrial garter snake *(Thamnophis elegans)**

Fish

Northern pike minnow *(Ptychocheilus oregonensis)*
Pumpkinseed *(Lepomis gibbosus)*
Redside shiner *(Richardsonius balteatus)*
Yellow perch *(Perca flavescens)*

PLANTS

Grasses and Sedges

Alkali cordgrass *(Spartina gracilis)*
Alkaligrass *(Puccinellia nuttalliana)*
Basin wildrye *(Elymus cinereus)*
Blue wildrye *(Elymus glaucus)*
Bluebunch wheatgrass *(Pseudoregneria spicata)*
Bulrush *(Scirpus acutus)*
Cheatgrass *(Bromus tectorum)*
Columbia needlegrass *(Stipa columbiana)*
Crested wheatgrass *(Agropyron desertorum)*
Elk sedge *(Carex geyeri)*
Foxtail barley *(Hordeum jubatum)*
Idaho fescue *(Festuca idahoensis)*
Intermediate wheatgrass *(Agropyron intermedium)*
Kentucky bluegrass *(Poa pratensis)*
Lily pad *(Nuphar* spp.*)*
Mountain brome *(Bromus carinatus)*
Needle and thread *(Stipa comata)*
Orchard grass *(Dactylis glomerata)*
Pine grass *(Calamagrostis rubescens)*
Prairie junegrass *(Koeleria cristata)*
Quack grass *(Agropyron repens)*
Red threeawn *(Aristida longiseta)*
Red top *(Agrostis stolonifera)*
Reed canarygrass *(Phalaris arundinacea)*
Richardson needlegrass *(Stipa richardsonii)*
Rough fescue *(Festuca scabrella)*
Sandberg bluegrass *(Poa secunda)*
Sedge *(Carex* spp.*)*
Slender wheatgrass *(Agropyron trachycaulum)*
Smooth brome *(Bromus inermis)*
Timothy *(Phleum pretence)*
Tufted hairgrass *(Deschampsia caespitosa)*
Western fescue *(Festuca occidentalis)*
Western wheatgrass *(Agropyron smithii)*
Wild oat *(Avena fatua)*

Forbs

Alberta penstemon *(Penstemon albertinus)*
Alumroot *(Heuchera richardsonii)*
Black medic *(Medicago lupulina)*
Buckwheat *(Eriogonum spp.)*
Canada thistle *(Cirsium arvense)*
Common toadflax *(Linaria vulgaris)*
Cudweed sagewort *(Artemisia ludoviciana)*
Dogwood *(Cornus sericea)*
Elk thistle *(Cirsium scariosum)*
Fringed sage *(Artemisia frigida)*
Glacier lily *(Erythronium grandiflorum)*
Orange hawkweed (*Hieracium aurantiacum)*
Meadow hawkweed *(H. pratens)*
Heartleaf arnica *(Arnica cordifolia)*
Horsetail *(Equisetum arvense)*
Littleleaf penstemon *(Penstemon procerus)*
Owl clover *(Orthocarpus tenuifolius)*
Prairie smoke *(Geum triflorum)*
Purple aster *(Symphyotrichum patens)*
Purple mariposa *(Calochortus nitidus)*
Pussy toes *(Antemana neglecta)*
Round alumroot *(Heuchera cylindrical)*
Sage buttercup *(Ranunculus glaberrimus)*
Shrubby cinquefoil *(Pentaphylloides florib)*
(Potentilla fruticosa)
Silky lupine *(Hupinus sericeus)*
Silver sage *(Artemisia cana)*
Solomon's seal *(Polygonatum odoratum)*
Spotted knapweed *(Centaurea maculosa)*
St. Johnswort *(Hypericum perforatum)*
Sticky geranium *(Geranium viscosissimum)*
Stinging nettle *(Urtica dioica)*
Stoneseed *(Lithospermum tuberosum)*
Sulphur cinquefoil *(Potentilla recta)*
Tansy ragwort *(Senecio jacobaea)*
Twinflower *(Linnaea borealis)*
Umbrella plant *(Cyperus alternifolia)*
Veiny meadowrue *(Thalictrum venulosum)*
Velvet lupine *(Lupinus leucophhyllus)*
Western gromwell *(Lithospermum ruderale)*
White vetch *(Vicia grandiflora)*
Wild strawberry *(Fragaria virginiana)*
Yarrow *(Achillea millefolium)*
Yellow cinquefoil *(Potentilla megalantha)*
Yellow penstemon *(Penstemon confertus)*

Shrubs

Chokecherry *(Prunus virginiana)*
Currant *(Ribes aureum)*
Dwarf huckleberry *(Vaccinium cespitosum)*
Kinnikinnick *(Arctostaphylos uva-ursi)*
Oregon grape *(Berberis repens)*
Rose *(Rosa* spp.*)*
Russet buffalo berry *(Sheperdia argentea)*
Serviceberry (*Amelanchier arborea)*
Snowberry *(Symhoricarpos albus)*
White spirea *(Spiraea albiflora)*

Trees

Aspen *(Populus tremuloides)*
Cottonwood *(Populus balsamifera)*
Douglas-fir *(Pseudotsuga menziesii)*
Englemann spruce *(Picea englemanii)*
Grand fir (*Abies grandis)*
Juniper spp. *(Juniperus* spp.*)*
Lodgepole pine *(Pinus contorta)*
Ponderosa pine *(Pinus ponderosa)*
Speckled alder *(Alnus incana)*
Subalpine fir *(Abies lasiocarpa)*
Water birch *(Betula papyrifera)*
Western larch *(Larix occidentalis)*
Willow *(Salix* spp.*)*

Appendix G—Authorized Public Uses

U.S. Fish & Wildlife Service

Lost Trail

National Wildlife Refuge

Authorized Public Uses
2005 - 2006

Welcome
Lost Trail National Wildlife Refuge (NWR) is the 519th refuge inducted into the National Wildlife Refuge System. We invite the public to the Refuge for wildlife observation, wildlife photography, environmental education, and access to adjacent State and Plum Creek Timber Company (PCTC) lands. At this time, limited public use is permitted on the Refuge. A Comprehensive Conservation Plan (CCP), which involves public review, is currently being completed for the Refuge and will determine public use that will be permitted in the future.

General Information
This 7,885-acre Refuge, established in 1999, is managed for the benefit of migratory birds and other wildlife species. The Refuge shares portions of its boundary with PCTC, the Montana Department of Natural Resources and Conservation (DNRC), and private landowners. Visitors and hunters must have landowner permission before accessing or hunting on private property. Lost Trail NWR is a satellite unit of the National Bison Range Complex headquartered in Moiese, Montana.

Directions
The Refuge can be reached via Highway 2 by going west from Kalispell approximately 20 miles to Marion. Turn right (north) at Marion onto Pleasant Valley Road. After approximately 1.3 miles, the blacktop road will fork. Stay to the right! Continue on the main gravel road (Pleasant Valley Road) about 13 miles; the Refuge headquarters is located north of the County Road.

Parking on the Refuge
- Parking areas are located on North 1019 Road near Bleise Road and on the west end of the Refuge at the intersection of South Pleasant Valley Road and the County Road.
- Parking along North 1019 Road and Orr Road is prohibited.
- Blocking roads or gates is prohibited.

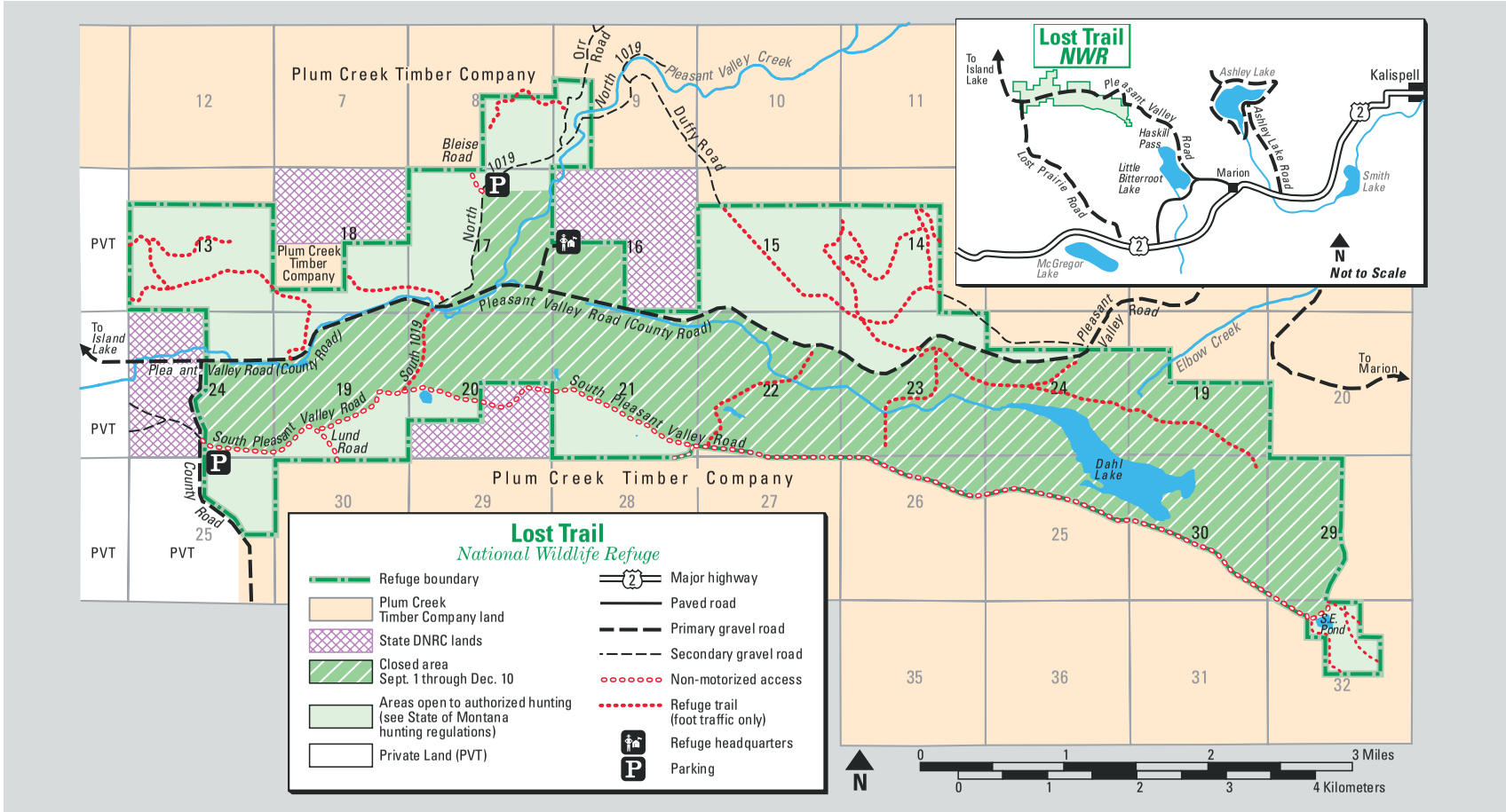
State Land
Four parcels of State land within the "executive boundary" of the Refuge are owned and managed by the DNRC. These parcels are not part of the Refuge and are open to public recreation according to State law. A Recreational Use License is required and can be obtained from any authorized Montana Fish, Wildlife and Parks license agent.

Authorized Public Uses
- Visitors are allowed to observe or photograph wildlife, hike, cross-country ski, or snowshoe throughout the Refuge, except in the seasonally closed area, (closed September 1 through December 10).
- Motorized access to PCTC land is permitted via Pleasant Valley Road (County Road), North 1019 Road, and Orr Road (see map). PCTC's "Open Lands Policy" provides recreational rules and guidelines; copies are available at any PCTC office and at the Refuge headquarters.
- Refuge management allows mountain bike (non-motorized) and horseback use on those roads designated on the map for non-motorized access.
- Regulations and further information are available at the Refuge headquarters.

To Protect You And The Refuge
- Possession or discharge of firearms or archery equipment in designated closed areas is prohibited.
- Pets must be on a leash and attended at all times.
- Motorized use of the Refuge is allowed only on North 1019 Road, Orr Road, or the Pleasant Valley Road (County Road).
- Off-road vehicle travel is strictly prohibited.
- Collecting, injuring, disturbing, destroying, or harming animals, animal parts (including horns), or plants is not permitted unless authorized.
- Open fires are prohibited.
- Overnight camping is prohibited.
- Please comply with all signs.
- Shooting into a closed area is prohibited.

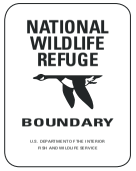
Refuge Hunting Regulations
Hunting elk, white-tailed deer, mule deer, turkey, and mountain grouse is permitted on the Refuge, except in designated closed areas. ***The Closed Area is outlined on the map. This area is closed to all public access from September 1 through December 10.*** All State of Montana hunting regulations apply; in addition the following Refuge regulations apply:
- ***The first week of archery and the first week of general deer and elk season is open to youth (12-14) only. Youth hunters must be accompanied by an adult who is at least 21 years of age.***
- Guiding or outfitting is prohibited.
- Hunters need consent from the Refuge manager before retrieving game from within the closed area.
- Portable or temporary blinds or tree stands are permitted, but must be removed on a daily basis.
- Refuge management allows mountain bike (non-motorized) and horseback riding or pack stock on those roads designated on the map for non-motorized access.
- Dogs may not be used for hunting.
- ***Coyote hunting and ground squirrel shooting are not permitted under Refuge hunting regulations.***
- When hunting grouse or turkey on the Refuge, only a shotgun no larger than a 10-gauge and federally approved non-toxic shot may be used.

Accessibility Information
Equal opportunity to participate in and benefit from programs and activities of the U.S. Fish and Wildlife Service is available to all individuals regardless of physical or mental ability. Dial 7-1-1 for a free connection to the State transfer relay service for TTY and voice calls to and from the speech and hearing impaired. For information or to address accessibility needs, please contact the Refuge staff at 406 / 858 2216 or the U.S. Department of the Interior, Office of Equal Opportunity, 1849 C Street, NW, Washington, D.C. 20240.



Refuge Signs And Their Meaning

Refuge Boundary



Areas are open to permitted activities only.

Regulations and further information are available at the Refuge headquarters.

No Hunting

Areas behind this sign are closed to hunting.

Public Hunting Area

Areas behind this sign are open to public hunting for deer, elk, turkey, and mountain grouse only.

Lost Trail
National Wildlife Refuge
6295 Pleasant Valley Road
Marion, MT 59925
406 / 858 2216
406 / 858 2218 fax
Ray_Washtak@fws.gov

U.S. Fish and Wildlife Service
http://www.fws.gov

For Refuge System Information
1 800 344 WILD

Montana Department of Fish, Wildlife and Parks
490 N. Meridian
Kalispell, MT 59901
406 / 752 5501

Plum Creek Timber Company
P.O. Box 8990
Kalispell, MT 59904
406 / 751 2400

Montana Department of Natural Resources and Conservation
2250 Hwy 93 North
Kalispell, MT 59901
406 / 751 2240

For State transfer relay service
TTY / Voice: 711

July 2005

Appendix H—List of Facilities

Facilities on the Lost Trail National Wildlife Refuge are listed below.

Buildings	One 4-bedroom, 2-bath residence
	One 3-bedroom, 2-bath residence with a 2-car garage
	One 3-bedroom, 2-bath modular residence
	One small, single unit residence consisting of a single room with bath, kitchen, and bedroom
	Two log-construction buildings
	One newly constructed office complex: 6 offices, an administrative area, a visitor contact area, a multi-purpose room, a staff locker room, a storage room, a 50'x50' maintenance shop, and a 4-bedroom apartment
	Two log-construction horse barns with stalls
	Three storage buildings
	Two shop areas (one currently being used)
Infrastructure	Three wells that supply potable water to the residences (one well is located at the "lake house" area and is currently not being used)
	Five underground septic systems (all operational, one system not being used)
Fences and Roads	Approximately 33 miles of 4- and 5-strand barbwire boundary fence
	Approximately 28 miles of interior and boundary roads (grass-covered "two-track" roads and graveled roads)
	Several culverts and cattle guards
	South Pleasant Valley Road
	One county-maintained road that traverses the refuge east-to-west
	North 1019 and South 1019 roads
Artificial Habitats	Ten artificial wetlands

Appendix I—Fire Management Program

The U.S. Fish and Wildlife Service has management and administrative responsibility, including fire management and other management issues, on approximately 13,130 acres of forest, riparian, wetland, and grassland habitats within Flathead County, Montana. In addition, there are 1,568 acres on the Swan River National Wildlife Refuge in Lake County, Montana. Lost Trail National Wildlife Refuge manages all of these habitats. Refuge objectives focus primarily on migratory bird and federally listed species habitat, as well as recreational opportunities.

Fire—A Critical Natural Process

In ecosystems in the northern Rocky Mountains, vegetation has evolved under periodic disturbance and defoliation from large herbivores and fire, with minor weather events. This periodic disturbance is what kept the ecosystem diverse and healthy, while maintaining significant biodiversity for thousands of years. Historically, naturally occurring wildland fire and Native American ignitions have played an important role in many ecosystems:

- by removing fuel accumulations
- by decreasing the impacts insects and diseases
- by simulating regeneration
- by cycling critical nutrients
- by providing a diversity of habitats for plant species and wildlife

When fire is excluded on a broad scale, the unnatural accumulation of living and dead fuels that occurs can contribute to degraded plant communities and wildlife habitats. These fuel accumulations often change fire regime characteristics, and have created a potential in many areas across the country for uncharacteristically severe wildland fires. These catastrophic wildland fires often pose risks to public and firefighter safety. In addition, they threaten property and resource values such as wildlife habitat, grazing opportunities, timber, soils, water quality, and cultural resources.

Return of fire in most ecosystems is essential for healthy vegetation—in grasslands, wetlands, and some woodlands—for wildlife habitat.

When integrated back into an ecosystem, fire can help restore and maintain healthy systems and reduce the risk of wildland fires. To facilitate fire's natural role in the environment, fire first must be integrated into land and resource management plans and activities on a broad scale. Reintroduced fire:

> can improve waterfowl habitat, wetlands, and riparian areas by reducing the density of or modify the species in the vegetation, thereby increasing available water;
>
> can improve deer and elk habitat, especially in areas with shortages such as winter habitat and on spring and fall transitional ranges;
>
> can sustain biological diversity;
>
> can improve access in woodlands and shrublands;
>
> can improve soil fertility;
>
> can improve the quality and amount of livestock forage;
>
> can improve growth in immature woodlands by reducing density;
>
> can remove excessive build-up of fuels;
>
> can reduce susceptibility of plants to insects and disease caused by moisture and nutrient stress;
>
> can improve water yield for off-site activities and communities dependent on wildlands for their water supply.

Wildland Fire Management Policy and Guidance

In 2001, an update of the 1995 Federal Fire Policy was completed and approved by the Secretaries of Interior and Agriculture. The 2001 Federal Wildland Fire Management Policy directs federal agencies to achieve a balance between fire suppression to protect life, property, and resources and fire use to regulate fuels and maintain healthy ecosystems. In addition, it directs agencies to use the appropriate management response for all wildland fires regardless of the ignition source. This policy provides nine guiding principles that are fundamental to the success of the fire management program.

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.

- Fire management plans (FMPs), programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities.
- Fire management programs and activities are economically viable, based on values to be protected, costs, and land and resource management objectives.
- FMPs and activities are based on the best available science.
- FMPs and activities incorporate public health and environmental quality consideration. Federal, state, tribal, local, interagency, and international coordination and cooperation are essential.
- Standardization of policies and procedures among federal agencies is an ongoing objective.
- The fire management considerations, guidance, and direction needs to be addressed in land-use resource management plans (e.g., comprehensive conservation plans). FMPs are step-down processes from the land-use plans and habitat plans. They contain more detail on fire suppression, fire use, and fire management activities.

Management Direction of Future FMPs for Lost Trail NWR

Fire management would be used to protect life, property, and other resources from wildland fires by safely suppressing all wildfires on the Lost Trail National Wildlife Refuge and its WMD.

Prescribed fire, manual means, or mechanical means would be used in an ecosystem management context for habitat management, and to protect both federal and private property.

Fuel reduction activities would be applied where needed, especially in areas with a higher proportion of residences that may be considered "wildland-urban interface" (WUI) areas.

All fire management programs would be conducted in a manner consistent with applicable laws, policies, and regulations. An FMP would be maintained and implemented to accomplish resource management objectives.

Prescribed fire would be applied in a scientific way under selected weather and environmental conditions. Prescribed fire would be used on up to approximately 1,000 acres of grasslands and forests and 140 acres of wetlands annually to accomplish habitat management objectives.

Fire Management Objective

Fire is an important management tool that can be used to accomplish habitat management objectives. Fire is also a tool that can quickly destroy equipment, building and property, and hurt or kill those that work with it. Prescribed fire and WUI treatments would be used to reduce hazardous fuels on refuge lands to reduce the intensity and favorable conditions for wildland fires.

Fire Management Strategies

Strategies and tactics that consider public and firefighter safety and values at risk would be used. A more detailed fire plan for information on wildland fire suppression and prescribed fire methods, timing, and monitoring will be found in a step-down FMP for the refuge.

All management actions would use prescribed fire to control nonnative vegetation and manage woody vegetation within the diverse ecosystem habitats of the refuge. The prescribed fire program will be outlined in the FMP for the refuge. This plan will describe the following:

- burn units and their predominant vegetation
- primary objectives for the units and the fires
- acceptable range of results
- site preparation requirements
- weather requirements
- safety considerations and measures to protect sensitive features
- burn-day activities
- communications and coordination for burns
- ignition techniques
- smoke management procedures
- post-burn monitoring

Air Quality

Prescribed fire temporarily reduces air quality by reducing visibility and releasing several components through combustion. The four major components are carbon monoxide, carbon dioxide, hydrocarbons, and particulates. Varying amounts of particulate content are generated in different types of fuels (e.g., wildlife habitat improvement burns vs. fuel reduction burns).

Standards set by the Clean Air Act and the Montana Department of Environmental Quality would be met during all prescribed fire under all fire management actions.

Visibility and clean air are primary natural resource values. The protection of these resources must be given full consideration in fire management planning and operations. Additionally, smoke can have serious health and safety effects that must be considered. The management of smoke will be incorporated into the planning of prescribed fires and, to the extent possible, in the suppression of wildland fire.

Fire Management Organization, Contacts, and Cooperation

Qualified fire management technical oversight and support for the refuge and the WMD will be established by Region 6 using the fire management district approach. Under this approach, an appropriate fire management staffing organization will be determined by established modeling systems based on the fire management workload of a group of refuges, and possibly that of interagency partners. The fire management workload consists of historical wildfire suppression activities and historical and planned fuels treatment.

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

The Montana DNRC has responsibility for all fire suppression activities within Lost Trail National Wildlife Refuge. Currently, the fire management on the refuge is covered by the FMP for the National Bison Range Complex. With the approval of this CCP, a new FMP would need to be developed for the Lost Trail National Wildlife Refuge as a stand-alone or interagency plan.

Appendix J—Section 7 Biological Evaluation

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Originating Persons: Ray Washtak
Lynn Verlanic
Bernardo Garza

Telephone Numbers: (406) 858-2216 x 1
(303) 236-4377

Date: August 15, 2005

I. Region: 6

II. Service Activity (Program): Refuges & Wildlife, Lost Trail National Wildlife Refuge

III. Pertinent Species and Habitat:

A. Federally Listed Species and/or their critical habitat within or downstream from action area:

grizzly bear, *Ursus arctos* (federally listed: threatened)

bald eagle, *Haliaeetus leucocephalus* (federally listed as threatened; proposed delisting)

gray wolf, *Canis lupus* (federally listed: threatened)

Canada lynx, *Lynx canadensis* (federally listed: threatened)

Bull trout, *Salvelinus confluentus* (federally listed: threatened)

Spalding's catchfly, *Silene spaldingii*, (federally listed: threatened)

There is no federally designated critical habitat on the area of Lost Trail NWR

Species Listed and/or of Special Concern for the Montana Fish, Wildlife & Parks (MFWP):

trumpeter swan, *Olor buccinator* (MT species of concern, priority 1 for MT PIF)

black tern, *Chlidonias niger* (MT species of concern, priority 2 for MT PIF)

boreal toad, *Bufo boreas* (MT species of concern, category S3)

B. Proposed species and/or proposed critical habitat within the action area:

There are no known proposed species and/or proposed critical habitat in Lost Trail NWR

C. Candidate species within or downstream from the action area :

There are no known candidate species within or downstream from Lost Trail NWR

D. Include species/habitat occurrence on a map: see attachment

IV Geographic area or station name and action:

Station: Lost Trail National Wildlife Refuge
Action: Issuance & Implementation of Comprehensive Conservation Plan for Lost Trail NWR

V Location (map attached):

E. Ecoregion Number and Name: Lost Trail NWR is located within the Service's Region 6, Mountain-Prairie Region, and specifically in the MOYOCO Ecosystem

F. County and State: Flathead County, Montana

G. Section, township, and range: Lost Trail NWR includes parts or all of:

Sections 13, 21, and 25, Range 27 West; Sections 8-9 and 14-26, Range 26 West; and Sections 19, 29, 30 and 32, Range 25 West. All of these within Township 28 North.

F. Distance and direction to nearest town:

Lost Trail NWR is located in southwestern area of Flathead County, Montana. This refuge is nestled in the Pleasant Valley, approximately 20 miles northwest from the town of Marion, southwest of the city of Kalispell.

G. Habitats and Occurrence of Federally listed and Species of Special Concern for the MFWP:

grizzly bear: The refuge is an area classified as a management situation II under the Interagency Grizzly Bear Guidelines. Although grizzly bears occasionally inhabit the area, lack of highly suitable habitat and security precludes extensive use today.

bald eagle: A pair of bald eagles have nested in the aspens on the north side of Dahl Lake for the last several years.

gray wolf: Lost Trail NWR is one of the first national wildlife refuges in the Intermountain West to support the gray wolf. Wolves have attempted to colonize the Pleasant Valley twice in the last decade. In both instances, the wolves started to prey on livestock and were subsequently killed. Currently there are no known wolves inhabiting the refuge or the lands immediately adjacent to the refuge. The site of the refuge is an important winter range for elks in the Pleasant Valley, which are a primary prey species for wolves.

adjacent to the refuge. The site of the refuge is an important winter range for elks in the Pleasant Valley, which are a primary prey species for wolves.

Canada lynx: This species occurs in northwestern Montana, but has not yet been documented on the refuge. Habitat for this species consists of a mosaic of forest habitats including early successional forests that support high densities of snowshoe hares and late-successional forests that contain cover for kittens and for denning. Although early successional forests are common on Plum Creek Timber Company lands that surround the refuge, these lands may not be managed to support the dense understory required for high densities of snowshoe hares.

bull trout: This species has not been documented nor does it presently occur at the site of the refuge but rather downstream from the Refuge along the Fisher River watershed.

Spalding's catchfly: This species is a native forb of the carnation family that occurs in mesic slopes, flats, or depressions of open grassland. It is associated with Idaho fescue, rough fescue and bluebunch wheatgrass, occasionally interspersed with conifers. Twenty populations of this species have been documented in northwestern Montana, with one of the largest ones having been found within the refuge in 2002. The refuge's population encompasses a minimum of 300 plants within 9.5 acres, with part of this population existing on state land within the legislative boundary of the refuge.

trumpeter swan: Historic accounts indicate that the Flathead Valley is one of three areas where suitable habitat existed and trumpeter swans were once a common breeding species in the U.S. In recent times, there have been sporadic reports of swans wintering in northwestern Montana along the Flathead and Clark Fork river drainages. Trumpeter swan habitat exists around Dahl Lake. A pair of trumpeter swans was documented in the Pleasant Valley area one summer, but breeding was not recorded.

black tern: The Service has listed this species as a nongame bird of management concern. In Montana, this species is listed as a species of special concern with a ranking of "vulnerable" under the Natural Heritage Program classification system, but has not been consistently monitored. Black terns have been documented nesting around Dahl Lake. Black tern production on the refuge was documented by the state in 1999. Refuge staff observed black terns in the refuge in 2000 and 2001.

boreal toad: The refuge is a survey site as part of the national amphibian research and monitoring initiative launched by the USGS. The

refuge has documented one of the largest known populations of boreal toads reproducing in the northwestern Rocky Mountains, based on the number of larvae observed (2001, 2002). The USGS found upwards of 40 breeding females at Lower Moose Pond, and more than 200 breeding females on the south side of Dahl Lake.

VI Description of proposed action

The proposed action is: development and implementation of a Comprehensive Conservation Plan to guide the management of Lost Trail NWR for the next 15 years. Implementation of this Plan comprises implementation of all actions and activities to achieve the stated goals contained in the Plan that will ultimately lead to the fulfilment of the purposes for which Congress established Lost Trail NWR and assist in the fulfilment of the goals of the National Wildlife Refuge System.

VII Determination of effects:

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

grizzly bear: Implementation of the CCP will have no detrimental effects on populations of this species in Montana as there are no known bears on the refuge at this time. Should a grizzly species use or wander into refuge lands, provisions in the CCP call for protecting both bears and humans by limiting public use on refuge lands, as well as ensuring grizzly bear food sources are abundant in the refuge.

bald eagle: Implementing the CCP is not thought to have detrimental effects on this raptor. In fact, the continued preservation and management of these lands for the benefit of wildlife species should enhance foraging sites for eagle use. Provisions in the CCP call for restricting public uses so as to avoid impacting nesting activities. Nesting trees and habitat for eagles will be protected around Dahl Lake.

gray wolf: Implementation of the CCP will have no detrimental effects on populations of this species in Montana as there are no known wolves on the refuge at this time. Should a wolf or a pack use or wander into refuge lands, provisions in the CCP call for protecting both wolves and humans by limiting public use on refuge lands, as well as ensuring wolf food sources are abundant in the refuge. Grazing will not be permitted when wolves are on or within one mile of the refuge.

Canada lynx: There are no known lynx in or near the refuge. Implementing the CCP should have no detrimental effects on this feline species. Furthermore, proposed habitat management actions for the forest in

the refuge should enhance the possibility of lynx using refuge lands in the future. Should lynx migrate or use the refuge, provisions in the CCP call for limiting public uses to ensure protection to this species. Sport trapping is not permitted on the refuge.

bull trout: Implementation of the CCP includes restoring the natural hydrology of Dahl Lake, which is upstream from known bull trout populations. It is believed that none of the management actions nor public uses of the refuge being proposed in the CCP should have any adverse effect on bull trout populations outside of the refuge boundary. It is expected that some of the riparian and wetland habitats management proposals will improve the water quality of the refuge wetlands and streams and this could have a positive impact on water quality of the Fisher River watershed downstream from the refuge.

Spalding's catchfly: Implementation of the CCP will have no detrimental effects on populations of this plant in the refuge as the habitat management actions proposed in the CCP call for continued protection and monitoring of this plant's population in the refuge, as well as controlling invasive plant species in habitats conducive to this species. All of the habitat management activities being proposed in this CCP, which fall within known or suspected Spalding's catchfly habitat call for ensuring protection for this species.

There is no federally designated critical habitat on the action area (Lost Trail NWR) and the CCP does not find a need to propose designating critical habitat within the Refuge at this time.

trumpeter swan: Implementing the CCP is not thought to have detrimental effects on this species. In fact, the continued preservation and management of these lands for the benefit of wildlife species should enhance wetland and riparian habitats for use by migrating trumpeter swans. Provisions in the CCP call for restricting public uses so as to avoid impacting any possible nesting activities should swans be found to be inhabiting the refuge.

black tern: Implementing the CCP is not thought to have detrimental effects on this species. In fact, the continued preservation and management of these lands for the benefit of wildlife species should enhance wetland and riparian habitats for use by black terns.

boreal toad: The implementation of the CCP should have no detrimental effects on this amphibian. One focus of the refuge plan is to enhance the structure and function of the riparian and wetland habitats of the refuge. Therefore, toads should indirectly benefit from refuge management efforts. Furthermore, the CCP calls for continued

cooperation and participation with amphibian research and monitoring efforts, as well as prohibiting any activities that could directly or indirectly have an adverse impact on this species, such as collection, or filling activities in known occupied sites.

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

Lost Trail NWR manages lands where grizzly bears, gray wolves, bald eagles, black terns, boreal toads and Spalding's catchfly forbs exist today or did so in the past. Other species such as the bull trout and Canada lynx occur near the refuge and could have used habitats that today are being managed by the refuge. All habitat management and administrative actions, as well as all public uses being proposed in the CCP have been carefully designed so as to improve the habitats necessary for these and others species to thrive, while ensuring that wildlife-dependent recreation takes place in a compatible manner. All actions delineated in this CCP are thought to follow and be in accordance with provisions of protection and restoration plans for several species, as delineated by the Service and other Federal and state agencies. The CCP contains provisions that would be invoked and be put into effect to protect federally listed species and species of special concern from any public use or management action by refuge staff or visitors to the refuge. All of those provisions and actions are delineated throughout the CCP.

VIII Effect determination and response requested: [* = optional]

A. Listed species/designated critical habitat:

Determination	Response requested
no effect/no adverse modification (species: NONE)	✓ *Concurrence
may affect, but is not likely to adversely affect species/adversely modify critical habitat (species: NONE)	_____ Concurrence
likely to jeopardize the continued existence of species and adversely modify or destroy their critical habitat (species: NONE)	_____ Formal Consultation

B. Proposed species/proposed critical habitat: none at this time

Determination	Response requested
no effect on proposed species/no adverse modification of proposed critical habitat (Species: NONE)	_____ *Concurrence
Is likely to jeopardize proposed species/ adversely modify proposed critical habitat	_____ Conference

C. Candidate Species:

Determination	Response requested
no effect	_____ *Concurrence
is likely to jeopardize candidate species (species: NONE)	_____ Conference

Ray Washtak

Ray Washtak, Refuge Manger,
Lost Trail National Wildlife Refuge

8/16/05
Date

IX Reviewing ESO Evaluation:

A. Concurrence ___X___ Nonconcurrence_____

B. Formal Consultation required: ___

C. Conference required: ___

D. Informal conference required: ___

E. Remarks:

R. Mark Wilson

Mark Wilson
Montana Field Supervisor, U.S. Fish & Wildlife Service

8-23-05
Date

Appendix K—Refuge Operations Needs System Projects

RONS[1] Number	*Project Description*	*First-year Need ($)*	*Recurring Annual Need ($)*	*FTE[2]*
00002	Provide a supervisory refuge manager to direct habitat management activities and develop public use programs.	152,000	87,000	1.0
00009	Provide an administrative officer to answer phones, respond to visitor questions, prepare administrative documents, and track budgets.	54,500	22,000	0.5
00010	Provide maintenance positions (one full-time and one part-time) for maintenance activities on all structures and facilities, and for mechanical and chemical management of Refuge System lands administered from the refuge.	119,000	54,000	1.0
00011	Provide a law enforcement officer to protect resources and provide for visitor safety on Lost Trail and Swan River national wildlife refuges.	97,000	32,000	0.5
00012	Provide an outdoor recreation planner to develop public use plans for Lost Trail and Swan River national wildlife refuges and WPA.	69,000	69,000	1.0
—	Provide a part-time coordinator to take full advantage of volunteerism and to expand into friends and support groups.	66,500	34,000	0.5
—	Provide an environmental education room so that locals may use and learn from the refuge.	60,000	5,000	—
—	Construct pit toilets for public use facilities.	45,000	5,000	—
—	Develop a refuge brochure and video.	51,000	3,000	—
—	Complete fencing of the exterior boundary of the refuge.	155,000	—	—
—	Contract for a cultural resource survey.	35,000	—	—
—	Conduct a comprehensive vegetation inventory and assess current habitat condition.	122,000	62,000	—
—	Complete modifications of the office building to provide a woodworking and metal shop, a wash bay, and a vehicle storage bay.	250,000	15,000	—
—	Improve many easement roads by purchasing dump trucks, gravel, and other needed equipment.	310,000	10,000	—

[1]*RONS=refuge operating needs system*
[2]*FTE=full-time equivalent position*

Appendix L—Maintenance Management System Projects

MMS[1] Number	*Project Description*	*Cost ($)*
01105	Rehabilitate deteriorated storage building complex.	278,000
01099	Repair deteriorated horse ranch quarters.	35,000
01108	Rehabilitate deteriorated boundary fence.	202,000
02006	Replace quarters' roofing, guttering, furnace, and ductwork.	35,000
01116	Repair deteriorated roads open to the public.	350,000
02003	Rehabilitate office and visitor contact space.	10,000
01098	Repair deteriorated water line system in horse ranch area.	30,000
01100	Repair deteriorated exterior of three residences.	35,000
01104	Upgrade deteriorated shop at horse ranch area.	329,000
01097	Replace deteriorated garage at horse ranch quarters.	30,000
01102	Replace inaccessible ranch office space.	71,000
99004	Develop and print refuge and WMD[2] brochures for public use.	41,000

[1]*MMS=maintenance management system*
[2]*WMD=wetland management district*

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