

glossary



accessibility: the state or quality of being easily approached or entered, particularly as it relates to the Americans With Disabilities Act.

accessible facilities: structures accessible for most people with disabilities without assistance; ADA-accessible (e.g., parking lots, trails, pathways, ramps).

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.

alternative: a reasonable way to fix an identified problem or satisfy a stated need (40 CFR 1500.2 [cf. "management alternative"]).

alluvium: soils that have been formed by the deposition of water borne materials.

appropriate use: a proposed or existing use of a national wildlife refuge that (1) supports the Refuge System Mission, the major purposes, goals or objectives of the refuge; (2) is necessary for the safe and effective conduct of a priority general public use on the refuge; (3) is otherwise determined under Service Manual Chapter 605 FW1 (draft), by the Refuge Manager and Refuge Supervisor to be appropriate.

aquifer: a formation, group of formations, or part of a formation that contains sufficient saturated, permeable material to yield significant quantities of water to wells and springs.

aquitard: a layer of rock having low permeability that stores groundwater but delays its flow.

biodiversity: the variety of life in all its forms.

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

buffer zones: land bordering and protecting critical habitats; areas created or sustained to lessen the negative effects of land development on animals, plants, and their habitats.

candidate species: species for which the Service has sufficient information on file about their biological vulnerability and threats to propose their listing under the Endangered Species Act.

CERCLA: The Comprehensive Environmental Response, Compensation, and Liability Act (commonly known as Superfund), which created a tax on the chemical and petroleum industries to, among other purposes, establish a trust fund to provide for long-

term cleanup of contaminated sites.

Chronic Wasting Disease: a contagious fatal neurological disease among deer and elk that produces small lesions in brains of infected animals. It is characterized by loss of body condition, behavioral abnormalities and death.

community: the locality in which a group of people resides and shares the same government.

vegetation community type: a particular assemblage of plants and animals, named for its dominant characteristic.

compatible use: "a wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the Director, will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the refuge" (National Wildlife Refuge System Improvement Act of 1997 [Public Law 105-57; 111 Stat. 1253]).

compatibility determination: a required determination for wildlife-dependent recreational uses or any other public uses of a refuge before a use is allowed.

Comprehensive Conservation Plan: a document mandated by the National Wildlife Refuge System Improvement Act of 1997 that describes desired future conditions for a refuge unit, and provides long-range guidance for the unit leader to accomplish the mission of the System and the purpose(s) of the unit (P.L. 105-57; FWS Manual 602 FW 1.4).

concern: cf. "issue."

conservation: managing natural resources to prevent loss or waste (N.b. Management actions may include preservation, restoration, and enhancement).

conservation agreements: voluntary written agreements among two or more parties for the purpose of ensuring the survival and welfare of unlisted species of fish and wildlife or their habitats or to achieve other specified conservation goals.

conservation easement: a legal agreement between a landowner and a land trust (a private, nonprofit conservation organization) or government agency that permanently limits uses of a property to protect its conservation values.

cooperative agreement: the legal instrument used when the principal purpose of a transaction is the transfer of money, property, services, or anything of value to a recipient in order to accomplish a public purpose authorized by Federal statute, and substantial

involvement between the Service and the recipient is anticipated (cf. "grant agreement").

cultural resource: a general term applied to buildings, structures, landscape features, places, or other identifiable artifacts of scientific, aesthetic, educational, spiritual, archaeological, architectural, or historic significance. Can also be more narrowly defined to refer to a prehistoric or historic district, site, building, structure or object listed in or eligible for listing in the National Register of Historic Places.

designated wilderness area: an area designated by Congress as part of the National Wilderness Preservation System (FWS Manual 610 FW 1.5 [draft]).

disturbed area: an area where natural processes have been degraded or destroyed due to human impacts (e.g., mining, cultivation, development).

easement: an agreement by which landowners give up or sell one of the rights on their property (e.g., ditch owners may have an easement to maintain the waterway [cf. "conservation easement"]).

ecosystem: a natural community of organisms interacting with its physical environment, regarded as a unit.

endangered species: a Federal- or State-listed protected species that is in danger of extinction throughout all or a significant portion of its range.

environmental education: education aimed at producing a citizenry that is knowledgeable about the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution" (Stapp et al. 1969).

Environmental Impact Statement: (EIS) a detailed, written analysis of the environmental impacts of a proposed action, adverse effects of the project that cannot be avoided, alternative courses of action, short-term uses of the environment versus the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitment of resources (cf. 40 CFR 1508.11).

erosion: the detachment and movement of soil from the land by wind, water, or gravity.

extirpated: no longer occurring in a given geographic area.

Federal land: public land owned by the Federal Government, including national forests, national parks, and national wildlife refuges.

Federally listed species: a species listed either as endangered, threatened, or a species at risk (formerly, a "candidate species") under the Endangered Species Act of 1973, as amended.

geographic information system: (GIS) a computerized system to compile, store, analyze and display geographically referenced information (e.g., GIS can overlay multiple sets of information on the distribution of a variety of biological and physical features).

global positioning system: (GPS) a satellite-based navigation and positioning system that can be used to locate and store specific points on the earth. GPS technology can be used to create accurate maps of refuge resources or management issues (such as weed patches) that can be easily loaded onto a GIS for analysis.

habitat fragmentation: the breaking up of a specific habitat into smaller, unconnected areas (N.b. A habitat area that is too small may not provide enough space to maintain a breeding population of the species in question).

habitat conservation: protecting an animal or plant habitat to ensure that the use of that habitat by the animal or plant is not altered or reduced.

habitat: the place where a particular type of plant or animal lives.

hay meadow: reference to a 300-acre portion of Rocky Flats that was once cultivated for agriculture and is now comprised primarily of non-native smooth brome and crested wheatgrass. In its current condition, the hay meadow provides marginal wildlife habitat, though it does not adversely affect other Refuge resources.

informal monitoring: (see monitoring) the on-going observation of resource conditions and needs by Service staff that does not follow a pre-determined schedule or observation method.

Integrated Pest Management: (IPM) sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes economic, health, and environmental risks.

interpretive facilities: structures that provide information about an event, place, or thing by a variety of means, including printed, audiovisual, or multimedia materials (e.g., kiosks that offer printed materials and audiovisuals, signs, and trail heads).

forbs: flowering plants (excluding grasses, sedges, and rushes) that do not have a woody stem and die back to the ground at the end of the growing season.

interpretive materials: any tool used to provide or clarify information, explain events or things, or increase awareness and understanding of the events or things (e.g., printed materials like brochures, maps or curriculum materials; audio/visual materials like video and audio tapes, films, or slides; and, interactive multimedia materials, CD-ROM or other computer technology).

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

local agencies: generally, municipal governments, regional planning commissions, or conservation groups.

long-term protection: mechanisms like fee title acquisition, conservation easements, or binding agreements with landowners that ensure land use and land management practices will remain compatible with maintaining species populations over the long term.

managed grazing: the use of livestock such as cattle or goats for purposes other than livestock production (including weed management and vegetative succession). Often requires fencing and moving animals in an organized fashion to achieve resource management objectives.

management alternative: a set of objectives and the strategies needed to accomplish each objective [FWS Manual 602 FW 1.4].

management concern: cf. "issue"; "migratory nongame birds of management concern."

management opportunity: cf. "issue."

management plan: a plan that guides future land management practices on a tract.

management strategy: a general approach to meeting unit objectives (N.b. A strategy may be broad, or it may be detailed enough to guide implementation through specific actions, tasks, and projects [FWS Manual 602 FW 1.4]).

mission statement: a succinct statement of the purpose for which the unit was established; its reason for being.

mitigation: actions taken to compensate for the negative effects of a particular project (e.g., wetland mitigation usually restores or enhances a previously damaged wetland or creates a new wetland).

mixed grassland prairie: a combination of several grassland communities, including mesic mixed grassland, short grassland, xeric needle and thread grassland, and reclaimed mixed grassland, that are composed of similar types of native and non-native grasses and have common management requirements.

monitoring: the collection of scientific information to determine the effects of resource management actions and to identify changing resource conditions or needs.

multi-use trails: trails designated for a variety of uses including hiking, biking and, in some cases, equestrian use.

National Environmental Policy Act of 1969: (NEPA) requires all Federal agencies to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in planning and implementing environmental actions. (Federal agencies must integrate NEPA with other planning requirements, and prepare appropriate NEPA documents to facilitate better environmental decision-making [cf. 40 CFR 1500].)

National Register of Historic Places: Authorized under the National Historic Preservation Act of 1966, the National Register is the nation's official list of cultural resources worthy of preservation. National Register properties are distinguished by having been documented and evaluated according to uniform standards.

National Wildlife Refuge Complex: (Complex) an internal Service administrative linking of refuge units closely related by their purposes, goals, ecosystem, or geopolitical boundaries. In this case, referring to the Rocky Mountain Arsenal National Wildlife Refuge (NWR), Two Ponds NWR, and Rocky Flats NWR as a complex.

National Wildlife Refuge System: (System) all lands and waters and interests therein administered by the Service as wildlife refuges, wildlife ranges, wildlife management areas, waterfowl production areas, and other areas for the protection and conservation of fish and wildlife, including those that are threatened with extinction.

native species: a plant or animal that has grown in the region since the last glaciation and occurred before European settlement.

Notice of Intent: (NOI) an announcement published in the Federal Register that states what the an agency will prepare and review an environmental impact statement [40 CFR 1508.22].

noxious weeds: non-native species that have been introduced into an area and, because of their aggressive growth and lack of natural predators, displace native species.

objective: a concise statement of what the Service wants to achieve, how much to achieve, when and where to achieve it, and who is responsible for the work. Objectives derive from goals and provide the basis for determining strategies, monitoring refuge accomplishments, and evaluating the success of strategies. Objectives are made to be attainable, time-specific, and measurable.

off-trail use: designated areas where visitors are permitted to traverse across the landscape and are not limited to the trail corridors.

outdoor classroom: an environmental education facility that provides learning space and storage for educational materials and props in the field.

overlook: A designated viewing area often furnished with a bench and interpretive signage.

partnership: a contract or agreement among two or more individuals, groups of individuals, organizations, or agencies, in which each agrees to furnish a part of the capital or some service in kind (e.g., labor) for a mutually beneficial enterprise.

patch: a relatively homogenous habitat area that is not interrupted by disturbance corridors such as roads, trails, or fences.

permitted mining use: an area in which an outside party owns the rights to subsurface minerals and a permit to mine those minerals. Mining could occur on these areas.

picocurie: A unit of measurement for radioactivity, equal to one trillionth of a curie (1×10^{-12}). A curie is a unit of radioactivity, based originally on the radioactivity of 1 gram of pure radium, equal to 37 billion disintegrations per second.

Planning Updates: newsletters distributed, primarily through mailing lists, in order to update the interested public on the status of the CCP project.

pre-settlement condition: a conceptual goal for habitat restoration based on ecological conditions that existed prior to ranching and modern use and disturbance of the site.

prescribed fire: the application of fire to wildland fuels, either by natural or intentional ignition, to achieve identified land use objectives (FWS Manual 621 FW 1.7).

private land: land owned by a private individual or group or non-government organization.

private landowner: cf. "private land."

private organization: any non-government organization.

Proposed Action (or alternative): activities for which an Environmental Impact Statement is being written; the alternative containing the actions and strategies recommended by the planning team. The proposed action is, for all proactive purposes, the draft CCP for the Refuge. (Referred to as the Preferred Alternative in the Final CCP/EIS).

pedestrian trails: trails designated for hiking use only and not opened to other modes of transportation such as biking or equestrian uses.

protection: mechanisms like fee title acquisition, conservation easements, or binding agreements with landowners that ensure land use and land management practices will remain compatible with maintaining species populations at a site (cf. "long-term ")

public: individuals, organizations, and non-government groups; officials of Federal, State, and local government agencies; Native American tribes, and foreign nations includes anyone outside the core planning team, those who may or may not have indicated an interest in the issues and those who do or do not realize that our decisions may affect them.

public involvement: offering to interested individuals and organizations that our actions or policies may affect an opportunity to become informed; soliciting their opinion.

public involvement plan: long-term guidance for involving the public in the comprehensive planning process.

public land: land owned by the local, State, or Federal Government.

rare species: species identified for special management emphasis because of their uncommon occurrence.

rare community types: plant community types classified as rare by any State program (as used in CCPs, includes exemplary community types).

recommended wilderness: areas studied and found suitable for wilderness designation by both the Director (FWS) and Secretary (DOI), and recommended by the President to Congress for inclusion in the National Wilderness System (FWS Manual 610 FW 1.5 [draft]).

Record of Decision: (ROD) a concise public record of a decision by a Federal agency pursuant to NEPA. (N.b. A ROD includes: the decision; all the alternatives considered; the environmentally preferable alternative; a summary of monitoring and enforcement, where applicable, for any mitigation; and, whether all practical means have been adopted to avoid or minimize environmental harm from the alternative selected [or if not, why not].)

refuge goals: "descriptive, open-ended, and often broad statements of desired future conditions that convey a purpose but do not define measurable units" (Writing Refuge Management Goals and Objectives: A Handbook).

refuge management economic activity: a management activity on a national wildlife refuge that results in the generation of a commodity which is or can be sold as income or revenue or can be traded for goods and services. Examples include: farming, grazing, haying, timber harvesting, and trapping.

Refuge Manager: the official directly in charge of a national wildlife refuge or a wildlife refuge complex.

refuge purposes: "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" (National Wildlife Refuge System Improvement Act of 1997).

refuge lands: lands in which the Service holds full interest in fee title or partial interest like an easement.

refuge use: a recreational use (including actions associated with a recreational use or other general public use), or refuge management economic activity.

Regional Chief: the official in charge of the National Wildlife Refuge System within a Region of the U.S. Fish and Wildlife Service.

relative cover: a measure of abundance for individual plant species or group of species of interest in a specified area, relative to the total cover all species. Can be expressed as a percentage.

restoration: the artificial manipulation of habitat to restore it to its former condition (e.g., restoration may involve planting native grasses and forbs, removing shrubs, prescribed burning, or re-establishing habitat for native plants and animals on degraded grassland).

restored stream crossing: obstructions such as culverts, roads and trails are removed or restructured to allow stream flows to return to a more natural condition.

revegetation: the process of establishing a native plant community in an area that was formerly disturbed. May involve removing existing non-native vegetation, grading, soil preparation, seeding, and supplemental irrigation.

RFCA Parties: the agencies that are signatories to the Rocky Flats Cleanup Agreement: U.S. Department of Energy, Environmental Protection Agency, and the Colorado Department of Public Health and Environment.

riparian area: see riparian habitat.

riparian habitat: habitat along the banks of a stream or river that is characterized by trees and shrubs (such as cottonwood and willow) that grow in moist conditions.

right of way: that land on which a public road may be built within The Refuge boundary.

runoff: water from rain, melted snow, or agricultural or landscape irrigation that flows over a land surface into a water body (cf. "urban runoff").

scoping: the process used at the beginning of a planning process to engage the public and other agencies to determine the scope and significant issues to be addressed in the plan and analyzed in the EIS.

seasonal closures: areas and/or trails closed for the protection of wildlife based on their annual life cycles and habitat needs. Closures are seasonal and are determined by Refuge staff.

sedimentation: the introduction of eroded soil particles to a water body which can result in increased turbidity (cloudiness) and affect aquatic plants and animals.

Service presence: Service programs and facilities that it directs or shares with other organizations; public awareness of the Service as a sole or cooperative provider of programs and facilities.

site improvement: any activity that changes the condition of an existing site to better interpret events, places, or things related to a refuge (e.g., improving safety and access, replacing non-native with native plants, refurbishing footbridges and trail ways, and renovating or expanding exhibits).

Refuge mailing list: A list containing names and addresses of people with an interest in the Refuge. As part of the planning process, the list was continually updated to include conservation agencies, recreation interests, Congressionals, workbook respondents, open house/focus group attendees, etc.

social trail: unplanned trails that develop informally through repeated use. Are commonly formed between planned trails and points of interest.

soil productivity: The overall productive status of a soil arising from all aspects of its quality, such as its physical and structural condition as well as its chemical content.

species of concern: species not federally listed as threatened or endangered, but about which the Service or our partners are concerned.

stabilization: reinforcing a building (e.g., Lindsay Barn) to avoid further deterioration of its structural integrity.

State agencies: generally, natural resource agencies of State governments.

State land: State-owned public land.

State-listed species: cf. Wildlife species that are listed as threatened or endangered within the State of Colorado by the Colorado Division of Wildlife.

step-down management plan: a plan for dealing with specific refuge management subjects, strategies, and schedules, e.g., hunting, vegetation and fire (FWS Manual 602 FW 1.4).

target population: the preferred number of animals (deer or elk) that live on the Refuge, as determined by Service and CDOW staff based on fluctuating habitat conditions.

threatened species: a Federally listed, protected species that is likely to become an endangered species in all or a significant portion of its range.

urban runoff: water from rain, melted snow, or landscape irrigation flowing from city streets and domestic or commercial properties that may carry pollutants into a sewer system or water body.

vision statement: a concise statement of what the unit could achieve in the next 10 to 15 years.

visitor center: a permanently staffed building offering exhibits and interpretive information to the visiting public. Some visitor centers are co-located with refuge offices, others include additional facilities such as classrooms or wildlife viewing areas.

visitor contact station: compared to a visitor center, a contact station is a smaller facility that may not be permanently staffed.

viewing blind: a structure that provides shelter and a suitable vantage for wildlife observation and photography.

warm-season grass: native prairie grass that grows the most during summer, when cool-season grasses are dormant.

trail connections: trailheads along the refuge boundary that provide a link to outlying trail systems.

watchable wildlife: wildlife that are visible and enjoyed by Refuge visitors. A watchable wildlife program is one that helps maintain viable populations of all native fish and wildlife species by building an active, well-informed constituency for conservation. Watchable wildlife programs are tools for meeting wildlife conservation goals while at the same time fulfilling public demand for wildlife-dependent recreational activities (other than sport hunting, sport fishing, or trapping).

water bar: a constructed trail structure that diverts water off of the trail surface. May consist of a earthen berm, rock, wood, or other materials.

watershed: the geographic area within which water drains into a particular river, stream, or body of water; land and the body of water into which the land drains.

wetlands: lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water" (Cowardin et al 1979).

wilderness: cf. "designated wilderness."

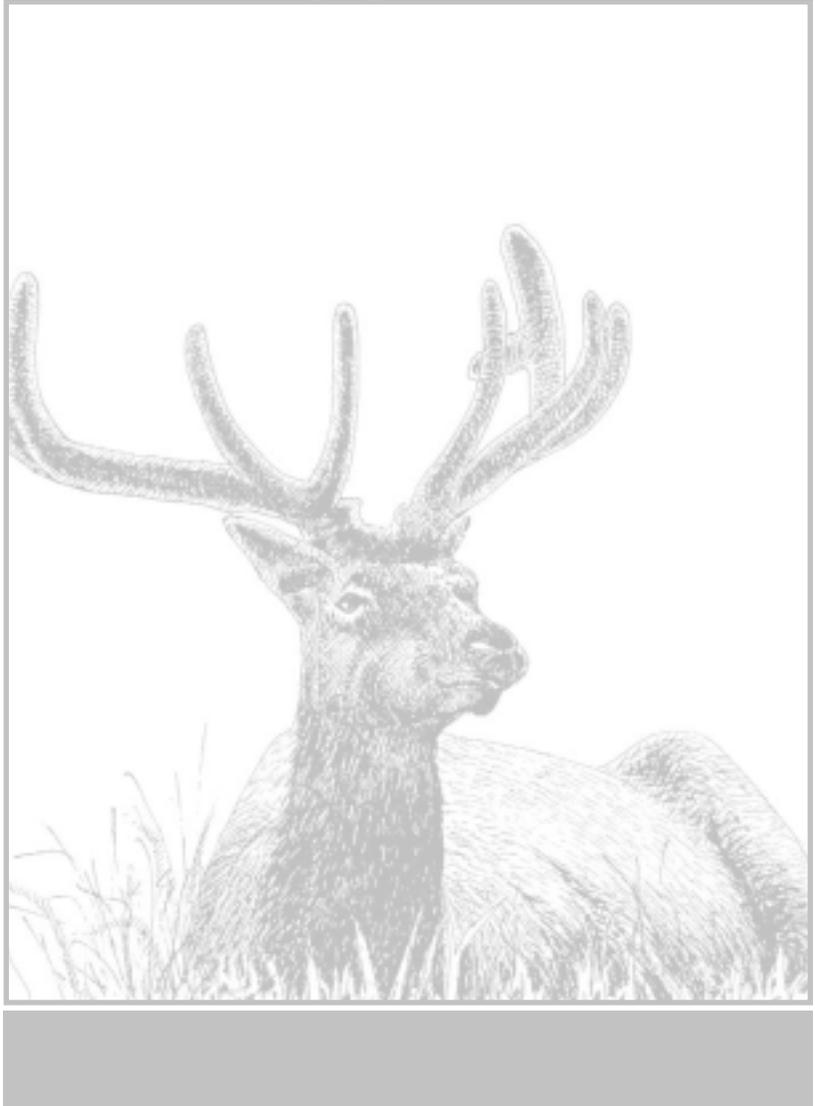
wildfire: a free-burning fire requiring a suppression response; all fire other than prescribed fire that occurs on wildlands (FWS Manual 621 FW 1.7).

wildland fire: every wildland fire is either a wildfire or a prescribed fire (FWS Manual 621 FW 1.3).

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

wildlife-dependent recreation: recreational experiences in which wildlife is the focus. The terms "wildlife-dependent recreation" and "wildlife-dependent recreational use" mean a use of a refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation (National Wildlife Refuge System Improvement Act of 1997).

appendices



appendix a

Refuge Legislation

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defense plutonium or defense plutonium materials to the Savannah River Site during the period beginning on February 1, 2002, and ending on the date on which such plans are submitted to Congress.

(g) **RULE OF CONSTRUCTION.**—Nothing in this section may be construed to prohibit or limit the Secretary from shipping defense plutonium or defense plutonium materials to sites other than the Savannah River Site during the period referred to in subsection (f) or any other period.

(h) **ANNUAL REPORT ON FUNDING FOR FISSILE MATERIALS DISPOSITION ACTIVITIES.**—The Secretary shall include with the budget justification materials submitted to Congress in support of the Department of Energy budget for each fiscal year (as submitted with the budget of the President under section 1105(a) of title 31, United States Code) a report setting forth the extent to which amounts requested for the Department for such fiscal year for fissile materials disposition activities will enable the Department to meet commitments for the disposition of surplus defense plutonium and defense plutonium materials located at the Savannah River Site, and for any other fissile materials disposition activities, in such fiscal year.

SEC. 3156. MODIFICATION OF DATE OF REPORT OF PANEL TO ASSESS THE RELIABILITY, SAFETY, AND SECURITY OF THE UNITED STATES NUCLEAR STOCKPILE.

Section 3159(d) of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 (Public Law 105–261; 42 U.S.C. 2121 note) is amended by striking “of each year, beginning with 1999,” and inserting “of 1999 and 2000, and not later than February 1, 2002,”.

Subtitle F—Rocky Flats National Wildlife Refuge

Rocky Flats
National Wildlife
Refuge Act of
2001.
16 USC 668dd
note.

SEC. 3171. SHORT TITLE.

This subtitle may be cited as the “Rocky Flats National Wildlife Refuge Act of 2001”.

SEC. 3172. FINDINGS AND PURPOSES.

(a) **FINDINGS.**—Congress finds the following:

(1) The Federal Government, through the Atomic Energy Commission, acquired the Rocky Flats site in 1951 and began operations there in 1952. The site remains a Department of Energy facility. Since 1992, the mission of the Rocky Flats site has changed from the production of nuclear weapons components to cleanup and closure in a manner that is safe, environmentally and socially responsible, physically secure, and cost-effective.

(2) The majority of the Rocky Flats site has generally remained undisturbed since its acquisition by the Federal Government.

(3) The State of Colorado is experiencing increasing growth and development, especially in the metropolitan Denver Front Range area in the vicinity of the Rocky Flats site. That growth and development reduces the amount of open space and thereby diminishes for many metropolitan Denver communities the vistas of the striking Front Range mountain backdrop.

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(4) Some areas of the Rocky Flats site contain contamination and will require further response action. The national interest requires that the ongoing cleanup and closure of the entire site be completed safely, effectively, and without unnecessary delay and that the site thereafter be retained by the United States and managed so as to preserve the value of the site for open space and wildlife habitat.

(5) The Rocky Flats site provides habitat for many wildlife species, including a number of threatened and endangered species, and is marked by the presence of rare xeric tallgrass prairie plant communities. Establishing the site as a unit of the National Wildlife Refuge System will promote the preservation and enhancement of those resources for present and future generations.

(b) PURPOSES.—The purposes of this subtitle are—

(1) to provide for the establishment of the Rocky Flats site as a national wildlife refuge following cleanup and closure of the site;

(2) to create a process for public input on the management of the refuge referred to in paragraph (1) before transfer of administrative jurisdiction to the Secretary of the Interior; and

(3) to ensure that the Rocky Flats site is thoroughly and completely cleaned up.

SEC. 3173. DEFINITIONS.

In this subtitle:

(1) CERCLA.—The term “CERCLA” means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.).

(2) CLEANUP AND CLOSURE.—The term “cleanup and closure” means the response actions for covered substances carried out at Rocky Flats, as required by any of the following:

(A) The RFCA.

(B) CERCLA.

(C) RCRA.

(D) The Colorado Hazardous Waste Act, 25-15-101 to 25-15-327, Colorado Revised Statutes.

(3) COVERED SUBSTANCE.—The term “covered substance” means any of the following:

(A) Any hazardous substance, as such term is defined in paragraph (14) of section 101 of CERCLA (42 U.S.C. 9601).

(B) Any pollutant or contaminant, as such term is defined in paragraph (33) of such section 101.

(C) Any petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of paragraph (14) of such section 101.

(4) RCRA.—The term “RCRA” means the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.), popularly known as the Resource Conservation and Recovery Act.

(5) REFUGE.—The term “refuge” means the Rocky Flats National Wildlife Refuge established under section 3177.

(6) RESPONSE ACTION.—The term “response action” means any of the following:

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(A) A response, as such term is defined in paragraph (25) of section 101 of CERCLA (42 U.S.C. 9601).

(B) A corrective action under RCRA or under the Colorado Hazardous Waste Act, 25–15–101 to 25–15–327, Colorado Revised Statutes.

(C) Any requirement for institutional controls imposed by any of the laws referred to in subparagraph (A) or (B).

(7) RFCA.—The term “RFCA” means the Rocky Flats Cleanup Agreement, an intergovernmental agreement, dated July 19, 1996, among—

(A) the Department of Energy;

(B) the Environmental Protection Agency; and

(C) the Department of Public Health and Environment of the State of Colorado.

(8) ROCKY FLATS.—

(A) IN GENERAL.—Except as provided in subparagraph (B), the term “Rocky Flats” means the Rocky Flats Environmental Technology Site, Colorado, a defense nuclear facility, as depicted on the map titled “Rocky Flats Environmental Technology Site”, dated October 22, 2001, and available for inspection in the appropriate offices of the United States Fish and Wildlife Service.

(B) EXCLUSIONS.—The term “Rocky Flats” does not include—

(i) the land and facilities of the Department of Energy’s National Renewable Energy Laboratory, including the acres retained by the Secretary under section 3174(f); and

(ii) any land and facilities not within the boundaries depicted on the map referred to in subparagraph (A).

(9) SECRETARY.—The term “Secretary” means the Secretary of Energy.

SEC. 3174. FUTURE OWNERSHIP AND MANAGEMENT.

(a) FEDERAL OWNERSHIP.—Except as expressly provided in this subtitle, all right, title, and interest of the United States, held on or acquired after the date of the enactment of this Act, to land or interest therein, including minerals, within the boundaries of Rocky Flats shall be retained by the United States.

(b) LINDSAY RANCH.—The structures that comprise the former Lindsay Ranch homestead site in the Rock Creek Reserve area of the buffer zone, as depicted on the map referred to in section 3173(8)(A), shall be permanently preserved and maintained in accordance with the National Historic Preservation Act (16 U.S.C. 470 et seq.).

(c) PROHIBITION ON ANNEXATION.—Neither the Secretary nor the Secretary of the Interior shall allow the annexation of land within the refuge by any unit of local government.

(d) PROHIBITION ON THROUGH ROADS.—Except as provided in subsection (e), no public road shall be constructed through Rocky Flats.

(e) TRANSPORTATION RIGHT-OF-WAY.—

(1) IN GENERAL.—

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(A) AVAILABILITY OF LAND.—On submission of an application meeting each of the conditions specified in paragraph (2), the Secretary, in consultation with the Secretary of the Interior, shall make available land along the eastern boundary of Rocky Flats for the sole purpose of transportation improvements along Indiana Street.

(B) BOUNDARIES.—Land made available under this paragraph may not extend more than 300 feet from the west edge of the Indiana Street right-of-way, as that right-of-way exists as of the date of the enactment of this Act.

(C) EASEMENT OR SALE.—Land may be made available under this paragraph by easement or sale to one or more appropriate entities.

(D) COMPLIANCE WITH APPLICABLE LAW.—Any action under this paragraph shall be taken in compliance with applicable law.

(2) CONDITIONS.—An application referred to in paragraph (1) meets the conditions specified in this paragraph if the application—

(A) is submitted by any county, city, or other political subdivision of the State of Colorado; and

(B) includes documentation demonstrating that the transportation improvements for which the land is to be made available—

(i) are carried out so as to minimize adverse effects on the management of Rocky Flats as a wildlife refuge; and

(ii) are included in the regional transportation plan of the metropolitan planning organization designated for the Denver metropolitan area under section 5303 of title 49, United States Code.

(f) WIND TECHNOLOGY EXPANSION AREA.—The Secretary shall retain, for the use of the National Renewable Energy Laboratory, the approximately 25 acres identified on the map referred to in section 3173(8)(A) as the “Wind Technology Expansion Area”.

SEC. 3175. TRANSFER OF MANAGEMENT RESPONSIBILITIES AND JURISDICTION OVER ROCKY FLATS.

(a) TRANSFER REQUIRED.—

(1) IN GENERAL.—Subject to the other provisions of this section, the Secretary shall transfer administrative jurisdiction over the property that is to comprise the refuge to the Secretary of the Interior.

(2) DATE OF TRANSFER.—The transfer shall be carried out not earlier than the completion certification date, and not later than 30 business days after that date.

(3) COMPLETION CERTIFICATION DATE.—For purposes of paragraph (2), the completion certification date is the date on which the Administrator of the Environmental Protection Agency certifies to the Secretary and to the Secretary of the Interior that cleanup and closure at Rocky Flats has been completed, except for the operation and maintenance associated with response actions, and that all response actions are operating properly and successfully.

(b) MEMORANDUM OF UNDERSTANDING.—

(1) REQUIRED ELEMENTS.—The transfer required by subsection (a) shall be carried out pursuant to a memorandum

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of understanding between the Secretary and the Secretary of the Interior. The memorandum of understanding shall—

(A) provide for the division of responsibilities between the Secretary and the Secretary of the Interior necessary to carry out such transfer;

(B) address the impacts that any property rights referred to in section 3179(a) may have on the management of the refuge, and provide strategies for resolving or mitigating these impacts;

(C) identify the land the administrative jurisdiction of which is to be transferred to the Secretary of the Interior; and

(D) specify the allocation of the Federal costs incurred at the refuge after the date of such transfer for any site investigations, response actions, and related activities for covered substances.

(2) PUBLICATION OF DRAFT.—Not later than one year after the date of the enactment of this Act, the Secretary and the Secretary of the Interior shall publish in the Federal Register a draft of the memorandum of understanding.

(3) FINALIZATION AND IMPLEMENTATION.—

(A) Not later than 18 months after the date of the enactment of this Act, the Secretary and Secretary of the Interior shall finalize and implement the memorandum of understanding.

(B) In finalizing the memorandum of understanding, the Secretary and Secretary of the Interior shall specifically identify the land the administrative jurisdiction of which is to be transferred to the Secretary of the Interior and provide for a determination of the exact acreage and legal description of such land by a survey mutually satisfactory to the Secretary and the Secretary of the Interior.

(c) TRANSFER OF IMPROVEMENTS.—The transfer required by subsection (a) may include such buildings or other improvements as the Secretary of the Interior has requested in writing for purposes of managing the refuge.

(d) PROPERTY RETAINED FOR RESPONSE ACTIONS.—

(1) IN GENERAL.—The transfer required by subsection (a) shall not include, and the Secretary shall retain jurisdiction, authority, and control over, the following real property and facilities at Rocky Flats:

(A) Any engineered structure, including caps, barrier walls, and monitoring or treatment wells, to be used in carrying out a response action for covered substances.

(B) Any real property or facility to be used for any other purpose relating to a response action or any other action that is required to be carried out by the Secretary at Rocky Flats.

(2) CONSULTATION.—The Secretary shall consult with the Secretary of the Interior, the Administrator of the Environmental Protection Agency, and the Governor of the State of Colorado on the identification of all real property and facilities to be retained under this subsection.

(e) COST.—The transfer required by subsection (a) shall be completed without cost to the Secretary of the Interior.

(f) NO REDUCTION IN FUNDS.—The transfer required by subsection (a), and the memorandum of understanding required by

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subsection (b), shall not result in any reduction in funds available to the Secretary for cleanup and closure of Rocky Flats.

SEC. 3176. ADMINISTRATION OF RETAINED PROPERTY; CONTINUATION OF CLEANUP AND CLOSURE.

(a) ADMINISTRATION OF RETAINED PROPERTY.—

(1) IN GENERAL.—In administering the property retained under section 3175(d), the Secretary shall consult with the Secretary of the Interior to minimize any conflict between—

(A) the administration by the Secretary of such property for a purpose relating to a response action; and

(B) the administration by the Secretary of the Interior of land the administrative jurisdiction of which is transferred under section 3175(a).

(2) PRIORITY IN CASE OF CONFLICT.—In the case of any such conflict, the Secretary and the Secretary of the Interior shall ensure that the administration for a purpose relating to a response action, as described in paragraph (1)(A), shall take priority.

(3) ACCESS.—The Secretary of the Interior shall provide to the Secretary such access and cooperation with respect to the refuge as the Secretary requires to carry out operation and maintenance, future response actions, natural resources restoration, or any other obligations.

(b) ONGOING CLEANUP AND CLOSURE.—

(1) IN GENERAL.—The Secretary shall carry out to completion cleanup and closure at Rocky Flats.

(2) CLEANUP LEVELS.—The Secretary shall carry out such cleanup and closure to the levels established for soil, water, and other media, following a thorough review by the parties to the RFCA and the public (including the United States Fish and Wildlife Service and other interested government agencies) of the appropriateness of the interim levels in the RFCA.

(3) NO RESTRICTION ON USE OF NEW TECHNOLOGIES.—Nothing in this subtitle, and no action taken under this subtitle, restricts the Secretary from using at Rocky Flats any new technology that may become available for remediation of contamination.

(c) OPPORTUNITY TO COMMENT.—The Secretary of the Interior shall have the opportunity to comment with respect to any proposed response action as to the impacts, if any, of such proposed response action on the refuge.

(d) RULES OF CONSTRUCTION.—

(1) NO RELIEF FROM OBLIGATIONS UNDER OTHER LAW.—Nothing in this subtitle, and no action taken under this subtitle—

(A) relieves the Secretary, the Administrator of the Environmental Protection Agency, the Secretary of the Interior, or any other person from any obligation or other liability with respect to Rocky Flats under the RFCA or any Federal or State law;

(B) impairs or alters any provision of the RFCA; or

(C) alters any authority of the Administrator of the Environmental Protection Agency under section 120(e) of CERCLA (42 U.S.C. 9620(e)), or any authority of the State of Colorado.

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(2) **CLEANUP LEVELS.**—Nothing in this subtitle shall reduce the level of cleanup and closure at Rocky Flats required under the RFCA or any Federal or State law.

(3) **PAYMENT OF RESPONSE ACTION COSTS.**—Nothing in this subtitle affects the obligation of a Federal department or agency that had or has operations at Rocky Flats resulting in the release or threatened release of a covered substance to pay the costs of response actions carried out to abate the release of, or clean up, the covered substance.

SEC. 3177. ROCKY FLATS NATIONAL WILDLIFE REFUGE.

(a) **IN GENERAL.**—On completion of the transfer required by section 3175(a), and subject to section 3176(a), the Secretary of the Interior shall commence administration of the real property comprising the refuge in accordance with this subtitle.

(b) **ESTABLISHMENT OF REFUGE.**—Not later than 30 days after the transfer required by section 3175(a), the Secretary of the Interior shall establish at Rocky Flats a national wildlife refuge to be known as the Rocky Flats National Wildlife Refuge.

(c) **COMPOSITION.**—The refuge shall be comprised of the property the administrative jurisdiction of which was transferred as required by section 3175(a).

(d) **NOTICE.**—The Secretary of the Interior shall publish in the Federal Register a notice of the establishment of the refuge.

(e) **ADMINISTRATION AND PURPOSES.**—

(1) **IN GENERAL.**—The Secretary of the Interior shall manage the refuge in accordance with applicable law, including this subtitle, the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd et seq.), and the purposes specified in that Act.

(2) **REFUGE PURPOSES.**—The refuge shall be managed for the purposes of—

(A) restoring and preserving native ecosystems;

(B) providing habitat for, and population management of, native plants and migratory and resident wildlife;

(C) conserving threatened and endangered species (including species that are candidates for listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)); and

(D) providing opportunities for compatible scientific research.

(3) **MANAGEMENT.**—In managing the refuge, the Secretary of the Interior shall—

(A) ensure that wildlife-dependent recreation and environmental education and interpretation are the priority public uses of the refuge; and

(B) comply with all response actions.

SEC. 3178. COMPREHENSIVE PLANNING PROCESS.

(a) **IN GENERAL.**—Not later than 180 days after the date of the enactment of this Act, in developing a comprehensive conservation plan for the refuge in accordance with section 4(e) of the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd(e)), the Secretary of the Interior shall establish a comprehensive planning process that involves the public and local communities. The Secretary of the Interior shall establish such process in consultation with the Secretary, the members of the Coalition, the Governor of the State of Colorado, and the Federal Deadline.

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and State of Colorado officials who have been designated as trustees for Rocky Flats under section 107(f)(2) of CERCLA (42 U.S.C. 9607(f)(2)).

(b) OTHER PARTICIPANTS.—In addition to the entities specified in subsection (a), the comprehensive planning process required by subsection (a) shall include the opportunity for direct involvement of entities that are not members of the Coalition as of the date of the enactment of this Act, including the Rocky Flats Citizens' Advisory Board and the cities of Thornton, Northglenn, Golden, Louisville, and Lafayette, Colorado.

(c) DISSOLUTION OF COALITION.—If the Coalition dissolves, or if any Coalition member elects to leave the Coalition during the comprehensive planning process required by subsection (a)—

(1) such comprehensive planning process shall continue; and

(2) an opportunity shall be provided to each entity that is a member of the Coalition as of September 1, 2000, for direct involvement in such comprehensive planning process.

(d) CONTENTS.—In addition to the requirements of section 4(e) of the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd(e)), the comprehensive conservation plan referred to in subsection (a) shall address and make recommendations on the following:

(1) The identification of any land referred to in subsection (e) of section 3174 that could be made available under that subsection.

(2) The characteristics and configuration of any perimeter fencing that may be appropriate or compatible for cleanup and closure purposes, refuge purposes, or other purposes.

(3) The feasibility of locating, and the potential location for, a visitor and education center at the refuge.

(4) Any other issues relating to Rocky Flats.

(e) COALITION DEFINED.—In this section, the term “Coalition” means the Rocky Flats Coalition of Local Governments established by the Intergovernmental Agreement, dated February 16, 1999, among—

- (1) the city of Arvada, Colorado;
- (2) the city of Boulder, Colorado;
- (3) the city of Broomfield, Colorado;
- (4) the city of Westminster, Colorado;
- (5) the town of Superior, Colorado;
- (6) Boulder County, Colorado; and
- (7) Jefferson County, Colorado.

Deadline.

(f) REPORT.—Not later than three years after the date of the enactment of this Act, the Secretary of the Interior shall submit to Congress—

(1) the comprehensive conservation plan referred to in subsection (a); and

(2) a report that contains—

(A) an outline of the involvement of the public and local communities in the comprehensive planning process, as required by subsection (a);

(B) to the extent that any input or recommendation from the comprehensive planning process is not accepted, a clear statement of the reasons why such input or recommendation is not accepted; and

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(C) a discussion of the impacts of any property rights referred to in section 3179(a) on management of the refuge, and an identification of strategies for resolving and mitigating these impacts.

SEC. 3179. PROPERTY RIGHTS.

(a) **IN GENERAL.**—Except as provided in subsections (c) and (d), nothing in this subtitle limits any valid, existing property right at Rocky Flats that is owned by any person or entity, including, but not limited to—

- (1) any mineral right;
- (2) any water right or related easement; and
- (3) any facility or right-of-way for a utility.

(b) **ACCESS.**—Except as provided in subsection (c), nothing in this subtitle affects any right of an owner of a property right referred to in subsection (a) to access the owner's property.

(c) **REASONABLE CONDITIONS.**—

(1) **IN GENERAL.**—The Secretary or the Secretary of the Interior may impose such reasonable conditions on access to property rights referred to in subsection (a) as are appropriate for the cleanup and closure of Rocky Flats and for the management of the refuge.

(2) **NO EFFECT ON OTHER LAW.**—Nothing in this subtitle affects any Federal, State, or local law (including any regulation) relating to the use, development, and management of property rights referred to in subsection (a).

(3) **NO EFFECT ON ACCESS RIGHTS.**—Nothing in this subsection precludes the exercise of any access right, in existence on the date of the enactment of this Act, that is necessary to perfect or maintain a water right in existence on that date.

(d) **UTILITY EXTENSION.**—

(1) **IN GENERAL.**—The Secretary or the Secretary of the Interior may allow not more than one extension from an existing utility right-of-way on Rocky Flats, if necessary.

(2) **CONDITIONS.**—An extension under paragraph (1) shall be subject to the conditions specified in subsection (c).

(e) **EASEMENT SURVEYS.**—Subject to subsection (c), until the date that is 180 days after the date of the enactment of this Act, an entity that possesses a decreed water right or prescriptive easement relating to land at Rocky Flats may carry out such surveys at Rocky Flats as the entity determines are necessary to perfect the right or easement.

SEC. 3180. LIABILITIES AND OTHER OBLIGATIONS.

(a) **IN GENERAL.**—Nothing in this subtitle shall relieve, and no action may be taken under this subtitle to relieve, the Secretary, the Secretary of the Interior, or any other person from any liability or other obligation at Rocky Flats under CERCLA, RCRA, or any other Federal or State law.

(b) **COST RECOVERY, CONTRIBUTION, AND OTHER ACTION.**—Nothing in this subtitle is intended to prevent the United States from bringing a cost recovery, contribution, or other action that would otherwise be available under Federal or State law.

SEC. 3181. ROCKY FLATS MUSEUM.

(a) **MUSEUM.**—To commemorate the contribution that Rocky Flats and its worker force provided to winning the Cold War and

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the impact that such contribution has had on the nearby communities and the State of Colorado, the Secretary may establish a Rocky Flats Museum.

(b) LOCATION.—The Rocky Flats Museum shall be located in the city of Arvada, Colorado, unless, after consultation under subsection (c), the Secretary determines otherwise.

(c) CONSULTATION.—The Secretary shall consult with the city of Arvada, other local communities, and the Colorado State Historical Society on—

- (1) the development of the museum;
- (2) the siting of the museum; and
- (3) any other issues relating to the development and construction of the museum.

(d) REPORT.—Not later than three years after the date of the enactment of this Act, the Secretary, in coordination with the city of Arvada, shall submit to Congress a report on the costs associated with the construction of the museum and any other issues relating to the development and construction of the museum.

SEC. 3182. ANNUAL REPORT ON FUNDING.

For each of fiscal years 2003 through 2007, at the time of submission of the budget of the President under section 1105(a) of title 31, United States Code, for such fiscal year, the Secretary and the Secretary of the Interior shall jointly submit to Congress a report on the costs of implementation of this subtitle. The report shall include—

- (1) the costs incurred by each Secretary in implementing this subtitle during the preceding fiscal year; and
- (2) the funds required by each Secretary to implement this subtitle during the current and subsequent fiscal years.

TITLE XXXII—DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Sec. 3201. Authorization.

SEC. 3201. AUTHORIZATION.

There are authorized to be appropriated for fiscal year 2002, \$18,500,000 for the operation of the Defense Nuclear Facilities Safety Board under chapter 21 of the Atomic Energy Act of 1954 (42 U.S.C. 2286 et seq.).

TITLE XXXIII—NATIONAL DEFENSE STOCKPILE

Sec. 3301. Definitions.

Sec. 3302. Authorized uses of stockpile funds.

Sec. 3303. Authority to dispose of certain materials in National Defense Stockpile.

Sec. 3304. Revision of limitations on required disposals of certain materials in National Defense Stockpile.

Sec. 3305. Acceleration of required disposal of cobalt in National Defense Stockpile.

Sec. 3306. Restriction on disposal of manganese ferro.

50 USC 98d note. **SEC. 3301. DEFINITIONS.**

In this title:

appendix b

Comptability Determinations

COMPATIBILITY DETERMINATION

Use:	Hunting
Refuge Name:	Rocky Flats National Wildlife Refuge Jefferson and Boulder Counties, Colorado
Establishing Authority:	Rocky Flats National Wildlife Refuge Act of 2001 (P.L. 107-107)
Refuge Purposes:	<ol style="list-style-type: none"> 1. Restoring and preserving native ecosystems. 2. Providing habitat for, and population management of, native plants, and migratory and resident wildlife. 3. Conserving threatened and endangered species (including species that are candidates for listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)). 4. Providing opportunities for compatible scientific research.

NWRS Mission: "...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, of the United States for the benefit of present and future generations of Americans." (16 U.S.C. 668dd(a)(2)).

Description of Use: The Refuge will administer a limited big game (mule deer and elk) hunting program for youth and disabled hunters. The program may be expanded after year 2 to include able-bodied hunters, if needed to control ungulate populations in order to meet wildlife management goals.

A maximum of 10 hunter/participants would be allowed per hunt. There will be two hunts per year (one for youth and one for disabled hunters). Each hunt will last for 1 weekend, including a Saturday and Sunday. Hunts will be scheduled during the period October 15 - January 15 annually.

Weapons will be limited to: shotguns (20 gauge or larger), firing single projectiles; and archery (bow and arrow). No centerfire rifles or muzzleloading rifles will be allowed. Disabled hunters may be authorized to use centerfire handguns or cross-bow archery tackle, determined on a case-by-case basis, depending on the nature of the hunter's disability.

All weapons will meet requirements of the Colorado Division of Wildlife, (CDOW) for the species hunted.

The Rocky Flats NWR program will be highly managed. Permits/licenses will be issued by drawing cooperatively administered by the Refuge and CDOW. All hunters will be required to check-in prior to hunting and attend a safety/orientation briefing, and check-out at the end of each hunt day.

Youth hunters will be required to hunt with a mentor and disabled hunters will be required to have a volunteer to assist them. There will be a minimum ratio of 1 Refuge or CDOW staff present on-site for every 3 hunter participants.

Each hunter will be assigned to a unique hunting zone within the Refuge for his/her exclusive use and is restricted to hunting in that zone.

Hunters will be required to present all harvested game for inspection and collection of biological data, including sampling for Chronic Wasting Disease.

Other authorized public uses of the Refuge will be suspended and the Refuge will be closed for any non-hunting public use activities on hunt weekends.

Hunt dates, bag limits, hunter quotas, and any adjustments to Refuge Hunt Zones will be determined on an annual basis, in consultation with CDOW.

Availability of Resources: It is anticipated that annual planning and execution of the proposed hunting program will require approximately 20 staff-days of work, spread among the Refuge Manager, Biological, Visitor Services and Law Enforcement staff and cost approximately \$5,000 to operate. Refuge O&M resources are expected to be augmented by the services and volunteers and partnership with CDOW and conservation organizations.

This is a “pre-acquisition” compatibility determination, prepared to accompany the Comprehensive Conservation Plan (CCP) for the future Rocky Flats NWR. No facility development will be required to operate the proposed hunting program and funds are anticipated to be available for the operation of this program based on the Refuge staffing levels and budget proposed in the CCP.

Anticipated Impacts: This limited big game hunting program is anticipated to have minimal potential impacts on Refuge wildlife, but potentially significant beneficial impacts on the unique flora of the Refuge. The proposed use is a Wildlife-Dependent Recreational Use and a Priority Public Use of the NWRS.

The Rocky Flats site has supported a mule deer herd numbering approximately 160 animals (on 6,240 acres) since at least the late 1990s (Kaiser Hill 2001). Small, but increasing numbers of white-tailed deer also occur on the site. Prior to 2002, elk were known to visit Rocky Flats, but were not considered to be a resident species by DOE (DOE 1997). During the winter of 2002 - 2003, significant numbers of elk were observed regularly on the east side of Highway 93 adjacent to Rocky Flats and at least 9 cow elk are known to have calved on the site in the summer of 2003.

The future Refuge is bordered by public conservation lands to the north and west. Fencing is typical stock fencing that does not impede movement of ungulates. Although there is potential for future commercial development on the west side of the site, it is anticipated that deer, elk and other large mammals will continue to be able to move freely between the Refuge and adjacent public lands, and into the Roosevelt National Forest to the west.

The Refuge is located in CDOW’s Game Management Unit (GMU) No. 38, and adjacent to GMU 29. Those two GMUs make up CDOW’s Data Analysis Unit (DAU) D-27 which covers to the Boulder Deer Herd. CDOW has published the Boulder Deer Herd Management Plan (CDOW 2002). DAU D-27 lies at the edge of the endemic area for Chronic Wasting Disease (CWD) in northeast Colorado. The plan focuses on keeping the prevalence of CWD in the Boulder Deer Herd at no more than 1% infection rate and the Boulder Deer Herd.

In December 2002, 26 deer were collected at Rocky Flats, by CDOW as part of the state’s CWD surveillance program. All animals harvested were negative for CWD.

Under the Region 6 CWD Policy, it will be necessary to continue surveillance of the Refuge herds for occurrence and prevalence of CWD. Hunter-harvested deer and elk will provide data for this surveillance requirement and reduce or eliminate the need for Refuge staff to take deer for CWD surveillance purposes.

Colorado has the largest elk population of any state or province in North America. The current Colorado elk herd is far above CDOW’s objective level, and CDOW has taken aggressive action in recent years to reduce the herd through sport hunting. Increasingly, elk are becoming established in suburban and agricultural areas along the Front Range. Elk in the cities of Evergreen and Estes Park, and a newly

established population near Loveland, Colorado are creating numerous depredation issues. In Rocky Mountain National Park, the unhunted elk herd is destroying important riparian habitat.

It will be important to prevent or control the establishment of a resident elk herd on the Refuge. Year-round grazing and browsing by elk has the potential to significantly degrade rare plant communities and destroy or reduce the quality of Preble's meadow jumping mouse on the Refuge.

Hunting will have a positive impact on habitats by controlling ungulate grazing and browsing pressure on the Refuge. Direct impacts of the hunting program will be insignificant because of the timing (during Preble's meadow jumping mouse hibernation and outside the bird nesting season) and small number of participants walking through upland and riparian areas. The program will require no facility development or conversion of habitat areas to administrative use.

Public Review and Comment: This Compatibility Determination was presented for public review and comment in conjunction with the public comment period for the Draft CCP/EIS for the future Rocky Flats NWR in the first quarter of CY 04.

At four public hearings, and throughout the comment period for the Draft CCP/EIS for Rocky Flats NWR, significant public input was received regarding the provisions in the Proposed Action to provide a hunting program at Rocky Flats NWR. None of the comments received were specifically addressed to the Draft Compatibility Determination that was published with the Draft CCP/EIS. However, several individuals and organizations expressed the opinion that hunting, in general, is not a compatible use of the National Wildlife Refuge System. All public testimony presented at the hearings and written comments received and responses are reported in Appendix H, Comments and Responses on the Draft Environmental Impact Statement (EIS), of the Final EIS for the Rocky Flats NWR Comprehensive Conservation Plan.

Numerous public comments were received both in favor and in opposition of the proposed hunting program. A petition was received with 89 signatures (23 incomplete or illegible) stating "The following object to any recreational sport hunting at Rocky Flats National Wildlife Refuge." The petition did not address issues germane to the compatibility determination.

Letters supporting the hunting proposal were received from: the State of Colorado, Division of Wildlife, Colorado Wildlife Federation, National Wildlife Federation and the Wildlife Management Institute and other organizations and individuals. Letters opposing hunting were received from the Rocky Mountain Peace and Justice Center, Prairie Preservation Alliance and other organizations and individuals. Local units of government had mixed responses, with some supporting hunting, and others wanting no public use at all. Several local governments expressed concerns about the safety of the hunting proposal, and in response to those concerns, the proposal was changed to delete muzzleloading rifles and restrict hunting to archery and shotguns/slugs only. See Appendix H, Final CCP/EIS, for full comments and responses.

At public hearings, concerns were expressed that: the hunting program proposed was excessively expensive; the definition of "refuge" was a "place of safety"; ungulate populations should be controlled, if necessary, by agency sharpshooters; and that it would be inappropriate to protect animals all year, and then shoot at them two weekends per year – implying a "fair-chase" issue.

In the professional judgment of the undersigned, none of the issues raised at the hearings warrants changing the proposal. Hunting is clearly an appropriate use of NWRS – by law. The costs of the program are mostly salaries of personnel expended over the course of a fiscal year and are not excessive compared to many Refuge programs. Hunting can be an effective tool for ungulate population management that provides a wholesome outdoor recreation experience that is absent in culling programs. Many state-wide and Refuge deer herds are hunted a few days per year without fair chase concerns. The Rocky Flats herd is not fenced, and is currently subject to some hunting pressure on adjacent private, and nearby public lands.

Compatibility Determination: Using sound professional judgment (603 FW 2.6U and 2.11A), place an "X" in appropriate space to indicate whether the use would or would not materially interfere with or detract from the NWRS Mission or the Purposes of Rocky Flats NWR.

- Use is Not Compatible
- Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility: The use (hunting) will not begin until a step-down hunting plan, ensuring biological integrity, and safety of the program, has been approved under provisions of 8RM5, and the Refuge has been formally opened to hunting through publication of a rule in the Federal Register and inclusion of Rocky Flats among refuges open to big game hunting in 50 CFR 32.7.

Justification: Hunting is a form of wildlife-dependent recreation and is a priority use of the NWRS. Hunting will help control ungulate populations and distribution on the Refuge, with a net benefit to the conservation of rare botanical communities and conservation of habitat for the threatened Preble’s meadow jumping mouse. Hunting will provide scientific data for surveillance of Refuge deer and elk populations for Chronic Wasting Disease.

Mandatory Re-evaluation Date: As a priority public use, the Compatibility Determination for this use is subject to mandatory re-evaluation in 15 years, on the anniversary of final Compatibility Determination in 2019.

NEPA Compliance: This use is addressed in an Environmental Impact Statement and Record of Decision.

Approval/Concurrence:

Prepared/Approved:  9/8/04
Refuge Manager: Signature Date

Concurrence:  9/15/04
Regional Chief Signature Date

References:

Colorado Division of Wildlife. 2002. Boulder Deer Herd Management Plan. Denver, CO.
Department of Energy. 1997. Rocky Flats Cumulative Impacts Document. Rocky Flats Field Office, Rocky Flats Environmental Technology Site. Golden, CO.

COMPATIBILITY DETERMINATION

Use:	Interpretation and Environmental Education
Refuge Name:	Rocky Flats National Wildlife Refuge Jefferson and Boulder Counties, Colorado
Establishing Authority:	Rocky Flats National Wildlife Refuge Act of 2001 (P.L. 107-107)
Refuge Purposes:	<ol style="list-style-type: none"> 1. Restoring and preserving native ecosystems. 2. Providing habitat for, and population management of, native plants, and migratory and resident wildlife. 3. Conserving threatened and endangered species (including species that are candidates for listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)). 4. Providing opportunities for compatible scientific research.

NWRS Mission: "... 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, of the United States for the benefit of present and future generations of Americans." (16 U.S.C. 668dd(a)(2)).

Description of Use:

Interpretation: This is a priority public use of the National Wildlife Refuge System per the National Wildlife Refuge System Improvement Act of 1997. It is proposed to continue delivery of Interpretation programs to accomplish the goals and objectives of the Refuge as established in the CCP.

Interpretation programs and facilities are proposed along designated trails and at the Visitor Contact Station on the west side of the Refuge. Facilities and programs would be mostly passive, consisting of interpretive panels on kiosks at trailhead access points and overlooks along trails. Signage would interpret the native prairie ecosystem, rare plant communities, wetlands, endangered species, invasive weeds, and the social significance and cultural resources of Rocky Flats NWR.

Guided tours, led by Service personnel or volunteers, provide a similar but more detailed experience than the self-guided Refuge visit. Tours and nature programs will be developed for delivery to the public on a scheduled basis, and by reservation for groups with special interests and needs. Tours will generally be conducted on the established trail system, but when guided by staff, may access all upland portions of the Refuge, depending on visitor interests, and the subject matter of the interpretive program.

A variety of interpretive programs may also be delivered off-site.

Environmental Education: Environmental education at Rocky Flats NWR will emphasize teacher-led programs and be targeted to high school and college level students. No formal outdoor classroom facilities are planned, but the Refuge will provide sites for student field trips on an "as-arranged" basis. Temporary and impromptu outdoor classrooms will not be established or used in wetland, riparian and other sensitive communities during the growing season, and will be scheduled seasonally to avoid impacts to threatened and endangered species. Rocky Flats NWR will become a venue for implementation of environmental education curricula developed at Rocky Mountain Arsenal NWR

Availability of Resources: It is anticipated that initial development of interpretive facilities designated in the Comprehensive Conservation Plan for Rocky Flats NWR will cost approximately \$76,000. It is also anticipated that appropriated NWRS Operations and Maintenance funds for development of interpretive facilities will be leveraged through partnership arrangements with non-profit organizations and with local units of government and state agencies. Once developed, the annual maintenance costs for interpretive facilities is anticipated to be approximately \$5,000 per year.

No development of specialized facilities is anticipated to facilitate teacher-led environmental education programs at Rocky Flats NWR. It is estimated that development of special curricula and lesson plans for Rocky Flats will require approximately 0.5 FTE of labor and \$30,000 over the course of the first five years following Refuge establishment. The required level of staffing and funding to produce those materials is within the current operating budget and staffing pattern of the Rocky Mountain Arsenal NWR Complex.

This is a “pre-acquisition” compatibility determination, prepared to accompany the Comprehensive Conservation Plan (CCP) for the future Rocky Flats NWR. Funds are anticipated to be available for the operation of this program based on the Refuge staffing levels and budget proposed in the CCP.

Anticipated Impacts: Development and implementation of interpretive and education programs at Rocky Flats NWR will have minimal and biologically insignificant impacts on Refuge resources. Less than 0.25 acres of habitat will need to be disturbed or converted for development of all planned interpretive facilities (not including parking facilities).

Human presence and movement on the Refuge for participation in Interpretive and Environmental Education programs will result in some wildlife disturbance. The level of disturbance will be minimal and will not be additive to disturbances attributed to other public uses such as wildlife observation and trail use.

Public Review and Comment: This Compatibility Determination was presented for public review and comment in conjunction with the public comment period for the Draft CCP/EIS for the future Rocky Flats NWR in the first quarter of CY 04.

Many public comments were received at four public hearings held in March 2004, and throughout the public comment period on the Draft CCP/EIS. Comments related to public use were received both from those in opposition and in favor of public access for interpretation and environmental education.

Many people were opposed to any form of public use at Rocky Flats NWR based on their belief that site cleanup is inadequate and that public access would result in health and safety risks to visitors. Those comments did not address whether wildlife observation and photography were compatible with Refuge purposes or the mission of NWRS.

Comments were received from several organizations, including the Colorado Wildlife Federation that supported the proposed action (Alternative B), including interpretation and environmental education. The Rocky Flats Citizen’s Advisory Board supported environmental education, but was not in agreement about whether those activities should take place on-site. The Rocky Flats Cold War Museum expressed a desire to partner with the Service in development of interpretive and education programs. Other groups, including the Prairie Preservation Alliance recommended no wildlife-dependent recreation, based on concerns of wildlife disturbance, exacerbating invasive weed problems and causing erosion.

Comments from local units of government also varied, with several cities and counties favoring public access for interpretation and environmental education, and others recommending no public use of the Refuge. Similarly, written comments received from individuals ran the gamut from advocating more extensive public use programs, to the 815 copies of a form letter expressing opposition to any recreational access to the Rocky Flats NWR. For the complete record of public comment received on this issue, including responses to written comments and testimony received at the public hearings, please see Appendix H to the Final Comprehensive Conservation Plan and Environmental Impact Statement for Rocky Flats NWR.

Several of the comments received were germane to the issue of compatibility. Those comments raised concerns mostly related to wildlife disturbance. There were also several general comments opposing public use on the basis that a “refuge” should be free of disturbance and a place of inviolate sanctuary for wildlife.

The undersigned acknowledge that this use is likely to result in some disturbance of wildlife. However, in the professional judgment of the undersigned, we do not believe that the level of disturbance that may result from this use will materially detract from or prevent the achievement of the Refuge establishment purposes or mission of the NWRS. Wildlife interpretation and environmental education are clearly appropriate uses of the NWRS, and are among the priority public uses of the Refuge System, as established in law. The areas necessary to be disturbed for development of the proposed facilities to support interpretation and environmental education are very small. The conversion of those small areas to non-habitat uses will not materially detract from the ability of the Refuge to achieve its establishment purposes or its contribution to accomplishing the NWRS mission.

Compatibility Determination: Using sound professional judgment (603 FW 2.6U and 2.11A), place an “X” in appropriate space to indicate whether the use would or would not materially interfere with or detract from the NWRS Mission or the Purposes of Rocky Flats NWR.

- Use is Not Compatible
- Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Development and implementation of Interpretation and Environmental Education programs in the first five years following Refuge establishment will be limited to one short trail from the Visitor Contact Station on the west side of the Refuge to the Lindsay Ranch site, and one guided interpretive tour per month that will follow existing Department of Energy service roads.

2. A self-study training program will be prepared for use by educators. Teachers will be required to participate in that training, or in Service-sponsored teacher workshops prior to leading teacher-lead environmental education programs on the Refuge. The training will include information on site history, safety, residual contamination, closed areas, endangered species and wetland conservation, and preservation of rare habitats.

Justification: Interpretation and environmental education are forms of wildlife-dependent recreation and are priority public uses of the NWRS. Interpretation and Environmental Education will increase public awareness and appreciation of the significant wildlife and habitat values of Rocky Flats NWR, and the National Wildlife Refuge System. It is anticipated that such appreciation and understanding will foster increased public support for the Refuge System and conservation of America’s wildlife resources.

Mandatory Re-evaluation Date: As a priority public use, the Compatibility Determination for this use is subject to mandatory re-evaluation in 15 years, on the anniversary of final Compatibility Determination in 2019.

NEPA Compliance: This use is addressed in an Environmental Impact Statement and Record of Decision.

Approval/Concurrence:

Prepared/Approved:  9/8/04
 Refuge Manager: Signature Date

Concurrence:  9/15/04
 Regional Chief: Signature Date

COMPATIBILITY DETERMINATION

Use:	Multi-Use (Equestrian, Bicycle and Foot access) Trails
Refuge Name:	Rocky Flats National Wildlife Refuge Jefferson and Boulder Counties, Colorado
Establishing Authority:	Rocky Flats National Wildlife Refuge Act of 2001 (P.L. 107-107)
Refuge Purposes:	<ol style="list-style-type: none"> 1. Restoring and preserving native ecosystems. 2. Providing habitat for, and population management of, native plants, and migratory and resident wildlife. 3. Conserving threatened and endangered species (including species that are candidates for listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)). 4. Providing opportunities for compatible scientific research.

NWRS Mission: "... 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, of the United States for the benefit of present and future generations of Americans." (16 U.S.C. 668dd(a)(2)).

Description of Use: To provide access for compatible wildlife-dependent recreational activities of wildlife observation, wildlife photography and interpretation, a 16-mile system of trails will be developed at Rocky Flats NWR.

In order to provide connectivity with regional trail systems and complement public uses of adjacent public lands (municipal and county open space), some portions of the Rocky Flats National Wildlife Refuge (NWR) trail system will accommodate horseback riding and bicycles as modes of transportation for wildlife-dependent recreation.

Within the total anticipated trail system of 16.5 miles, approximately 3.8 miles of trail will be open to foot traffic only, and portions of those foot trails will be closed seasonally to reduce disturbance of wetland/riparian habitats during the months of May through September when the threatened Preble's meadow jumping mouse is active above ground.

In the northern portion of the Refuge, a multi-use trail approximately 4 miles long will follow the top of the mesa on the southern boundary of the Rock Creek drainage. This trail will connect a parking lot on State Highway 128, with open space parks managed by the City of Boulder, Boulder County, City and County of Broomfield, and Town of Superior with the proposed Visitor Contact Station on the west side of the Refuge and ultimately with regional trails to be located off-Refuge in the State Highway 93 corridor west of the Refuge. This trail will be open for foot and bicycle traffic only.

In the southern portion of the Refuge, a multi-use trail, approximately 8 miles long will follow portions of the Refuge south boundary, and mesa tops south of the main stem of Woman Creek, connecting City of Westminster and City of Arvada Open Space with the Visitor Contact Station and eventually with other public lands and regional trails west of Rocky Flats. This southern multi-use trail will be open for equestrian, bicycle and foot traffic.

Availability of Resources: It is anticipated that initial development of interpretive facilities designated in the Comprehensive Conservation Plan for Rocky Flats NWR will cost approximately \$76,000. It is also anticipated that appropriated NWRS Operations and Maintenance funds for development of interpretive facilities will be leveraged through partnership arrangements with non-profit organizations and with local units of government and state agencies. Once developed, the annual maintenance costs for interpretive facilities is anticipated to be approximately \$5,000 per year.

No development of specialized facilities is anticipated to facilitate teacher-led environmental education programs at Rocky Flats NWR. It is estimated that development of special curricula and lesson plans for Rocky Flats will require approximately 0.5 FTE of labor and \$30,000 over the course of the first five years following Refuge establishment. The required level of staffing and funding to produce those materials is within the current operating budget and staffing pattern of the Rocky Mountain Arsenal NWR Complex.

This is a “pre-acquisition” compatibility determination, prepared to accompany the Comprehensive Conservation Plan (CCP) for the future Rocky Flats NWR. Funds are anticipated to be available for the operation of this program based on the Refuge staffing levels and budget proposed in the CCP.

Anticipated Impacts: Development and implementation of interpretive and education programs at Rocky Flats NWR will have minimal and biologically insignificant impacts on Refuge resources. Less than 0.25 acres of habitat will need to be disturbed or converted for development of all planned interpretive facilities (not including parking facilities).

Human presence and movement on the Refuge for participation in Interpretive and Environmental Education programs will result in some wildlife disturbance. The level of disturbance will be minimal and will not be additive to disturbances attributed to other public uses such as wildlife observation and trail use.

Public Review and Comment: This Compatibility Determination was presented for public review and comment in conjunction with the public comment period for the Draft CCP/EIS for the future Rocky Flats NWR in the first quarter of CY 04.

Many public comments were received at four public hearings held in March 2004, and throughout the public comment period on the Draft CCP/EIS. Comments related to public use were received both from those in opposition and in favor of public access for interpretation and environmental education.

Many people were opposed to any form of public use at Rocky Flats NWR based on their belief that site cleanup is inadequate and that public access would result in health and safety risks to visitors. Those comments did not address whether wildlife observation and photography were compatible with Refuge purposes or the mission of NWRS.

Comments were received from several organizations, including the Colorado Wildlife Federation that supported the proposed action (Alternative B), including interpretation and environmental education. The Rocky Flats Citizen’s Advisory Board supported environmental education, but was not in agreement about whether those activities should take place on-site. The Rocky Flats Cold War Museum expressed a desire to partner with the Service in development of interpretive and education programs. Other groups, including the Prairie Preservation Alliance recommended no wildlife-dependent recreation, based on concerns of wildlife disturbance, exacerbating invasive weed problems and causing erosion.

Comments from local units of government also varied, with several cities and counties favoring public access for interpretation and environmental education, and others recommending no public use of the Refuge. Similarly, written comments received from individuals ran the gamut from advocating more extensive public use programs, to the 815 copies of a form letter expressing opposition to any recreational access to the Rocky Flats NWR. For the complete record of public comment received on this issue, including responses to written comments and testimony received at the public hearings, please see Appendix H to the Final Comprehensive Conservation Plan and Environmental Impact Statement for Rocky Flats NWR.

The greatest anticipated impact associated with multi-use trails is the potential for erosion and damage to trail surfaces caused by horses and bicycles. Permitting those modes of transportation is likely to increase maintenance costs and if not managed, could eventually lead to soil loss and reduced surface water quality.

It is noted that equestrian use is authorized in most units of the National Wilderness System, and is deemed appropriate with preservation of wilderness values, and that bicycle use on trails has proven to be a compatible mode of transportation on other urban units of the NWRS, including Minnesota Valley NWR and refuges of the San Diego NWR Complex.

Public Review and Comment: This Compatibility Determination was presented for public review and comment in conjunction with the public comment period for the Draft CCP/EIS for the future Rocky Flats NWR in the first quarter of CY 04.

Many public comments were received at four public hearings held in March 2004, and throughout the public comment period on the Draft CCP/EIS. Comments related to trails were received both from those in opposition and in favor of multi-use trails.

Many people were opposed to any form of public use at Rocky Flats NWR based on their belief that site cleanup is inadequate and that public access would result in health and safety risks to visitors. Those comments did not address whether trails were compatible with Refuge purposes or the mission of NWRS.

Comments were also received from several organizations, including the Boulder Area Trails Coalition and Boulder County Horse Association, which supported multi-use trails and other groups, including Plan Jeffco and the Prairie Preservation Alliance, which recommended very limited trails or no trails at all due to concerns about trail users causing wildlife disturbance, exacerbating invasive weed problems and causing erosion. The National Wildlife Federation and others specifically opposed equestrian access based on the weed issue. Comments from local units of government also varied, with several cities and counties favoring establishment of multi-use trails and others recommending no public use of the Refuge.

Similarly, written comments received from individuals ran the gamut from advocating more extensive trails with greater access for equestrians to 815 copies of a form letter expressing opposition to any recreational access to the Rocky Flats NWR. For the complete record of public comment received on this issue, including responses to written comments and testimony received at the public hearings, please see Appendix H to the Final Comprehensive Conservation Plan and Environmental Impact Statement for Rocky Flats NWR.

Several of the comments received were germane to the issue of compatibility. Those comments raised concerns mostly related to wildlife disturbance, habitat fragmentation, weed seed importation and erosion that might result from trail use. There were also several general comments opposing public use on the basis that a “refuge” should be free of disturbance and a place of inviolate sanctuary for wildlife.

The undersigned acknowledge that this use is likely to result in some disturbance of wildlife, and that active management of this use will be required to mitigate potential for this use to exacerbate weed problems and cause erosion. However, in the professional judgment of the undersigned, we do not believe that the level of disturbance that may result from this use will materially detract from or prevent the achievement of the Refuge establishment purposes or mission of the NWRS. Trails will occupy a very small portion of Rocky Flats NWR. Implementation of the Final CCP will result in less habitat fragmentation, fewer roads and point sources of soil erosion, and enhanced weed control efforts. If implemented with the stipulations listed below, this use will facilitate achievement of Refuge goals for wildlife-dependent recreation, and will not significantly interfere with preservation and restoration of native habitats, or conservation of native wildlife.

Compatibility Determination: Using sound professional judgment (603 FW 2.6U and 2.11A), place an “X” in appropriate space to indicate whether the use would or would not materially interfere with or detract from the NWRS Mission or the Purposes of Rocky Flats NWR.

- Use is Not Compatible
- Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Multi-use trails with equestrian and bicycle access are limited to those trail segments designated in the Comprehensive Conservation Plan for Rocky Flats NWR. Development or opening of additional areas for these uses will require additional evaluation under the National Environmental Policy Act, a new Compatibility Determination, and a new Intra-Service Section 7 Consultation.
2. No dogs or other pets will be allowed on any trails or other areas of Rocky Flats NWR.
3. Equestrian use is contingent on development and implementation of volunteer service agreements with equestrian user groups who will agree to pick up and remove horse manure from Refuge trails at least twice a month to reduce the potential for horses to become a source of weed seed.
4. Trails will be posted with “yield” signs indicating that pedestrians must yield to equestrian users and bicycles must yield to both equestrians and pedestrians.
5. Trails open to bicycle use will be located on level ground to the maximum extent possible to discourage use by recreational mountain bikers for “thrill riding.”

Justification: Multi-use trails accommodating equestrian and bicycle use are not a form of wildlife dependent recreation. However, they are modes of access and transportation that facilitate public participation in wildlife observation, wildlife photography and interpretation. Within the context of an urban NWR, surrounded on three sides by public lands administered by local units of government, these trails provide needed connectivity among public lands to facilitate the public’s appreciation of open space and habitat conservation at the edge of a rapidly urbanizing metropolitan area.

It is noted that equestrian use is authorized in almost all units of the National Wilderness System, and is deemed appropriate with preservation of wilderness values. Bicycle use on trails has proven to be a compatible mode of transportation on other urban units of the NWRS, including Minnesota Valley NWR and refuges of the San Diego NWR Complex that support far more sensitive habitats and far more significant migratory bird and endangered species resources than does Rocky Flats.

Mandatory Re-evaluation Date: This is not a priority public use. The Compatibility Determination for this use is subject to mandatory re-evaluation in 10 years, on the anniversary of final Compatibility Determination in 2014.

NEPA Compliance: This use is addressed in an Environmental Impact Statement and Record of Decision.

Approval/Concurrence:

Prepared/Approved:  9/18/04
 Refuge Manager: Signature Date

Concurrence:  9/15/04
 Regional Chief: Signature Date

COMPATIBILITY DETERMINATION

- Use:** Wildlife Observation and Photography, Including Public Use Facility Development to support those uses.
- Refuge Name:** Rocky Flats National Wildlife Refuge
Jefferson and Boulder Counties, Colorado
- Establishing Authority:** Rocky Flats National Wildlife Refuge Act of 2001 (P.L. 107-107)
- Refuge Purposes:**
1. Restoring and preserving native ecosystems.
 2. Providing habitat for, and population management of, native plants, and migratory and resident wildlife.
 3. Conserving threatened and endangered species (including species that are candidates for listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)).
 4. Providing opportunities for compatible scientific research.

NWRS Mission: "...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, of the United States for the benefit of present and future generations of Americans." (16 U.S.C. 668dd(a)(2)).

Description of Use: Wildlife Observation and Wildlife Photography programs are provided to the general public, during daylight hours, along an established and well delineated system of authorized trails designated in the Comprehensive Conservation Plan for Rocky Flats National Wildlife Refuge. A total of 16.5 miles of trail will be developed and open. Most of the trail system will be open year-round, however trails that enter the Rock Creek drainage and cross sensitive habitats of the Preble's meadow jumping mouse will be closed seasonally during May through September.

Off-trail access for wildlife observation and photography will also be provided seasonally, on the southern third of the Refuge, during the Preble's hibernation season from September through May, outside the bird-nesting season.

Most areas of the Refuge are closed to general public access due to the sensitivity of habitats. Despite highly restricted access that prohibits visitor traffic in the Refuge's sensitive endangered species habitats, excellent opportunities are available for observing deer, coyotes, raptors, song birds other species from the approved trail system. Opportunities for wildlife observation and photography may also be available in conjunction with staff or volunteer-led interpretive tours and programs.

The CCP calls for access to public use trails for wildlife observation and photography. The CCP also calls for enhanced programs including the addition of one wildlife observation and photography blind, and three enhanced overlook facilities for observation and photography, a Visitor Contact Station, and trailhead parking areas. The Visitor Contact Station would be a small (700 - 1000 square foot) building with associated restroom facilities. Parking facilities would include three lots, to accommodate a total of 70 cars and 1 bus. Parking lots would be gravel surfaced, and enclosed with post and beam type fencing. Over 72% of the planned trail system will be located on existing roads. About 2 miles of new foot trail will be constructed in the northwest corner of the Refuge. Approximately 0.6 miles of existing roads would have to be improved to provide for accessibility for mobility impaired visitors.

Availability of Resources: Most of the planned trail system will be located on existing roads, so wildlife observation and photography could be initiated without additional facility development, and with minimum costs for posting and staffing.

Construction of two new trail segments (4.6 miles), overlook facilities, viewing/ photography blinds, trailhead parking lots and Visitor Contact Station represent one-time construction costs of about \$390,000.

Resources necessary to open and operate wildlife observation and photography programs, using the existing trail system are estimated to be 0.5 FTE and \$42,000 annually. Those resources are available within the existing staffing and budget allocations of the Rocky Mountain Arsenal NWR Complex. They will be well within the resources available under the proposed staffing and O&M budget proposed in the CCP for Rocky Flats NWR.

Resources are not currently available for development of new facilities to support the objective level of wildlife observation and photography programs for Rocky Flats NWR. Once approved, all facilities called for in the CCP will be incorporated in funding packages in the Refuge Operating Needs System (RONS), and will be developed as funds become available over the life of the CCP. Development of additional facilities are not required to open the Refuge for limited wildlife observation and photography.

Anticipated Impacts: Continuation of the existing programs for interpretation, wildlife observation and wildlife photography will have a negligible impact on habitats. Development of facilities to support these uses will result in a loss of 1.9 acres of xeric tallgrass prairie and 2.9 acres of mixed grass prairie, mostly for parking lot development. Those acreages represent 0.12% and 0.13% of those habitat types at Rocky Flats, respectively. Facility development would result in no loss of upland shrub, riparian, or other wetland habitats.

Some wildlife disturbance will result from these programs. Some birds will be flushed from foraging or resting habitats by the approach of people on trails. However, the area impacted by these disturbances is small compared to the overall habitat area available. Approximately 200 acres of habitat will be within 100 feet on either side of the proposed trail system. That amounts to 4% of the total acreage at Rocky Flats. It is also possible that some particularly sensitive bird species will avoid areas adjacent to trails for nesting purposes. However, under the CCP approved trail plan, over 80% of Refuge habitats will be greater than 100 yards from any trail.

Off-trail access during the period of October – April in the southern portion of the Refuge is provided to give bird watchers and photographers an opportunity for viewing and photographing wildlife that may not be available on designated trails. This area avoids occupied Preble's habitat and the use will occur during seasons when there will be no impact to ground-nesting birds. Some trampling of vegetation will occur, but most plants will be senescent during those seasons. It is not anticipated that off-trail traffic will be intense enough to create social trails or damage habitat.

Disturbance caused by these uses is not anticipated to cause wildlife to leave or abandon the Refuge, and all areas are available to wildlife for undisturbed use during closed hours. Disturbance resulting from wildlife observation, and photography programs is deemed to be biologically insignificant.

Additionally, the CCP calls for continued closure and restoration of many roads and trails that will exist at the time of Refuge establishment. Fencing, other barriers, signs and revegetation efforts will restore many acres and result in a net habitat gain. All stream crossings will be on existing roads, and no new disturbance of riparian habitats will be required for these uses. Numerous existing stream crossings will be restored and revegetated. Trails that occur in riparian areas in the Rock Creek drainage will be closed seasonally to prevent wildlife observation and photography activities from impacting Preble's during the May through September active period.

The proposed uses, including development of facilities to support those uses, will foster public appreciation and understanding of the prairie ecosystem and the importance of Refuge habitats for wildlife conservation.

The proposed uses are also priority wildlife-dependent uses of the National Wildlife Refuge System and promote fulfillment of the intent of the National Wildlife Refuge System Improvement Act of 1997.

Public Review and Comment: This Compatibility Determination was presented for public review and comment in conjunction with the public comment period for the Draft CCP/EIS for the future Rocky Flats NWR in the first quarter of CY 04.

Many public comments were received at four public hearings held in March 2004, and throughout the public comment period on the Draft CCP/EIS. Comments related to public use were received both from those in opposition, and in favor of public access for wildlife observation and photography.

Many people were opposed to any form of public use at Rocky Flats NWR based on their belief that site cleanup is inadequate and that public access would result in health and safety risks to visitors. Those comments did not address whether wildlife observation and photography were compatible with Refuge purposes or the mission of NWRS.

Comments were received from several organizations that supported the proposed action (Alternative B), including wildlife observation and photography. Other groups, including the Prairie Preservation Alliance recommended no trails or wildlife-dependent recreation based on concerns of wildlife disturbance, exacerbating invasive weed problems and causing erosion.

Comments from local units of government also varied, with several cities and counties favoring public access for wildlife observation and photography, and others recommending no public use of the Refuge. Similarly, written comments received from individuals ran the gamut from advocating more extensive public use programs, to the 815 copies of a form letter expressing opposition to any recreational access to the Rocky Flats NWR. For the complete record of public comment received on this issue, including responses to written comments and testimony received at the public hearings, please see Appendix H to the Final Comprehensive Conservation Plan and Environmental Impact Statement for Rocky Flats NWR.

Several of the comments received were germane to the issue of compatibility. Those comments raised concerns mostly related to wildlife disturbance. There were also several general comments opposing public use on the basis that a "refuge" should be free of disturbance and a place of inviolate sanctuary for wildlife.

The undersigned acknowledge that this use is likely to result in some disturbance of wildlife. However, in the professional judgment of the undersigned, we do not believe that the level of disturbance that may result from this use will materially detract from or prevent the achievement of the Refuge establishment purposes or mission of the NWRS. Wildlife observation and photography are clearly appropriate uses of the NWRS, and are among the priority public uses of the Refuge System, as established in law. The areas necessary to be disturbed for development of the proposed facilities to support wildlife observation and photography are very small. The conversion of those small areas to non-habitat uses will not materially detract from the ability of the Refuge to achieve its establishment purposes or its contribution to accomplishing the NWRS mission.

Compatibility Determination: Using sound professional judgment (603 FW 2.6U., and 2.11A), place an "X" in appropriate space to indicate whether the use would or would not materially interfere with or detract from the NWRS Mission or the Purposes of Rocky Flats NWR.

- ___ Use is Not Compatible
- X Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Wildlife observation and photography programs must be conducted in accordance with the Comprehensive Conservation Plan. Any new programs or facilities not prescribed in the CCP must be approved through an additional public planning process, in compliance with NEPA, Section 7 of the Endangered Species Act, and other environmental compliance requirements, prior to implementation.

2. Areas open for off-trail use in the southern third of the Refuge will be closely monitored by Refuge staff. If off-trail use exceeds the capacity of the habitat (e.g., to a point where trampling results in loss of vegetative cover), the off-trail portion of the program will be curtailed or reduced to preserve habitat integrity.

Justification: Wildlife observation, and wildlife photography are priority wildlife-dependent public uses of the National Wildlife Refuge System. These uses, including existing and future enhanced programs as prescribed in the Comprehensive Conservation Plan for Rocky Flats NWR are compatible with the Refuge’s establishment purposes, and with the mission of the National Wildlife Refuge System. These uses are not only justified but are encouraged by the National Wildlife Refuge Improvement Act of 1997. The Rocky Flats NWR Act of 2001 states that wildlife-dependent recreation is a priority public use of Rocky Flats NWR.

Mandatory Re-evaluation Date: As a priority public use, the Compatibility Determination for this use is subject to mandatory re-evaluation in 15 years, on the anniversary of final Compatibility Determination in 2019.

NEPA Compliance: This use is addressed in an Environmental Impact Statement and Record of Decision.

Approval/Concurrence:

Prepared/Approved:  9/8/04
 Refuge Manager: Signature Date

Concurrence:  9/15/04
 Regional Chief: Signature Date

appendix c

Laws and Executive Orders

LAWS AND REGULATIONS AFFECTING ROCKY FLATS NWR

Many procedural and substantive requirements of Federal and applicable State and local laws and regulations affect Refuge establishment, management, and development. The following list identifies the key federal laws and policies that were considered during the planning process or that could affect future Refuge management.

AMERICAN INDIAN RELIGIOUS FREEDOM ACT (1978): Directs agencies to consult with native traditional religious leaders to determine appropriate policy changes necessary to protect and preserve Native American religious cultural rights and practices.

AMERICANS WITH DISABILITIES ACT (1992): Prohibits discrimination in public accommodations and services.

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

ARCHAEOLOGICAL AND HISTORIC PRESERVATION ACT (1974): Directs the preservation of historic and archaeological data in Federal construction projects.

ARCHAEOLOGICAL RESOURCES PROTECTION ACT (1979) AS AMENDED: Protects materials of archaeological interest from unauthorized removal or destruction and requires Federal managers to develop plans and schedules to locate archaeological resources.

ARCHITECTURAL BARRIERS ACT (1968): Requires federally owned, leased, or funded buildings and facilities to be accessible to persons with disabilities.

BALD AND GOLDEN EAGLE PROTECTION ACT (1940): The Act prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions.

CLEAN AIR ACT OF 1977, AS AMENDED: The primary objective of this Act is to establish Federal standards for various pollutants from both stationary and mobile sources and

to provide for the regulation of polluting emissions via state implementation plants. In addition, and of special interest for National Wildlife Refuges, some amendments are designed to prevent significant deterioration in certain areas where air quality exceeds national standards, and to provide for improved air quality in areas which do not meet Federal standards

("non-attainment" areas). Federal facilities are required to comply with air quality standards to the same extent as nongovernmental entities (42 U.S.C. 7418).

CLEAN WATER ACT (1977): Requires consultation with the Corps of Engineers (404 permits) for major wetland modifications.

EMERGENCY WETLANDS RESOURCES ACT (1986): The purpose of the Act is "To promote the conservation of migratory waterfowl and to offset or prevent the serious loss of wetlands by the acquisition of wetlands and other essential habitat, and for other purposes."

ENDANGERED SPECIES ACT (1973): Requires all Federal agencies to carry out programs for the conservation of endangered and threatened species.

EXECUTIVE ORDER NO. 11593, PROTECTION AND ENHANCEMENT OF THE CULTURAL ENVIRONMENT (1971): If the Service proposes any development activities that would affect the archaeological or historical sites, the Service will consult with Federal and State Historic Preservation Officers to comply with Section 106 of the National Historic Preservation Act of 1966, as amended.

EXECUTIVE ORDER 11987, EXOTIC ORGANISMS (1977): This Executive Order requires Federal agencies, to the extent permitted by law, to: restrict the introduction of exotic species into the natural ecosystems on lands and waters owned or leased by the United States; encourage States, local governments, and private citizens to prevent the introduction of exotic species into natural ecosystems of the U.S.; restrict the importation and introduction of exotic species into any natural U.S. ecosystems as a result of activities they undertake, fund, or authorize; and restrict the use of Federal funds, programs, or authorities to export native species for introduction into ecosystems outside the U.S. where they do not occur naturally.

EXECUTIVE ORDER 11988, FLOODPLAIN MANAGEMENT (1977): Each Federal agency shall provide leadership and take action to reduce the risk of flood loss and minimize the impact of floods on human safety, and preserve the natural and beneficial values served by the floodplains.

EXECUTIVE ORDER 11990, PROTECTION OF WETLANDS (1977): This order directs all Federal agencies to avoid, if possible, adverse impacts to wetlands and to preserve and enhance the natural and beneficial values of wetlands. Each agency shall avoid undertaking or assisting in wetland construction projects unless the head of the agency determines that there is no practicable

alternative to such construction and that the proposed action includes measures to minimize harm. Also, agencies shall provide opportunity for early public review of proposals for construction in wetlands, including those projects not requiring an EIS.

EXECUTIVE ORDER 12898, ENVIRONMENTAL JUSTICE (1994): This order provides minority and low-income populations an opportunity to comment on the development and design of Reclamation activities. Federal agencies shall make achieving environmental justice part of their missions by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

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.

EXECUTIVE ORDER 13084, CONSULTATION AND COORDINATION WITH INDIAN TRIBAL GOVERNMENTS (1998): The United States has a unique legal relationship with Indian tribal governments as set forth in the Constitution of the United States, treaties, statutes, Executive orders, and court decisions. Since the formation of the Union, the United States has recognized Indian tribes as domestic dependent nations under its protection. In treaties, our Nation has guaranteed the right of Indian tribes to self-government. As domestic dependent nations, Indian tribes exercise inherent sovereign powers over their members and territory. The United States continues to work with Indian tribes on a government-to-government basis to address issues concerning Indian tribal self-government, trust resources, and Indian tribal treaty and other rights.

EXECUTIVE ORDER 13112, INVASIVE SPECIES(1999): Directs federal agencies to prevent the introduction of invasive species, control and monitor invasive species, and restore native species and habitats that have been invaded.

FEDERAL AID IN WILDLIFE RESTORATION ACT OF SEPTEMBER 2, 1937 (16 U.S.C.669-669i), AS AMENDED: This Act, commonly

referred to as the "Pittman-Robertson Act", provides to States for game and non-game wildlife restoration work. Funds from an excise tax on sporting arms and ammunition are appropriated to the Secretary of the Interior annually and apportioned to States on a formula basis for approved land acquisition, research, development and management projects and hunter safety programs.

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 COORDINATION ACT OF MARCH 10, 1934 (16 U.S.C. 661-66c), AS AMENDED: This Act authorizes the Secretary of the Interior to assist Federal, State and other agencies in development, protection, rearing and stocking fish and wildlife on Federal lands, and to study effects of pollution on fish and wildlife. The Act also requires consultation with the Fish and Wildlife Service and the wildlife agency of any State wherein the waters of any stream or other water body are proposed to be impounded, diverted, channelized or otherwise controlled or modified by any Federal agency, or any private agency under Federal permit or license, with a view to preventing loss of, or damage to, wildlife resources in connection with such water resource projects. The Act further authorizes Federal water resource agencies to acquire lands or interests in connection with water use projects specifically for mitigation and enhancement of fish and wildlife.

FISH AND WILDLIFE ACT (1956): Established a comprehensive national fish and wildlife policy and broadened the authority for acquisition and development of refuges.

FISH AND WILDLIFE COORDINATION ACT (1958): Allows the Fish and Wildlife Service to enter into agreements with private landowners for wildlife management purposes.

FOOD SECURITY ACT OF 1985 (TITLE XII, PUBLIC LAW 99-198, 99 STAT. 1354; DECEMBER 23, 1985), AS AMENDED: Authorizes acquisition of easements in real property for a term of not less than 50 years for conservation, recreation, and wildlife purposes.

LAND AND WATER CONSERVATION FUND ACT (1965): Uses the receipts from the sale of surplus Federal land, outer continental shelf oil and gas sales, and other sources for land acquisition under several authorities.

MIGRATORY BIRD CONSERVATION ACT (1929): Establishes procedures for acquisition by purchase, rental, or gift of areas approved by the Migratory Bird Conservation Commission.

MIGRATORY BIRD TREATY ACT (1918): Designates the protection of migratory birds as a Federal responsibility. This Act enables the setting of seasons, and other regulations including the closing of areas, Federal or nonfederal, to the hunting of migratory birds.

NATIONAL ENVIRONMENTAL POLICY ACT (1969): Requires all Federal agencies to examine the impacts upon the environment that their actions might have, to incorporate the best available environmental information, and the use of public participation in the planning and implementation of all actions. All Federal agencies must integrate NEPA with other planning requirements, and prepare appropriate NEPA documentation to facilitate sound environmental decision making. NEPA requires the disclosure of the environmental impacts of any major Federal action that affects in a significant way the quality of the human environment.

NATIONAL HISTORIC PRESERVATION ACT (1966) AS AMENDED: Establishes as policy that the Federal Government is to provide leadership in the preservation of the nation's prehistoric and historic resources.

NATIONAL WILDLIFE REFUGE SYSTEM ADMINISTRATION ACT OF 1966 AS AMENDED BY THE NATIONAL WILDLIFE REFUGE SYSTEM IMPROVEMENT ACT OF 1997, 16 U.S.C. 668DD-668EE. (REFUGE ADMINISTRATION ACT): Defines the National Wildlife Refuge System and authorizes the Secretary to permit any use of a refuge provided such use is compatible with the major purposes for which the refuge was established. The Refuge Improvement Act clearly defines a unifying mission for the Refuge System; establishes the legitimacy and appropriateness of the six priority public uses (hunting, fishing, wildlife observation and photography, or environmental education and interpretation); establishes a formal process for determining compatibility; established the responsibilities of the Secretary of Interior for managing and protecting the System; and requires a Comprehensive Conservation Plan for each refuge by the year 2012. This Act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

NATIONAL WILDLIFE REFUGE SYSTEM IMPROVEMENT ACT OF 1997: Sets the mission and 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 and photography, or environmental education and interpretation); establishes a formal process for determining compatibility; establishes the responsibilities of the Secretary of the Interior for managing and protecting the System; and requires a Comprehensive Conservation Plan for each refuge by the year 2012. This Act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT (1990): Requires Federal agencies and museums to inventory, determine ownership of, and repatriate cultural items under their control or possession.

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

REHABILITATION ACT (1973): Requires programmatic accessibility in addition to physical accessibility for all facilities and programs funded by the Federal government to ensure that anybody can participate in any program.

REFUGE REVENUE SHARING ACT OF 1935, AS AMENDED: Provides for payments to counties in lieu of taxes, using revenues derived from the sale of products from refuges. Public Law 88-523 (1964) revised this Act and required 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. Payments to counties were established as: 1) on acquired land, the greatest amount calculated on the basis of 75 cents per acre, three-fourths of one percent of the appraised value, or 25 percent of the net receipts produced from the land; and 2) on land withdrawn from the public domain, 25 percent of net receipts and basic payments under Public Law 94-565 (31 U.S.C. 1601- 1607, 90 Stat. 2662), payment in lieu of taxes on public lands.

ROCKY FLATS NATIONAL WILDLIFE REFUGE ACT OF 2001: Establishes Rocky Flats National Wildlife Refuge following cleanup and closure of the site, directs the development of a Comprehensive Conservation Plan for the Refuge, and other details.

appendix d

Regulatory Letters about Future
Refuge Management



**UNITED STATES ENVIRONMENTAL PROTECTION
AGENCY**

**REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466**

Ref: 8EPR-F

Mr. Mark Sattelberg
Senior Contaminant Biologist
US Fish and Wildlife Service
Rocky Mountain Arsenal National Wildlife Refuge
Building 111
Commerce City, CO 80222-1748

Re: USFWS Future Activities at Rocky Flats

Dear Mr. Sattelberg:

This is in response to your letter dated August 20, 2003, in which you asked whether EPA anticipated placing restrictions on activities the US Fish and Wildlife Service (Service) may wish to conduct at the future Rocky Flats National Wildlife Refuge. Specifically the Service asked about the following activities: prescribed fire, grazing, plowing, and ripping up old roads.

Once EPA certifies the remedy to be complete and jurisdiction of property has been transferred to the Service, does EPA foresee any restrictions on the use of prescribed fire? Similarly, does the EPA envision restrictions on ripping up roads?

As you are aware, the widespread contaminants of most concern at Rocky Flats are plutonium and americium. Consequently, areas at the site where these contaminants remain at closure would have the most use restrictions. In June 2003, CDPHE and EPA approved modifications to the Rocky Flats Cleanup Agreement, including revised contaminant soil action levels. EPA expects that at the completion of the remedy no significant contamination will be left in the surface soils at concentrations greater than outlined in the Attachment 5 of the modified agreement. For plutonium, the expectation is that surface soils contaminated at concentrations greater than 50 picocuries/gram (pCi/g) will have been removed. Surface soils are defined as those less than three feet in depth. EPA anticipates there will be restrictions on areas of the Site with residual contamination less than 50 pCi/g but greater than 9 pCi/g – a concentration representing lifetime excess cancer risk of one in 1,000,000 to a wildlife refuge worker. This is not to say that prescribed fire or ripping up roads would be precluded in areas with residual contamination in the 9-50 pCi/g range. Rather, the Service would need to take extra precautions in those areas to minimize soil disturbances. The primary concern being that major soil disturbances could result in elevated levels of contaminants to migrate to surface water.



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The use of prescribed fire at Rocky Flats is of special interest to citizens and public officials in the surrounding communities. EPA believes that the use of prescribed fire at the site will not pose significant risk to firefighters, Service personnel or the general public. This belief is based upon data gathered during and after the 2000 test burn and for accidental burns at the site, as well as risk assessment work documented in the Task 3 Report (Assessing Risks of Exposure to Plutonium, February 2000) on the effects of prescribed fire at Rocky Flats. However, relatively large areas of Rocky Flats have not been characterized to date. These areas are often referred to as "white spaces." EPA does not believe there is great potential to find contamination in these areas because they are removed from areas of known contamination and are not associated with past practices at the site that resulted in releases of contamination. Nevertheless, unexpected discoveries have occurred at Rocky Flats (e.g., the incinerator near the ash pits), and EPA believes that samples should be collected from white spaces before closure and analyzed prior to the application of prescribed fire in those areas.

Does EPA foresee any restrictions on the consumption of edible tissues from the grazing animals used for weed control at Rocky Flats?

Animal studies to date, and studies conducted by the actinide migration panel, indicate that there is no significant uptake of contaminants by grazing animals at Rocky Flats. Therefore, EPA does not anticipate restrictions on consumption of animals that graze at Rocky Flats. However, overgrazing in the areas in the 9 to 50 pCi/g range could result in water quality issues as discussed above. Therefore, EPA would expect to see measures put in place that would prevent overgrazing.

Do you foresee any restrictions on the plowing of areas in the southeast portion of the site for the purpose of reestablishing native vegetation?

Plowing will in all likelihood be prohibited in any areas of the site where contamination concentrations are greater than 9 pCi/g plutonium.

EPA looks forward to working with the Service in identifying and implementing the necessary restrictions for assuring that residual contamination at the future Rocky Flats National Wildlife Refuge poses a negligible risk to workers and members of the public. Please contact me at (303) 312-6246 if you have any questions regarding these matters.

Sincerely,



Gary Klecman
Acting Rocky Flats Team Leader

cc: Dean Rundle, FWS
Steve Gunderson, CDPHE
Joe Legare, DOE
Dave Shelton, KH
Administrative Records, T130G

STATE OF COLORADO

Bill Owens, Governor
Douglas H. Buevenito, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-2000
TDD Line (303) 691-7700
Located in Glendale, Colorado

<http://www.cdphe.state.co.us>

Laboratory Services Division
8100 Lowry Blvd.
Denver, Colorado 80230-6928
(303) 692-3090



Colorado Department
of Public Health
and Environment

September 23, 2003

Mr. Mark Sattclberg
Senior Contaminant Biologist
US Fish and Wildlife Service
Rocky Mountain Arsenal National Wildlife Refuge
Building 111
Commerce City, CO 80222-1748

Dear Mr. Sattclberg:

The Colorado Department of Public Health and Environment has received your letter dated August 20, 2003 in which you asked the department's position concerning potential activities being considered by the US Fish and Wildlife Service (Service) for use at the future Rocky Flats National Wildlife Refuge. The Department's responses to each potential activity follow:

1. Does CDPHE foresee any restrictions on the use of prescribed fire?

As you know, in June 2003 CDPHE and the Environmental Protection Agency approved modifications to the Rocky Flats Cleanup Agreement, which included substantially revised contaminant soil action levels. The surface soil action level for plutonium was established at a very conservative 50 picocuries per gram of soil. Most surface soil plutonium contamination at Rocky Flats is related to airborne releases of plutonium contamination in the late 1960s that were related to the 903 Pad. The highest concentrations of plutonium contamination in surface soils found to date are at the 903 Pad itself. An accelerated action at the Pad to remove this contaminated soil is nearing completion. Lower levels of plutonium contamination in surface soil are present east of the 903 Pad. Surface soils with levels greater than 50 picocuries per gram will be removed in accordance with RFCA. Surface soils with plutonium levels lower than 50 picocuries per gram will likely be left in place.

The modified RFCA includes a site map that shows an area of land that is anticipated to be retained by DOE after site closure. This area includes the Industrial Area, the Buffer Zone retention ponds, ground water treatment systems, the two existing landfills, and the area of surface plutonium contamination located east of the 903 Pad with contamination levels above approximately 7 picocuries per gram. CDPHE does not believe that the resulting smoke and dust from a prairie fire in the area of surface soil contamination between 7 and 50 picocuries per gram would pose a human health risk. Nonetheless, the department would likely place restrictions on burning in these areas in order to minimize soil disturbance and potentially adversely impact the plutonium surface water standard.

Current data indicate that most of the land that is anticipated to be turned over to the Service after site cleanup is completed has little or no plutonium contamination, and CDPHE does not anticipate placing restrictions on prescribed burning in these areas. Final delineation of areas of the site with restrictions, including those areas that will be retained by DOE and not transferred to the Service, will be determined after completion of the Comprehensive Risk Assessment (CRA). The CRA will not be completed until 2005 at the earliest. Additional soil sampling will likely be conducted in areas of the Buffer Zone where sampling data are limited.

2. *Assuming that the deer tissue results agree with the CSU data, do you foresee any restrictions on the use of grazing as a weed management tool? Do you foresee any restrictions on the consumption of edible tissues from the grazing animals used for weed control at Rocky Flats?*

Based on historical animal studies, the actinide migration panel results, and the low levels of residual contamination that will be present at Rocky Flats after cleanup, there is little evidence to indicate that grazing will present a risk to livestock or the consumer. CDPHE would not expect to place restrictions on grazing except to minimize surface soil disturbance in those areas with residual plutonium contamination levels between approximately 7 and 50 picocuries per gram.

3. *Do you foresee any restrictions on the plowing or ripping of these types of areas for the purpose of reestablishing native vegetation?*

The plowing or ripping of surface soils would likely be prohibited in those areas with contamination between approximately 7 and 50 picocuries per gram. As stated in the answer to question number 1 above, RFCA anticipates that DOE would retain the area of the site with those levels of contamination. Any roadways that cross this area could be disturbed for the purpose of revegetation and road removal, provided that adequate precautions are taken for dust and runoff control, and that any worker safety issues are addressed.

If you have any questions, please contact me at 303-692-3367.

Sincerely,



Steven H. Gunderson
Rocky Flats Project Coordinator

cc: Dean Rundle, FWS
Tim Rehder, EPA
Joe Legare, DOE
Dave Shelton, KH
Administrative Records, T130G

appendix e

Letter to RFCA Parties



United States Department of the Interior

FISH AND WILDLIFE SERVICE
 Rocky Mountain Arsenal National Wildlife Refuge
 Building 111
 Commerce City, Colorado 80022-1748
 Telephone (303) 289-0232 Fax (303) 289-0579



File Code: RF

June 7, 2004

Mr. Joe Legare
 U.S. Department of Energy
 Rocky Flats Project Office
 10808 Hwy. 93, Unit A
 Building MV-72
 Golden, CO 80403

Mr. Steve Gunderson
 Colorado Department of Public Health and Environment
 4300 Cherry Creek Dr., South
 Denver, CO 80246-1530

Mr. Mark Aguilar
 U. S. Environmental Protection Agency, Region VIII
 999 18th St., Ste. 500, FPR-FT
 Denver, CO 80202-2466

Subject: U. S. Fish and Wildlife Service Recommendations on Demarcation of DOE Retained Lands at Rocky Flats

Gentlemen:

Earlier this spring, during our public hearings on the draft Comprehensive Conservation Plan/Environment Impact Statement (CCP/EIS) for the future Rocky Flats National Wildlife Refuge (RF NWR), the U.S. Fish and Wildlife Service (Service) received numerous public comments regarding the boundary between future Service and Department of Energy (DOE) retained lands at RF NWR. Both the Service and DOE had made previous public statements about agency desires for a "seamless" property. During several public meetings, I personally responded to the public that our definition of "seamless" included: 1) a boundary that was clearly marked, so that any member of the public or future Service or DOE employee would know where the boundary was; 2) a boundary that to the extent possible, did not preclude the free movement of wildlife between refuge and DOE retained lands; and 3) a boundary that did not unnecessarily detract from the visual aesthetics of the landscape.

I also told the public that the Service was not a decision-maker on demarcation of the DOE retained lands, but that we would provide recommendations to the Rocky Flats Clean-up Agreement (RFCA) parties, to assist you in your decision making process. This letter is to provide those recommendations.

The Service recommends that, following a cadastral survey, the DOE retained lands and the boundary between future refuge and those lands be marked in the following manner:

1 The entire boundary of the DOE lands should be fenced with a minimum four-strand barb wire stock fence, similar in design to the current DOE-maintained perimeter fence at Rocky Flats. This fencing will not prevent wildlife movement on the landscape, but will be a clear barrier to inadvertent human trespass from refuge to DOE lands. Stock fences are a normal part of the western landscape and we do not believe such a fence will materially

detract from the visual aesthetics of the landscape. Also, if a grazing management option is selected in the final CCP for RF NWR, a stock fence will be required to prevent livestock trespass onto DOE lands.

2. The perimeter stock fence should be posted at intervals of not less than every 300 feet, at all corners, and at all access gates with signs stating: "U.S. Department of Energy Property – No Digging – Unauthorized Access Prohibited", or words to that effect. We suggest this language, but other similar language determined by the RFCA parties is acceptable and we welcome the opportunity for input, if other language is proposed. The signs should be approximately 11" x 14" in size. We recommend baked enamel on steel signs. These will cost more initially, but enamel on steel will last almost indefinitely in the environment, and given the long-term nature of the site, quality signs will reduce maintenance costs.

3. The Service acknowledges and accepts any requirements the RFCA parties determine necessary to protect specific remedy monitoring sites within the DOE retained lands. If chain link fences are deemed necessary to prevent vandalism of monitoring equipment, we have no objection to such fencing.

4. The Service recommends that "special areas", where wastes or residual contaminants are left below the surface, be identified and have additional markers. This would apply to the Present Landfill, the Original Landfill, and that portion of the Industrial Area where original process waste lines, building foundations and subsurface contaminants remain. The boundaries of these areas should be marked with granite or cast concrete monuments of a permanent nature. We recommend monuments be configured and placed as follows.

- a. Perimeter monuments should be placed at the corners and not less than every 500' along the boundary of each Special Area
- b. Perimeter monuments should be rectangular in shape, with a beveled top, set two feet below grade, with above grade dimensions of : 2.5' tall in front, 3' tall in back, and 3' wide and 2.5' deep on top.
- c. On top, the perimeter monuments should have baked enamel on steel sign stating: "Warning" Residual Contamination Area. Unauthorized Access Prohibited. U.S. Department of Energy Property."
- d. Each perimeter monument should also be marked with an individual number.
- e. At the center of each "special area", place a larger monument, 4' above grade and 4' wide and 3' deep on top.
- f. These central monuments should be marked with baked enamel on steel signs that provide a map of the special area, orient a viewer to the direction and distances to perimeter monuments, and carry the same warning sign language as the perimeter monuments.

5. Boundaries of the Special Areas should also be surveyed. All fences and monuments should be located with GPS/GIS technology and that data should be retained as part of the Administrative Record, and Long-Term Stewardship records of the Site.

Thank you for this opportunity to provide recommendations on an important long-term stewardship issue. We believe that demarcation of DOE retained lands, as recommended above, will our meet goals of a "seamless" property, while also providing very clear and long-term notice to people on the site. We acknowledge that your agencies may have better ideas for configuration and language of signs and monuments, and will be happy to discuss those issues with the RFCA Parties.

Sincerely,



W. Dean Rundle
Refuge Manager

Cc: RFCLOG, RFCAB, RFCLOG Member Governments

appendix f

Cost Details

Cost Request Details
Rocky Flats National Wildlife Refuge

	<i>Alternative</i>			
	A	B	C	D
Refuge Operations Needs System (RONS)				
Staff*	\$ 121,384	\$ 431,265	\$ 499,448	\$ 702,711
Facility Lease*			210,000	
Maintenance (Weed Management)*	25,000	50,000	75,000	50,000
Utilities*	6,160	20,020	12,520	68,000
Restoration	16,859	93,736	113,534	53,792
Trails		140,395	41,501	216,850
Visitor Facilities		249,269	30,563	457,228
Interpretation		81,000	7,000	149,000
Storage/Maintenance Building	15,000	225,000	225,000	350,000
Cistern		8,000	8,000	18,000
Septic System		12,000	12,000	25,000
Burglar Alarm		2,000	2,000	3,000
Fencing		46,613	38,063	66,720
Signs	4,905	7,405	7,405	9,405
Utility Line Installation		15,000	15,000	25,000
Computers/Fax/Office Equipment	4,400	8,800	11,000	17,600
Mountain Bike (for Patrol)		1,600	800	1,600
All Terrain Vehicle (ATV)	13,000	13,000	13,000	13,000
Spray-Rig for ATV	3,000	3,000	3,000	3,000
Maintenance Truck	35,000	35,000	35,000	35,000
Pickup Truck		44,000	44,000	44,000
Slip-On Spray-Rig for Truck	12,000	12,000	12,000	12,000
Mower	9,500	9,500	9,500	9,500
Maintenance Tools	10,000	10,000	10,000	10,000
Generator	5,000			
Biological Monitoring/Restoration Tools		15,000	15,000	15,000
Water Storage - 50K Gallon Bladder	15,000	15,000	15,000	15,000
Water Storage - Pumpkin	7,000	7,000	7,000	7,000
500 Gallon Fuel Tank/Pump	20,000	20,000	20,000	20,000
Shared Equipment Budget	100,000	100,000	150,000	100,000
Planning and Design		78,169	38,504	431,221
Sub-Total - RONS	\$ 423,208	\$ 1,753,772	\$ 1,680,838	\$ 2,928,627
Maintenance Management System (MMS)				
Renovate 1/2 Shed for Office	\$ 15,000			
Both RONS and MMS				
Visitor Center				\$ 3,000,000
Maintenance Funds (Annual)				
Facility/Equipment Maintenance	\$ 21,283	\$ 55,779	\$ 36,517	\$ 232,745
Fire Funding:				
Fire Cache (One-Time)	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
Fire Engine (One-Time)	75,000	75,000	75,000	75,000
Staff (Ongoing)	133,007	133,007	133,007	83,724
Sub-Total - Fire Funding	\$ 258,007	\$ 258,007	\$ 258,007	\$ 208,724
Total Cost Requests	\$ 717,498	\$ 2,067,558	\$ 1,975,362	\$ 6,370,096

* Classified as RONS for the first year of Refuge operations, then as annual operating funds.

**Alternative A Estimated Costs
Rocky Flats National Wildlife Refuge**

Operations (Ongoing)								
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal	
New Funding:								
Staff								
Refuge Operations Specialist (GS-9)	<i>Cost reflects cost/unit increased by 45% to reflect training, supplies and benefits.</i>	1.0	FTE	\$ 48,230	\$ 69,934	\$ 121,384	\$ 168,827	
Seasonal Range Technician (GS-6)		1.0	FTE	\$ 35,483	\$ 51,450			
Maintenance								
Weed Management	Staff Est. of Supplies				\$ 25,000	\$ 41,283		
Lindsay Barn	Staff Estimate				\$ 2,000			
Facility/Equipment Maintenance	5% of Equip. + .005% of Fence				\$ 14,283			
Utilities								
Electricity					\$ -	\$ 6,160		
Gas					\$ -			
Phone	Over 12 months	2	lines	\$ 50	\$ 1,200			
Cleaning/Trash Pickup	Clean 1x/week				\$ 4,960			
Existing Base Funding:								
Maintenance								
Shared Equipment Maintenance	5% of Shared Equip.				\$ 5,000	\$ 5,000	\$ 5,000	
Total: Operations							\$ 173,827	
Net Present Value of Operations over 15 Year Period							\$ 1,932,677	
Restoration and Implementation (One-Time)								
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal	
New Funding:								
Restoration								
Seed for Eliminating Roads	11.88 miles @ 20 feet	28.8	ac.	\$ 134	\$ 3,859	\$ 16,859	\$ 185,664	
Stream Crossing Restoration		13	ea.	\$ 1,000	\$ 13,000			
Facilities								
Administrative								
Renovate 1/2 Shed for Office		1	lump	\$ 15,000	\$ 15,000	\$ 34,905		
Storage/Maintenance Building	Pull Shed for Tractor	1	lump	\$ 15,000	\$ 15,000			
Signs		6	ea.	\$ 650	\$ 3,900			
Roadside Boundary	Every 1,000 Feet	67	ea.	\$ 15	\$ 1,005			
Equipment								
Computers/Fax/Office Equipment		2	emp.	\$ 2,200	\$ 4,400	\$ 133,900		
All Terrain Vehicle (ATV)		2	ea.	\$ 6,500	\$ 13,000			
Spray-Rig for ATV		2	ea.	\$ 1,500	\$ 3,000			
Maintenance Truck		1	ea.	\$ 35,000	\$ 35,000			
Slip-On Spray-Rig for Truck		1	ea.	\$ 12,000	\$ 12,000			
Mower		1	ea.	\$ 9,500	\$ 9,500			
Maintenance Tools		1	lump	\$ 10,000	\$ 10,000			
Generator		1	ea.	\$ 5,000	\$ 5,000			
Water Storage - 50K Gallon Bladder		1	ea.	\$ 15,000	\$ 15,000			
Water Storage - Pumpkin		2	ea.	\$ 3,500	\$ 7,000			
500 Gallon Fuel Tank/Pump		2	ea.	\$ 10,000	\$ 20,000			
Existing Base Funding:								
Shared Equipment Budget		1	lump	\$ 100,000	\$ 100,000		\$ 100,000	\$ 100,000
Total: Restoration and Implementation							\$ 285,664	
Net Present Value of Restoration and Implementation over 15 Year Period							\$ 274,677	
Fire Management								
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal	
New Funding:								
Equipment								
Fire Cache (One-Time)	Staff Est. of Supplies				\$ 50,000	\$ 125,000	\$ 258,007	
Fire Engine (One Time)								\$ 75,000
Staff (Ongoing)								
Fire Program Technician (GS-6/9)	<i>Cost reflects cost/unit increased by 45% to reflect training, supplies and benefits.</i>	1	FTE	\$ 49,283	\$ 49,283	\$ 133,007		
Fire Engine Foreman (GS-5/6)		1	FTE	\$ 44,211	\$ 44,211			
Fire Fighters (Seasonal) (GS-4/5)		1	FTE	\$ 39,514	\$ 39,514			
Total: Fire Management							\$ 258,007	
Net Present Value of Fire Management over 15 Year Period							\$ 1,599,016	

Alternative B Estimated Costs
Rocky Flats National Wildlife Refuge

Operations (Ongoing)							
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
New Funding:							
Staff							
<i>(see notes)</i>							
Refuge Manager (GS-12)	<i>Cost reflects cost/</i>	1.0	FTE	\$ 69,939	\$ 101,412	\$ 302,115	\$ 427,914
Biologist (GS-11)	<i>unit increased by 45%</i>	1.0	FTE	\$ 58,353	\$ 84,612		
Public Use (GS-9)	<i>to reflect training,</i>	1.0	FTE	\$ 48,230	\$ 69,934		
Range Biotech (GS-5)	<i>supplies and benefits.</i>	1.0	FTE	\$ 31,833	\$ 46,158		
Maintenance						\$ 100,779	
Weed Management	Staff Est. of Supplies				\$ 50,000		
Lindsay Barn	Staff Estimate				\$ 2,000		
Facility/Equipment Maintenance	5% of Facilities/Equip.				\$ 48,779		
Utilities						\$ 20,020	
Electricity		12	months	\$ 250	\$ 3,000		
Gas		12	months	\$ 250	\$ 3,000		
Phone	Over 12 months	5	lines	\$ 50	\$ 3,000		
Burglar Alarm		12	months	\$ 100	\$ 1,200		
Cleaning/Trash Pickup	Clean 2x/week				\$ 9,820		
Interpretive Materials						\$ 5,000	
		1	lump	\$ 5,000	\$ 5,000		
Existing Base Funding:							\$ 134,150
Staff						\$ 129,150	
Public Use Assistance (GS-11)	<i>Cost reflects cost/</i>	0.25	FTE	\$ 58,353	\$ 21,153		
Public Use Assistance (GS-5)	<i>unit increased by 45%</i>	0.50	FTE	\$ 31,833	\$ 23,079		
Administrative Assistance (GS-9)	<i>to reflect training,</i>	0.15	FTE	\$ 48,230	\$ 10,490		
Maintenance (WG-7)	<i>supplies and benefits.</i>	0.25	FTE	\$ 43,666	\$ 15,829		
Law Enforcement (GS-9)		0.50	FTE	\$ 48,230	\$ 58,599		
Maintenance						\$ 5,000	
Shared Equipment Maintenance	5% of Shared Equip.				\$ 5,000		
Total: Operations							\$ 562,064
Net Present Value of Operations over 15 Year Period							\$ 6,249,247
Restoration and Implementation (One-Time)							
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
New Funding:							\$ 1,537,151
Restoration						\$ 93,736	
Seeding							
Restoration Seeding	Disturbed/Non-Native	417	ac.	\$ 134	\$ 55,878		
Seed for Eliminating Roads	27.8 miles @ 20 feet	67	ac.	\$ 134	\$ 9,031		
Seed for Road Narrowing		21	ac.	\$ 134	\$ 2,827		
Stream Crossing Restoration		26	ea.	\$ 1,000	\$ 26,000		
Facilities							
Public Use						\$ 465,664	
Trails							
New Trails - Natural Surface	3.7 Miles	19,536	l.f.	\$ 4	\$ 78,144	\$ 389,664	
ADA Accessible (Reused Rd)	.9 Miles						
Prep		23,760	s.f.	\$ 0.12	\$ 2,851		
Surfacing		23,760	s.f.	\$ 2.50	\$ 59,400		
Visitor Facilities							
Restroom		1	ea.	\$ 26,000	\$ 26,000		
Viewing Blind		1	ea.	\$ 15,000	\$ 15,000		
Seasonal Contact Station		1,200	s.f.	\$ 150	\$ 180,000		
Benches		4	ea.	\$ 1,500	\$ 6,000		
Parking Lots							
Site Preparation	3 Lots/70 Cars/1 Bus	26,830	s.f.	\$ 0.38	\$ 10,195		
Surfacing		26,830	s.f.	\$ 0.45	\$ 12,074		
Interpretation							
Interpretive Sign Panels (Porcelain)		4	ea.	\$ 5,500	\$ 22,000		
Interpretive Signs (Porcelain)	Trails, Sm. Entrances	6	ea.	\$ 4,000	\$ 24,000		
Kiosk		1	ea.	\$ 10,000	\$ 10,000		
Interior Display		1	lump	\$ 20,000	\$ 20,000		

	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
Administrative						\$ 316,018	
Administrative Offices	Incl. in Contact Sta.				\$ -		
Storage/Maintenance Building	30'x75'	1	lump	\$ 225,000	\$ 225,000		
Cistern		1	ea.	\$ 8,000	\$ 8,000		
Septic System		1	lump	\$ 12,000	\$ 12,000		
Burglar Alarm		1	lump	\$ 2,000	\$ 2,000		
Fencing							
Remove Interior Stock Fenc	Approx. 8 Miles	42,240	l.f.	\$ 0.50	\$ 21,120		
Weed Control Fencing	Approx. 3 Miles	15,840	l.f.	\$ 0.17	\$ 2,693		
Security Fencing around Facilities		400	l.f.	\$ 57	\$ 22,800		
Signs							
Roadside		6	ea.	\$ 650	\$ 3,900		
Boundary	Every 1,000 Feet	67	ea.	\$ 15	\$ 1,005		
Trail Directional		5	ea.	\$ 500	\$ 2,500		
Utilities							
Power		1	lump	\$ 15,000	\$ 15,000		
Equipment						\$ 193,900	
Computers/Fax/Office Equipment		4	emp.	\$ 2,200	\$ 8,800		
Mountain Bike (for Patrol)		2	ea.	\$ 800	\$ 1,600		
All Terrain Vehicle (ATV)		2	ea.	\$ 6,500	\$ 13,000		
Spray-Rig for ATV		2	ea.	\$ 1,500	\$ 3,000		
Maintenance Truck		1	ea.	\$ 35,000	\$ 35,000		
Pickup Truck		2	ea.	\$ 22,000	\$ 44,000		
Slip-On Spray-Rig for Truck		1	ea.	\$ 12,000	\$ 12,000		
Mower		1	ea.	\$ 9,500	\$ 9,500		
Maintenance Tools		1	lump	\$ 10,000	\$ 10,000		
Biological Monitoring/Restoration Tools		1	lump	\$ 15,000	\$ 15,000		
Water Storage - 50K Gallon Bladder		1	ea.	\$ 15,000	\$ 15,000		
Water Storage - Pumpkin		2	ea.	\$ 3,500	\$ 7,000		
500 Gallon Fuel Tank/Pump		2	ea.	\$ 10,000	\$ 20,000		
Planning and Design						\$ 78,169	
Site Layout and Design	10% of Construction	1	lump	\$ 78,169	\$ 78,169		
Existing Base Funding:							\$ 100,000
Shared Equipment Budget		1	lump	\$ 100,000	\$ 100,000	\$ 100,000	
Total: Restoration and Implementation						\$ 1,637,151	
Net Present Value of Restoration and Implementation over 15 Year Period						\$ 1,159,182	
Fire Management							
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
New Funding:							\$ 258,007
Equipment						\$ 125,000	
Fire Cache (One-Time)	Staff Est. of Supplies				\$ 50,000		
Fire Engine (One Time)					\$ 75,000		
Staff (Ongoing)	<i>Cost reflects cost/ unit increased by 45% to reflect training, supplies and benefits.</i>					\$ 133,007	
Fire Program Technician (GS-6/9)		1	FTE	\$ 49,283	\$ 49,283		
Fire Engine Foreman (GS-5/6)		1	FTE	\$ 44,211	\$ 44,211		
Fire Fighters (Seasonal) (GS-4/5)		1	FTE	\$ 39,514	\$ 39,514		
Total: Fire Management						\$ 258,007	
Net Present Value of Fire Management over 15 Year Period						\$ 1,599,016	

**Alternative C Estimated Costs
Rocky Flats National Wildlife Refuge**

Operations (Ongoing)							
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
						<i>(see notes)</i>	
New Funding:							
Staff						\$ 370,298	\$ 698,335
Refuge Manager (GS-12)	<i>Cost reflects cost/</i>	1.0	FTE	\$ 69,939	\$ 101,412		
Biologist (GS-11)	<i>unit increased by 45%</i>	1.0	FTE	\$ 58,353	\$ 84,612		
Biologist (GS-9)	<i>to reflect training,</i>	1.0	FTE	\$ 48,230	\$ 69,934		
Range Biotech (GS-7) (2)	<i>supplies and benefits.</i>	2.0	FTE	\$ 39,428	\$ 114,341		
Maintenance							
Weed Management	Staff Est. of Supplies				\$ 75,000	\$ 104,017	
Facility/Equipment Maintenance	5% of Facilities/Equip.				\$ 29,017		
Facilities							
Office Lease	Over 12 months	1,000	s.f.	\$ 17.50	\$ 210,000	\$ 210,000	
<i>*Based on Average May, 2003 Office Lease Rate for Westminster</i>							
Utilities							
Phone	Over 12 months	5	lines	\$ 50	\$ 3,000	\$ 12,520	
Burglar Alarm (Maintenance Building)		12	months	\$ 100	\$ 1,200		
Cleaning	Clean 2x/week				\$ 8,320		
Interpretive Materials		1	lump	\$ 1,500	\$ 1,500	\$ 1,500	
Existing Base Funding:							
Staff						\$ 129,150	\$ 136,650
Public Use Assistance (GS-11)	<i>Cost reflects cost/</i>	0.25	FTE	\$ 58,353	\$ 21,153		
Public Use Assistance (GS-5)	<i>unit increased by 45%</i>	0.50	FTE	\$ 31,833	\$ 23,079		
Administrative Assistance (GS-9)	<i>to reflect training,</i>	0.15	FTE	\$ 48,230	\$ 10,490		
Maintenance (WG-7)	<i>supplies and benefits.</i>	0.25	FTE	\$ 43,666	\$ 15,829		
Law Enforcement (GS-9)		0.50	FTE	\$ 48,230	\$ 58,599		
Maintenance						\$ 7,500	
Shared Equipment Maintenance	5% of Shared Equip.				\$ 7,500		
Total: Operations						\$ 834,985	
Net Present Value of Operations over 15 Year Period						\$ 9,283,686	
Restoration and Implementation (One-Time)							
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
New Funding:							
Restoration							\$ 732,369
Seeding						\$ 113,534	
Restoration Seeding	Disturbed/Non-Native	419	ac.	\$ 134	\$ 56,146		
Seed for Eliminating Roads	28.9 miles @ 20 feet	70	ac.	\$ 134	\$ 9,388		
Remove Lindsay Ranch Buildings		1	lump	\$ 30,000	\$ 30,000		
Stream Crossing Restoration		18	ea.	\$ 1,000	\$ 18,000		
Facilities							
Public Use						\$ 77,564	
Trails							
ADA Accessible (Reused Road)	.6 Miles						
Prep		15,840	s.f.	\$ 0.12	\$ 1,901		
Surfacing		15,840	s.f.	\$ 2.50	\$ 39,600		
Visitor Facilities							
Restroom		1	ea.	\$ 26,000	\$ 26,000		
Benches	Overlook	1	ea.	\$ 1,500	\$ 1,500		
Parking Lots	1 Lot/10 Cars						
Site Preparation		3,690	s.f.	\$ 0.38	\$ 1,402		
Surfacing		3,690	s.f.	\$ 0.45	\$ 1,661		
Interpretation							
Interpretive Sign Panels (Porcelain)	Overlook	1	ea.	\$ 5,500	\$ 5,500		
Administrative						\$ 307,468	
Storage/Maintenance Building	30'x75'	1	lump	\$ 225,000	\$ 225,000		
Cistern		1	ea.	\$ 8,000	\$ 8,000		
Septic System		1	lump	\$ 12,000	\$ 12,000		
Burglar Alarm		1	lump	\$ 2,000	\$ 2,000		
Fencing							
Remove Interior Stock Fence	Approx. 8 Miles	42,240	l.f.	\$ 0.50	\$ 21,120		
Weed Control Fencing	Approx. 3 Miles	15,840	l.f.	\$ 0.17	\$ 2,693		
Security Fencing around Facilities		250	l.f.	\$ 57	\$ 14,250		

	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
Signs							
Roadside		6	ea.	\$ 650	\$ 3,900		
Boundary	Every 1,000 Feet	67	ea.	\$ 15	\$ 1,005		
Trail Directional		5	ea.	\$ 500	\$ 2,500		
Utilities							
Power		1	lump	\$ 15,000	\$ 15,000		
Equipment						\$ 195,300	
Computers/Fax/Office Equipment		5	emp.	\$ 2,200	\$ 11,000		
Mountain Bike (for Patrol)		1	ea.	\$ 800	\$ 800		
All Terrain Vehicle (ATV)		2	ea.	\$ 6,500	\$ 13,000		
Spray-Rig for ATV		2	ea.	\$ 1,500	\$ 3,000		
Maintenance Truck		1	ea.	\$ 35,000	\$ 35,000		
Pickup Truck		2	ea.	\$ 22,000	\$ 44,000		
Slip-On Spray-Rig for Truck		1	ea.	\$ 12,000	\$ 12,000		
Mower		1	ea.	\$ 9,500	\$ 9,500		
Maintenance Tools		1	lump	\$ 10,000	\$ 10,000		
Biological Monitoring/Restoration Tools		1	lump	\$ 15,000	\$ 15,000		
Water Storage - 50K Gallon Bladder		1	ea.	\$ 15,000	\$ 15,000		
Water Storage - Pumpkin		2	ea.	\$ 3,500	\$ 7,000		
500 Gallon Fuel Tank/Pump		2	ea.	\$ 10,000	\$ 20,000		
Planning and Design							
Site Layout and Design	10% of Construction	1	lump	\$ 38,504	\$ 38,504	\$ 38,504	
Existing Base Funding:							\$ 150,000
Shared Equipment Budget		1	lump	\$ 150,000	\$ 150,000	\$ 150,000	
Total: Restoration and Implementation						\$ 882,369	
Net Present Value of Restoration and Implementation over 15 Year Period						\$ 834,657	
Fire Management							
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
New Funding:							\$ 258,007
Equipment						\$ 125,000	
Fire Cache (One-Time)	Staff Est. of Supplies				\$ 50,000		
Fire Engine (One Time)					\$ 75,000		
Staff (Ongoing)						\$ 133,007	
Fire Program Technician (GS-6/9)	Cost reflects cost/ unit increased by 45% to reflect training, supplies and benefits.	1	FTE	\$ 49,283	\$ 49,283		
Fire Engine Foreman (GS-5/6)		1	FTE	\$ 44,211	\$ 44,211		
Fire Fighters (Seasonal) (GS-4/5)		1	FTE	\$ 39,514	\$ 39,514		
Total: Fire Management						\$ 258,007	
Net Present Value of Fire Management over 15 Year Period						\$ 1,599,016	

**Alternative D Estimated Costs
Rocky Flats National Wildlife Refuge**

Operations (Ongoing)							
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
New Funding:							
Staff							
					(see notes)		
Refuge Manager (GS-12)	<i>Cost reflects cost/ unit increased by 45% to reflect training, supplies and benefits.</i>	1.0	FTE	\$ 69,939	\$ 101,412	\$ 647,989	\$ 1,001,734
Biologist (GS-11)		1.0	FTE	\$ 58,353	\$ 84,612		
Refuge Operations Specialist (GS-9)		1.0	FTE	\$ 48,230	\$ 69,934		
Public Use (GS-11)		1.0	FTE	\$ 58,353	\$ 84,612		
Public Use (GS-9)		1.0	FTE	\$ 48,230	\$ 69,934		
Public Use (GS-7)		1.0	FTE	\$ 39,428	\$ 57,171		
Maintenance/Biotech (WG-7)		1.0	FTE	\$ 43,666	\$ 63,316		
Law Enforcement (GS-9)	<i>Cost reflects law enforcement training, supplies and benefits</i>	1.0	FTE	\$ 48,230	\$ 117,000	\$ 277,745	
Maintenance							
Weed Management	Staff Est. of Supplies				\$ 50,000		
Lindsay Barn	Staff Estimate				\$ 2,000		
Facility/Equipment Maintenance	5% of Facilities/Equip.				\$ 225,745		
Utilities							
Electricity		12	months	\$ 1,200	\$ 14,400	\$ 68,000	
Gas		12	months	\$ 1,000	\$ 12,000		
Phone	Over 12 months	10	lines	\$ 50	\$ 6,000		
Burglar Alarm		12	months	\$ 200	\$ 2,400		
Cleaning/Trash Pickup	Clean 3x/week				\$ 33,200		
Interpretive Materials							
		1	lump	\$ 8,000	\$ 8,000	\$ 8,000	
Existing Base Funding:							
Staff							
Public Use Assistance (GS-11)	<i>Cost reflects cost/ unit increased by 45% to reflect training, supplies and benefits.</i>	0.25	FTE	\$ 58,353	\$ 21,153	\$ 54,722	\$ 59,722
Public Use Assistance (GS-5)		0.50	FTE	\$ 31,833	\$ 23,079		
Administrative Assistance (GS-9)		0.15	FTE	\$ 48,230	\$ 10,490		
Maintenance							
Shared Equipment Maintenance	5% of Shared Equip.				\$ 5,000	\$ 5,000	
Total: Operations						\$ 1,061,456	
Net Present Value of Operations over 15 Year Period						\$ 11,801,675	
Restoration and Implementation (One-Time)							
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
New Funding:							
Restoration							
Seeding						\$ 53,792	\$ 4,999,915
Restoration Seeding	Disturbed/Non-Native 26.4 miles @ 20 feet	119	ac.	\$ 134	\$ 15,946		
Seed for Eliminating Roads		64	ac.	\$ 134	\$ 8,576		
Seed for Road Narrowing		24	ac.	\$ 134	\$ 3,270		
Stream Crossing Restoration		26	ea.	\$ 1,000	\$ 26,000		
Facilities							
Public Use							
Trails							
New Trails - Natural Surface	4.7 Miles	24,816	l.f.	\$ 4	\$ 99,264	\$ 3,815,078	
ADA Accessible (Reused Road)	1.7 Miles						
Prep		44,880	s.f.	\$ 0.12	\$ 5,386		
Surfacing		44,880	s.f.	\$ 2.50	\$ 112,200		
Visitor Facilities							
Restroom		2	ea.	\$ 26,000	\$ 52,000		
Viewing Blind		2	ea.	\$ 15,000	\$ 30,000		
Visitor Center	Staff Estimate	1	lump	\$ 3,000,000	\$ 3,000,000		
Outdoor Education Center	Arsenal Estimate	1	ea.	\$ 321,753	\$ 321,753		
Benches		8	ea.	\$ 1,500	\$ 12,000		
Parking Lots	6 Lots/140 Cars/2 Bus						
Site Preparation		49,970	s.f.	\$ 0.38	\$ 18,989		
Surfacing		49,970	s.f.	\$ 0.45	\$ 22,487		
Interpretation							
Interpretive Sign Panels (Porcelain)		6	ea.	\$ 5,500	\$ 33,000		
Interpretive Signs (Porcelain)	Trails, Sm. Entrances	12	ea.	\$ 4,000	\$ 48,000		
Kiosk		1	ea.	\$ 10,000	\$ 10,000		
Interior Display		1	lump	\$ 50,000	\$ 50,000		

	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal	
Administrative							\$ 497,125	
Administrative Offices	Incl. In Visitor Ctr.							
Storage/Maintenance Building	30'x100'	1	lump	\$ 350,000	\$ 350,000			
Cistern		1	ea.	\$ 18,000	\$ 18,000			
Septic System		1	lump	\$ 25,000	\$ 25,000			
Burglar Alarm		1	lump	\$ 3,000	\$ 3,000			
Fencing								
Remove Interior Stock Fence	Approx. 8 Miles	42,240	l.f.	\$ 0.50	\$ 21,120			
Security Fencing around Facilities		800	l.f.	\$ 57	\$ 45,600			
Signs								
Roadside	Every 1,000 Feet	6	ea.	\$ 650	\$ 3,900			
Boundary		67	ea.	\$ 15	\$ 1,005			
Trail Directional		9	ea.	\$ 500	\$ 4,500			
Utilities								
Power		1	lump	\$ 25,000	\$ 25,000			
Equipment							\$ 202,700	
Computers/Fax/Office Equipment		8	emp.	\$ 2,200	\$ 17,600			
Mountain Bike (for Patrol)		2	ea.	\$ 800	\$ 1,600			
All Terrain Vehicle (ATV)		2	ea.	\$ 6,500	\$ 13,000			
Spray-Rig for ATV		2	ea.	\$ 1,500	\$ 3,000			
Maintenance Truck		1	ea.	\$ 35,000	\$ 35,000			
Pickup Truck		2	ea.	\$ 22,000	\$ 44,000			
Slip-On Spray-Rig for Truck		1	ea.	\$ 12,000	\$ 12,000			
Mower		1	ea.	\$ 9,500	\$ 9,500			
Maintenance Tools		1	lump	\$ 10,000	\$ 10,000			
Biological Monitoring/Restoration Tools		1	lump	\$ 15,000	\$ 15,000			
Water Storage - 50K Gallon Bladder		1	ea.	\$ 15,000	\$ 15,000			
Water Storage - Pumpkin		2	ea.	\$ 3,500	\$ 7,000			
500 Gallon Fuel Tank/Pump		2	ea.	\$ 10,000	\$ 20,000			
Planning and Design							\$ 431,221	
Site Layout and Design	10% of Construction			\$ 431,221	\$ 431,221			
Existing Base Funding:								
Shared Equipment Budget		1	lump	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	
Total: Restoration and Implementation							\$ 5,099,915	
Net Present Value of Restoration and Implementation over 15 Year Period							\$ 4,624,873	
Fire Management								
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal	
New Funding:							\$ 208,724	
Equipment							\$ 125,000	
Fire Cache (One-Time)	Staff Est. of Supplies				\$ 50,000			
Fire Engine (One Time)					\$ 75,000			
Staff (Ongoing)							\$ 83,724	
Fire Engine Foreman (GS-5/6)	Cost reflects cost/ to reflect training, supplies and benefits.	1	FTE	\$ 44,211	\$ 44,211			
Fire Fighters (Seasonal) (GS-4/5)		1	FTE	\$ 39,514	\$ 39,514			
Total: Fire Management							\$ 208,724	
Net Present Value of Fire Management over 15 Year Period							\$ 1,051,073	

appendix g

Species Lists

ROCKY FLATS NWR WILDLIFE SPECIES LIST

BIRDS

Raptors

American kestrel	<i>Falco sparverius</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Barn owl	<i>Tyto alba</i>
Black vulture	<i>Coragyps atratus</i>
Broad-winged hawk	<i>Buteo platypterus</i>
Burrowing owl	<i>Athene cunicularia</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Ferruginous hawk	<i>Buteo regalis</i>
Golden eagle	<i>Aquila chrysaetos</i>
Great horned owl	<i>Bubo virginianus</i>
Long-eared owl	<i>Asio otus</i>
Merlin	<i>Falco columbarius</i>
Northern goshawk	<i>Accipiter gentilis</i>
Northern harrier	<i>Circus cyaneus</i>
Osprey	<i>Pandion haliaetus</i>
Peregrine falcon	<i>Falco peregrinus</i>
Prairie falcon	<i>Falco mexicanus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Rough-legged hawk	<i>Buteo lagopus</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Short-eared owl	<i>Asio flammeus</i>
Swainson's hawk	<i>Buteo swainsoni</i>
Turkey vulture	<i>Cathartes aura</i>

Songbirds

American crow	<i>Corvus brachyrhynchos</i>
American goldfinch	<i>Carduelis tristis</i>
American pipit	<i>Anthus rubescens</i>
American redstart	<i>Setophaga ruticilla</i>
American robin	<i>Turdus migratorius</i>
American tree sparrow	<i>Spizella arborea</i>
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>
Barn swallow	<i>Hirundo rustica</i>
Belted kingfisher	<i>Ceryle alcyon</i>
Black swift	<i>Cypseloides niger</i>
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>
Black-billed magpie	<i>Pica hudsonia</i>
Black-capped chickadee	<i>Poecile atricapilla</i>
Black-headed grosbeak	<i>Pheucticus elanocephalus</i>
Black-throated gray warbler	<i>Dendroica nigrescens</i>
Blue grosbeak	<i>Guiraca caerulea</i>
Blue jay	<i>Cyanocitta cristata</i>
Blue-gray gnatcatcher	<i>Poliophtila caerulea</i>
Blue-headed vireo	<i>Vireo solitarius</i>
Bohemian waxwing	<i>Bombycilla garrulus</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>
Brewer's sparrow	<i>Spizella breweri</i>
Broad-tailed hummingbird	<i>Selasphorus platycercus</i>
Brown thrasher	<i>Toxostoma rufum</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Bullock's oriole	<i>Icterus bullockii</i>

Cassin's finch	<i>Carpodacus cassinii</i>
Cassin's sparrow	<i>Aimophila cassinii</i>
Chestnut-collared longspur	<i>Calcarius ornatus</i>
Chestnut-sided warbler	<i>Dendroica pensylvanica</i>
Chipping sparrow	<i>Spizella passerina</i>
Clay-colored sparrow	<i>Spizella pallida</i>
Cliff swallow	<i>Petrochelidon pyrrhonota</i>
Common grackle	<i>Quiscalus quiscula</i>
Common nighthawk	<i>Chordeiles minor</i>
Common poorwill	<i>Phalaenoptilus nuttallii</i>
Common raven	<i>Corvus corax</i>
Common yellowthroat	<i>Geothlypis trichas</i>
Cordilleran flycatcher	<i>Empidonax occidentalis</i>
Dark-eyed junco	<i>Junco hyemalis canice</i>
Downy woodpecker	<i>Picoides pubescens</i>
Eastern kingbird	<i>Tyrannus tyrannus</i>
Eastern phoebe	<i>Sayornis phoebe</i>
European starling	<i>Sturnus vulgaris</i>
Field sparrow	<i>Spizella pusilla</i>
Fox sparrow	<i>Passerella illiaca</i>
Golden-crowned kinglet	<i>Regulus satrapa</i>
Grasshopper sparrow	<i>Ammodramus savannarum</i>
Gray catbird	<i>Dumetella carolinensis</i>
Green-tailed towhee	<i>Pipilo chlorurus</i>
Hairy woodpecker	<i>Picoides villosus</i>
Hermit thrush	<i>Catharus guttatus</i>
Horned lark	<i>Eremophila alpestris</i>
House finch	<i>Carpodacus mexicanus</i>
House sparrow	<i>Passer domesticus</i>
House wren	<i>Troglodytes aedon</i>
Lapland longspur	<i>Calcarius lapponicus</i>
Lark bunting	<i>Calamospiza melanocorys</i>
Lark sparrow	<i>Chondestes grammacus</i>
Lazuli bunting	<i>Passerina amoena</i>
Lesser goldfinch	<i>Carduelis psaltria</i>
Lincoln's sparrow	<i>Melospiza lincolni</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
MacGillivray's warbler	<i>Opornis tolmiei</i>
Marsh wren	<i>Cistothorus palustris</i>
Mountain bluebird	<i>Sialia currucoides</i>
Mountain chickadee	<i>Parus gambelii</i>
Mourning dove	<i>Zenaidura macroura</i>
Northern flicker	<i>Colaptes auratus</i>
Northern mockingbird	<i>Mimus polyglottus</i>
Northern shrike	<i>Lanius excubitor</i>
Orange-crowned warbler	<i>Vermivora celata</i>
Ovenbird	<i>Seiurus aurocapillus</i>
Palm warbler	<i>Dendroica palmarum</i>
Pine siskin	<i>Carduelis pinus</i>
Red-breasted nuthatch	<i>Sitta canadensis</i>
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Rock dove	<i>Columba livia</i>
Rock wren	<i>Salpinctes obsoletus</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>

Rufous hummingbird	<i>Selasphorus rufus</i>
Sage thrasher	<i>Oreoscoptes montanus</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Say's phoebe	<i>Sayornis saya</i>
Snow bunting	<i>Plectrophenax nivalis</i>
Song sparrow	<i>Melospiza melodia</i>
Spotted towhee	<i>Pipilo maculatus</i>
Swainson's thrush	<i>Catharus ustulatus</i>
Townsend's solitaire	<i>Myadestes townsendi</i>
Tree swallow	<i>Tachycineta bicolor</i>
Vesper sparrow	<i>Poocetes gramineus</i>
Violet-green swallow	<i>Tachycineta thalassina</i>
Virginia's warbler	<i>Vermivora virginiae</i>
Warbling vireo	<i>Vireo gilvus</i>
Western bluebird	<i>Sialia mexicana</i>
Western kingbird	<i>Tyrannus verticalis</i>
Western meadowlark	<i>Sturnella neglecta</i>
Western tanager	<i>Piranga ludoviciana</i>
Western wood-pewee	<i>Contopus sordidulus</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
Willow flycatcher	<i>Empidonax trailii</i>
Wilson's warbler	<i>Wilsonia pusilla</i>
Yellow warbler	<i>Dendroica petechia</i>
Yellow-breasted chat	<i>Icteria virens</i>
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>

Upland Game

Ring-necked pheasant	<i>Phasianus colchicus</i>
Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>

Waterfowl and Shorebirds

American bittern	<i>Botaurus lentiginosus</i>
American coot	<i>Fulica americana</i>
American white pelican	<i>Pelecanus erythrorhynchos</i>
American wigeon	<i>Anas americana</i>
Black-crowned night-heron	<i>Nycticorax nycticorax</i>
Blue-winged teal	<i>Anas discors</i>
Bufflehead	<i>Bucephala albeola</i>
Canada goose	<i>Branta canadensis</i>
Canvasback	<i>Aythya valisineria</i>
Cinnamon teal	<i>Anas cyanoptera</i>
Common goldeneye	<i>Bucephala clangula</i>
Common merganser	<i>Mergus merganser</i>
Common snipe	<i>Gallinago gallinago</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Eared grebe	<i>Podiceps nigricollis</i>
Franklin's gull	<i>Larus pipixcan</i>
Gadwall	<i>Anas strepera</i>
Great blue heron	<i>Ardea herodias</i>
Great egret	<i>Ardea alba</i>
Greater scaup	<i>Aythya marila</i>
Greater yellowlegs	<i>Tringa melanoleuca</i>
Green-winged teal	<i>Anas crecca</i>
Hooded merganser	<i>Lophodytes cucullatus</i>

Killdeer	<i>Charadrius vociferus</i>
Lesser scaup	<i>Aythya affinis</i>
Lesser yellowlegs	<i>Tringa flavipes</i>
Long-billed curlew	<i>Numenius americanus</i>
Mallard	<i>Anas platyrhynchos</i>
Northern pintail	<i>Anas acuta</i>
Northern shoveler	<i>Anas clypeata</i>
Pectoral sandpiper	<i>Calidris melanotos</i>
Pied-billed grebe	<i>Podilymbus podiceps</i>
Redhead	<i>Aythya americana</i>
Ring-billed gull	<i>Larus delawarensis</i>
Ring-necked duck	<i>Aythya collaris</i>
Ruddy duck	<i>Oxyura jamaicensis</i>
Semipalmated plover	<i>Charadrius semipalmatus</i>
Semipalmated sandpiper	<i>Calidris pusilla</i>
Snow goose	<i>Chen caerulescens</i>
Snowy egret	<i>Egretta thula</i>
Solitary sandpiper	<i>Tringa solitaria</i>
Sora	<i>Porzana carolina</i>
Spotted sandpiper	<i>Actitis macularia</i>
Virginia rail	<i>Rallus limicola</i>
Western grebe	<i>Aechmophorus occidentalis</i>
White-faced Ibis	<i>Plegadis chihi</i>
Willet	<i>Catoptrophorus semipalmatus</i>
Wilson's phalarope	<i>Phalaropus tricolor</i>
Wood duck	<i>Aix sponsa</i>

MAMMALS

American black bear	<i>Ursus americanus</i>
Big brown bat	<i>Eptesicus fuscus</i>
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>
Bobcat	<i>Lynx rufus</i>
Common gray fox	<i>Urocyon cinereoargenteus</i>
Common porcupine	<i>Erethizon dorsatum</i>
Coyote	<i>Canis latrans</i>
Deer mouse	<i>Peromyscus maniculatus</i>
Desert cottontail	<i>Sylvilagus audubonii</i>
Eastern fox squirrel	<i>Sciurus niger</i>
Elk (Wapiti)	<i>Cervus elaphus</i>
Hispid pocket mouse	<i>Chaetodipus hispidus</i>
House mouse	<i>Mus musculus</i>
Long-tailed vole	<i>Microtus longicaudus</i>
Masked shrew	<i>Sorex cinereus</i>
Meadow vole	<i>Microtus pennsylvanicus</i>
Merriam's shrew	<i>Sorex merriami</i>
Mexican woodrat	<i>Neotoma mexicana</i>
Mountain lion	<i>Felis concolor</i>
Mule deer	<i>Odocoileus hemionus</i>
Mule x White-tailed deer	<i>Odocoileus hemionus x virginianus</i>
Muskrat	<i>Ondatra zibethicus</i>
Northern pocket gopher	<i>Thomomys talpoides</i>
Olive-backed pocket mouse	<i>Perognathus fasciatus</i>
Plains harvest mouse	<i>Reithrodontomys montanus</i>
Plains pocket mouse	<i>Perognathus flavescens</i>
Prairie vole	<i>Microtus ochrogaster</i>

Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	Red-sided garter snake	<i>Thamnophis sirtalis</i>
Raccoon	<i>Procyon lotor</i>	Short-horned lizard	<i>Phrynosoma douglassi</i>
Silky pocket mouse	<i>Perognathus flavus</i>	Snapping turtle	<i>Chelydra serpentina</i>
Striped skunk	<i>Mephitis mephitis</i>	Tiger salamander	<i>Ambystoma tigrinum</i>
Thirteen-lined ground squirrel	<i>Spermophilus tridecemlineatus</i>	Unidentified lizard	
Chipmunk	<i>Eutamias spp.</i>	Western painted turtle	<i>Chrysemys picta</i>
Western harvest mouse	<i>Reithrodontomys megalotis</i>	Western plains garter snake	<i>Thamnophis radix</i>
Western jumping mouse	<i>Zapus princeps</i>		
White-tailed deer	<i>Odocoileus virginianus</i>	FISH	
White-tailed jackrabbit	<i>Lepus townsendii</i>	Bluegill	<i>Lepomis macrochirus</i>
		Creek chub	<i>Semotilus atromaculatus</i>
		Common shiner	<i>Luxilus cornutus</i>
REPTILES AND AMPHIBIANS		Fathead minnow	<i>Pimephales promelas</i>
Boreal chorus frog	<i>Pseudacris triseriatus maculata</i>	Green sunfish	<i>Lepomis cyanellus</i>
Bullfrog	<i>Rana catesbeiana</i>	Northern redbelly dace	<i>Phoxinus eos</i>
Bullsnake	<i>Pituophis melanoleucus</i>	Largemouth bass	<i>Micropterus salmoides</i>
Eastern yellowbelly racer	<i>Coluber constrictor</i>	Longnose dace	<i>Rhinichthys cataractae</i>
Great Plains toad	<i>Bufo cognatus</i>	Smallmouth bass	<i>Micropterus dolomieu</i>
Northern leopard frog	<i>Rana pipiens</i>	Stoneroller	<i>Campostoma anomalum</i>
Prairie rattlesnake	<i>Crotalus viridis</i>	White sucker	<i>Catostomus commersoni</i>

OTHERS

The following types invertebrate species have also been identified at Rocky Flats:

- x 63 species of phytoplankton
- x 63 species of zooplankton
- x 197 macrobiotic invertebrates
- x 72 emergent insects
- x 688 terrestrial invertebrates

ROCKY FLATS NWR PLANT SPECIES LIST

Listed in alphabetical order by scientific name.
State listed noxious weeds are marked with an *.

GRASSES

Jointed Goatgrass*	<i>Aegilops cylindrica</i> X <i>Agrohordeum macounii</i>	Meadow Fescue	<i>Festuca pratensis</i>
Slender Wheatgrass	<i>Agropyron caninum</i>	Tall Mannagrass	<i>Glyceria grandis</i>
Crested Wheatgrass	<i>Agropyron cristatum</i>	Fowl Mannagrass	<i>Glyceria striata</i>
Thickspike Wheatgrass	<i>Agropyron dasystachyum</i>	Meadow Barley	<i>Hordeum brachyantherum</i>
Crested Wheatgrass	<i>Agropyron desertorum</i>	Foxtail Barley	<i>Hordeum jubatum</i>
Tall Wheatgrass	<i>Agropyron elongatum</i>	Little Barley	<i>Hordeum pusillum</i>
Griffin's Wheatgrass	<i>Agropyron griffithsii</i>	Junegrass	<i>Koeleria pyramidata</i>
Intermediate		Rice Cutgrass	<i>Leersia oryzoides</i>
Wheatgrass	<i>Agropyron intermedium</i>	Italian Ryegrass	<i>Lolium perenne</i>
Quackgrass *	<i>Agropyron repens</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Western Wheatgrass	<i>Agropyron smithii</i>	Wolftail	<i>Lycurus phleoides</i>
Bluebunch Wheatgrass	<i>Agropyron spicatum</i>	Scratchgrass	<i>Muhlenbergia asperifolia</i>
Ticklegrass	<i>Agrostis scabra</i>	Muhly	<i>Muhlenbergia filiformis</i>
Redtop	<i>Agrostis stolonifera</i>	Mountain Muhly	<i>Muhlenbergia montana</i>
Marsh Foxtail	<i>Alopecurus geniculatus</i>	Marsh Muhly	<i>Muhlenbergia racemosa</i>
Big Bluestem	<i>Andropogon gerardii</i>	Spike Muhly	<i>Muhlenbergia wrightii</i>
Silver Bluestem	<i>Andropogon saccharoides</i>	Indian Ricegrass	<i>Oryzopsis hymenoides</i>
Little Bluestem	<i>Andropogon scoparius.</i>	Witchgrass	<i>Panicum capillare</i>
Italian Windgrass	<i>Apera interrupta</i>	Fall Panicum	<i>Panicum dichotomiflorum</i>
Forktip Threeawn	<i>Aristida basiramea</i>	Switchgrass	<i>Panicum virgatum</i>
Fendler Threeawn	<i>Aristida purpurea</i>	Reed Canarygrass	<i>Phalaris arundinacea</i>
Red Threeawn	<i>Aristida purpurea</i>	Timothy	<i>Phleum pratense</i>
Cultivated Oats	<i>Avena fatua var. sativa</i>	Common Reed	<i>Phragmites australis</i>
Side-oats Grama	<i>Bouteloua curtipendula</i>	Bulbous Bluegrass	<i>Poa bulbosa</i>
Blue Grama	<i>Bouteloua gracilis</i>	Canby's Bluegrass	<i>Poa canbyi</i>
Hairy Grama	<i>Bouteloua hirsuta</i>	Canada Bluegrass	<i>Poa compress</i>
Rattlesnake Grass	<i>Bromus briziformis</i>	Muttongrass	<i>Poa fendleriana</i>
Smooth Brome	<i>Bromus inermis</i>	Alkali Bluegrass	<i>Poa juncifolia</i>
Japanese Brome	<i>Bromus japonicus</i>	Fowl Bluegrass	<i>Poa palustris</i>
Downy Brome *	<i>Bromus tectorum</i>	Kentucky Bluegrass	<i>Poa pratensis</i>
Buffalo-grass	<i>Buchloe dactyloides</i>	Rabbitfoot Grass	<i>Polypogon monspeliensis</i>
Northern Reedgrass	<i>Calamagrostis stricta</i>	Tumblegrass	<i>Schedonnardus paniculatus.</i>
Field Sandbur	<i>Cenchrus longispinus</i>	Rye	<i>Secale cereale</i>
Rescuegrass	<i>Ceratochloa marginata</i>	Green Foxtail	<i>Setaria viridis</i>
Bermuda Grass	<i>Cynodon dactylon</i>	Squirreltail	<i>Sitanion hystrix</i>
Orchardgrass	<i>Dactylis glomerata</i>	Indian-grass	<i>Sorghastrum nutans</i>
Poverty Oatgrass	<i>Danthonia spicata</i>	Prairie Cordgrass	<i>Spartina pectinata</i>
Slimleaf Dichanthelium	<i>Dichanthelium linearifolium</i>	Prairie Wedgegrass	<i>Sphenopholis obtusata.</i>
Scribner Dichanthelium	<i>Dichanthelium oligosanthes</i>	Rough Dropseed	<i>Sporobolus asper</i>
Hairy Crabgrass	<i>Digitaria sanguinalis</i>	Sand Dropseed	<i>Sporobolus cryptandrus</i>
Inland Salt Grass	<i>Distichlis spicata</i>	Prairie Dropseed	<i>Sporobolus heterolepis</i>
Barnyard Grass	<i>Echinochloa crusgallii.</i>	Poverty Grass	<i>Sporobolus neglectus</i>
Canada Wild Rye	<i>Elymus canadensis</i>	Needle-and-thread	<i>Stipa comata</i>
Russian Wild Rye	<i>Elymus juncea</i>	New Mexico Feather	
Stinkgrass	<i>Eragrostis cilianensis</i>	Grass	<i>Stipa neomexicana</i>
Weeping Lovegrass	<i>Eragrostis curvula</i>	Sleepy Grass	<i>Stipa robusta</i>
Little Lovegrass	<i>Eragrostis minor</i>	Porcupine-grass	<i>Stipa spartea</i>
India Lovegrass	<i>Eragrostis pilosa</i>	Green Needlegrass	<i>Stipa viridula</i>
Sand Lovegrass	<i>Eragrostis trichodes</i>	Wheat	<i>Triticum aestivum</i>
Six-weeks Fescue	<i>Festuca octoflora</i>	Narrow-leaved Cattail	<i>Typha angustifolia</i>
Sheep's Fescue	<i>Festuca ovina</i>	Common Cattail	<i>Typha latifolia</i>
		Blue-eyed Grass	<i>Sisyrinchium montanum</i>
		Articulate Rush	<i>Juncus articulatus</i>
		Baltic Rush	<i>Juncus balticus</i>

Toad Rush	<i>Juncus bufonius</i>	Western Ragweed	<i>Ambrosiapsilostachya</i>
Dudley Rush	<i>Juncus dudleyi</i>	Giant Ragweed	<i>Ambrosia trifida</i>
Swordleaf rush	<i>Juncus ensifolius</i>	Robust Toothcup	<i>Ammania robusta</i>
Inland Rush	<i>Juncus interior</i>	False Indigo	<i>Amorpha fruticosa</i>
Longstyle rush	<i>Juncus longistylis</i>	Western Rock Jasmine	<i>Androsace occidentalis</i>
Knotted Rush	<i>Juncus nodosus</i>	Candle Anemone	<i>Anemone cylindrica</i>
Torrey's Rush	<i>Juncus torreyi</i>	Pasque-flower	<i>Anemone patens</i>
Tracy Rush	<i>Juncus tracyi</i>	Pink Pussytoes	<i>Antennaria microphylla</i>
Spikerush	<i>Eleocharis acicularis</i>	Pussytoes	<i>Antennaria parvifolia</i>
Spikerush	<i>Eleocharis compressa</i>	Dog Fennel	<i>Anthemis cotula</i>
Spikerush	<i>Eleocharis macrostachya</i>	Spreading Dogbane	<i>Apocynum androsaemifolium</i>
Blunt Spikerush	<i>Eleocharis obtusa</i>	Hemp Dogbane	<i>Apocynum cannabinum</i>
Spikerush	<i>Eleocharis parvula</i>	Rock Cress	<i>Arabis fendleri</i>
Bulrush	<i>Scirpus acutus</i>	Tower Mustard	<i>Arabis glabra</i>
Bulrush	<i>Scirpus pallidus</i>	Rock Cress	<i>Arabis hirsuta</i>
Pungent Bulrush	<i>Scirpus pungens</i>	Burdock *	<i>Arctium minus</i>
Bulrush	<i>Scirpus validus</i>	Fendler's Sandwort	<i>Arenaria fendleri</i>
Slenderbeak sedge	<i>Carex athrostachya</i>	Prickly Poppy	<i>Argemone polyanthemos</i>
Golden sedge	<i>Carex aurea</i>	Arnica	<i>Arnica fulgens</i>
Bebs sedge	<i>Carex bebbii</i>	Swamp Milkweed	<i>Asclepias incarnata</i>
Short-beaked sedge	<i>Carex brevior</i>	Plains Milkweed	<i>Asclepias pumila</i>
Douglas sedge	<i>Carex douglasii</i>	Showy Milkweed	<i>Asclepias speciosa</i>
Narrowleaf sedge	<i>Carex eleocharis</i>	Narrow-leaved Milkweed	<i>Asclepias stenophylla</i>
Emory's sedge	<i>Carex emoryi</i>	Green Milkweed	<i>Asclepias viridiflora</i>
Threadleaf sedge	<i>Carex filifolia</i>	Asparagus	<i>Asparagus officinalis</i>
Bottlebrush sedge	<i>Carex hystericina</i>	Madwort	<i>Asperugo procumbens</i>
Inland sedge	<i>Carex interior</i>	Meadow Aster	<i>Aster campestris</i>
Sun sedge	<i>Carex inops ssp. heliophila</i>	Aster	<i>Aster falcatus</i>
Woolly sedge	<i>Carex lanuginosa</i>	Fendler's Aster	<i>Aster fendleri</i>
Nebraska sedge	<i>Carex nebrascensis</i>	Panicled Aster	<i>Aster hesperius</i>
Grassyslope sedge	<i>Carex oreocharis</i>	Smooth Blue Aster	<i>Aster laevis</i>
Clustered field sedge	<i>Carex praeegracilis</i>	Aster	<i>Aster porteri</i>
Beaked sedge	<i>Carex rostrata</i>	Standing Milkvetch	<i>Astragalus adsurgens</i>
Broom sedge	<i>Carex scoparia</i>	Field Milkvetch	<i>Astragalus agrestis</i>
Analogue sedge	<i>Carex simulata</i>	Two-grooved Vetch	<i>Astragalus bisulcatus</i>
Prickly sedge	<i>Carex stipata</i>	Canada Milk-vetch	<i>Astragalus canadensis</i>
Fox Sedge	<i>Carex vulpinoidea</i>	Ground-plum	<i>Astragalus crassicaarpus</i>
Field Horsetail	<i>Equisetum arvense</i>	Drummond Milkvetch	<i>Astragalus drummondii</i>
Smooth Horsetail	<i>Equisetum laevigatum</i>	Pliant Milkvetch	<i>Astragalus flexuosus</i>
Variegated Scouring Rush	<i>Equisetum variegatum</i>	Lotus Milk-Vetch	<i>Astragalus lotiflorus</i>
		Parry's Milkvetch	<i>Astragalus parryi</i>
		Short's Milkvetch	<i>Astragalus shortianus</i>
		Draba Milk-Vetch	<i>Astragalus spathulatus</i>
		Foothill Milkvetch	<i>Astragalus tridactylicus</i>
		Yellowrocket	
FORBS		Wintercress	<i>Barbarea vulgaris</i>
Yarrow	<i>Achillea millefolium</i>	Water Parsnip	<i>Berula erecta</i>
False Dandelion	<i>Agoseris glauca</i>	Nodding Beggarticks	<i>Bidens cernua</i>
Striate Agrimony	<i>Agrimonia striata</i>	Beggar-ticks	<i>Bidens frondosa</i>
American Water Plantain	<i>Alisma trivale</i>	Water Starwort	<i>Callitriche verna</i>
Wild Onion	<i>Allium cernuum</i>	Sego Lily	<i>Calochortus gunnisonii</i>
Geyer's Onion	<i>Allium geeyeri</i>	Plains Yellow Primrose	<i>Calylophus serrulatus</i>
Wild White Onion	<i>Allium textile</i>	Small-seeded False Flax	<i>Camelina microcarpa</i>
Alder	<i>Alnus incana</i>	Harebell	<i>Campanularotundifolia</i>
Pale Alyssum	<i>Alyssum alyssoides</i>	Shepherd's Purse	<i>Capsella bursa-pastoris</i>
Alyssum	<i>Alyssum minus</i>	Lens-padded Hoary Cress	<i>Cardaria chalepensis</i>
Tumbleweed	<i>Amaranthus albus</i>	Hoary Cress *	<i>Cardaria draba</i>
Prostrate Pigweed	<i>Amaranthus graecizans</i>	Musk Thistle *	<i>Carduus nutans</i>
Rough Pigweed	<i>Amaranthus retroflexus</i>		
Common Ragweed	<i>Ambrosia artemisiifolia</i>		

Orange Paintbrush	<i>Castilleja integra</i>	Dragonhead	<i>Dracocephalum parviflorum</i>
Downy Paintbrush	<i>Castilleja sessiliflora</i> .	Fetid Marigold	<i>Dyssodia papposa</i>
Diffuse Knapweed *	<i>Centaurea diffusa</i>	Hedgehog Cactus	<i>Echinocereus viridiflorus</i>
Russian Knapweed *	<i>Centaurea repens</i>	Willow Herb	<i>Epilobium ciliatum</i>
Yellow Star Thistle	<i>Centaurea solstitialis</i>	Willow Herb	<i>Epilobium paniculatum</i>
Prairie Chickweed	<i>Cerastium arvense</i>	Fleabane	<i>Erigeron canus</i>
Short-stalked Chickweed	<i>Cerastiumbrachypodum</i>	Fleabane	<i>Erigeron compositus</i>
Common Mouse-Ear	<i>Cerastium vulgatum</i>	Fleabane	<i>Erigeron divergens</i>
Coontail	<i>Ceratophyllum demersum</i>	Fleabane	<i>Erigeron flagellaris</i>
Lamb's Quarters	<i>Chenopodium album</i>	Fleabane	<i>Erigeron pumilus</i>
Dark Goosefoot	<i>Chenopodium atrovirens</i>	Oregon Fleabane	<i>Erigeron speciosa</i>
Pitseed Goosefoot	<i>Chenopodium berlandieri</i>	Daisy Fleabane	<i>Erigeron strigosus</i>
Jerusalem Oak	<i>Chenopodium botrys</i>	LaVeta Fleabane	<i>Erigeron vetensis</i>
Desert goosefoot	<i>Chenopodium dessicatum</i>	Winged Eriogonum	<i>Eriogonum alatum</i>
Fremont Goosefoot	<i>Chenopodium fremontii</i>	Spreading Wild Buckwheat	<i>Eriogonum effusum</i>
Goosefoot	<i>Chenopodium leptophyllum</i>	James' Wild Buckwheat	<i>Eriogonum jamesii</i>
Overi's Goosefoot	<i>Chenopodium overi</i>	Sulphur Flower	<i>Eriogonum umbellatum</i>
Blue Mustard	<i>Chorispora tenella</i>	Filaria	<i>Erodium cicutarium</i>
Ox-eye Daisy	<i>Chrysanthemum leucanthemum</i>	Western Wallflower	<i>Erysimum capitatum</i>
Golden Aster	<i>Chrysopsis fulcrata</i>	Bushy Wallflower	<i>Erysimum repandum</i>
Golden Aster	<i>Chrysopsis villosa</i>	Toothed Spurge	<i>Euphorbia dentata</i>
Common Chicory *	<i>Cichorium intybus</i>	Fendler's Euphorbia	<i>Euphorbia fendleri</i>
Water Hemlock	<i>Cicuta maculata</i>	Snow-on-the-Mountain	<i>Euphorbia marginata</i>
Canada Thistle *	<i>Cirsium arvense</i>	Spurge	<i>Euphorbia robusta</i>
Flodman's Thistle	<i>Cirsium flodmanni</i>	Thyme-leaved Spurge	<i>Euphorbia serpyllifolia</i>
Yellow Spine Thistle	<i>Cirsium ochrocentrum</i>	Spurge	<i>Euphorbia spathulata</i>
Wavyleaf Thistle	<i>Cirsium undulatum</i>	Fumitory	<i>Fumaria vaillantii</i>
Bull Thistle *	<i>Cirsium vulgare</i>	Blanket Flower	<i>Gaillardia aristata</i>
Spring Beauty	<i>Claytonia rosea</i>	Catchweed Bedstraw	<i>Galium aparine</i>
Rocky Mountain Beeplant	<i>Cleome serrulata</i>	Northern Bedstraw	<i>Galium septentrionale</i>
Blue Lips	<i>Collinsia parviflora</i>	Scarlet Gaura	<i>Gaura coccinea</i>
Collomia	<i>Collomia linearis</i>	Velvety Gaura	<i>Gaura parviflora</i>
Bastard Toadflax	<i>Comandra umbellata</i>	Yellow Avens	<i>Geum aleppicum</i>
Poison Hemlock *	<i>Conium maculatum</i>	Large-leaved Avens	<i>Geum macrophyllum</i>
Community Champion	<i>Conosilene conica</i>	Northern Gentian	<i>Gentiana affinis</i>
Hare's-ear Mustard	<i>Conringia orientalis</i>	Common Wild Geranium	<i>Geranium caespitosum</i>
Horseweed	<i>Conyza canadensis</i>	Gilia	<i>Gilia ophthalmoides</i>
Crown Vetch	<i>Coronilla varia</i>	Wild Licorice	<i>Glycyrrhiza lepidota</i>
Nipple Cactus	<i>Coryphantha missouriensis</i>	Cotton-batting	<i>Gnaphalium chilense</i>
Hawksbeard	<i>Crepis occidentalis</i>	Hedge Hyssop	<i>Gratiola neglecta</i>
Hawksbeard	<i>Crepis runcinata</i>	Curly-top Gumweed	<i>Grindelia squarrosa</i>
Miners Candle	<i>Cryptantha virgata</i>	Northern Green Orchid	<i>Habenaria hyperborea</i>
Dodder	<i>Cuscuta approximata</i>	Large-flowered Stickseed	<i>Hackelia floribunda</i>
Hound's Tongue	<i>Cynoglossum officinale</i>	Cutleaf Ironplant	<i>Happlopappus spinulosus</i>
Taperleaf Flatsedge	<i>Cyperus acuminatus</i>	Whiskbroom Parsley	<i>Harbouria trachypleura</i>
Fragile Fern	<i>Cystopteris fragilis</i>	Rough False Pennyroyal	<i>Hedeoma hispidum</i>
White Prairie Clover	<i>Dalea candida</i>	Common Sunflower	<i>Helianthus annuus</i>
Purple Prairie Clover	<i>Dalea purpurea</i>	Texas Blue Weed	<i>Helianthus ciliaris</i>
Wild Carrot	<i>Daucus carota</i>	Maximilian Sunflower	<i>Helianthus maximilianii</i>
Blue Larkspur	<i>Delphinium nuttalianum</i>	Nuttall's Sunflower	<i>Helianthus nuttallii</i>
Prairie Larkspur	<i>Delphinium virescens</i>	Plains Sunflower	<i>Helianthus petiolaris</i>
Tansy Mustard	<i>Descurainia pinnata</i>	Sunflower	<i>Helianthus pumilus</i>
Tansy Mustard	<i>Descurainia richardsonii</i>	Stiff Sunflower	<i>Helianthus rigidus</i>
Flixweed	<i>Descurainia sophia</i>	Showy Goldeneye	<i>Heliomeris multiflora</i>
Shooting Star	<i>Dodecatheon pulchellum</i>		
Yellow Whitlowort	<i>Draba nemorosa</i>		
White Whitlowort	<i>Draba reptans</i>		

Cow Parsnip	<i>Heracleum sphondylium</i>	Monkey Flower	<i>Mimulus floribundus</i>
Dame's Rocket *	<i>Hesperis matronalis</i>	Roundleaf Monkey- flower	<i>Mimulus glabratus</i>
Alumroot	<i>Heuchera parvifolia</i>	Hairy Four-O'Clock	<i>Mirabilis hirsuta</i>
Nodding Green Violet	<i>Hybanthus verticillatus</i>	Narrowleaf Four O'Clock	<i>Mirabilis linearis</i>
Waterleaf	<i>Hydrophyllum fendleri</i>	Wild Four-O'Clock	<i>Mirabilis nyctaginea</i>
Hymenopappus	<i>Hymenopappus filifolius</i>	Wild Bergamot	<i>Monarda fistulosa</i>
Greater St. John's-wort	<i>Hypericum majus</i>	Spotted Bee-Balm	<i>Monarda pectinata</i>
Common St. John's- wort *	<i>Hypericum perforatum</i>	Musineon	<i>Musineon divaricatum</i>
Spike Gilia	<i>Ipomopsis spicata</i>	Mousetail	<i>Myosurus minimus</i>
Western Blue Flag	<i>Iris missouriensis</i>	American Milfoil	<i>Myriophyllum exalbescens.</i>
Poverty Weed	<i>Iva axillaris</i>	Watercress	<i>Nasturtium officinale</i>
Marsh Elder	<i>Iva xanthifolia</i>	Navarretia	<i>Navarretia minima</i>
Kochia	<i>Kochia scoparia</i>	Catnip	<i>Nepeta cataria</i>
False Boneset	<i>Kuhnia chlorolepis</i>	Evening Primrose	<i>Oenothera flava</i>
False Boneset	<i>Kuhnia eupatorioides</i>	Yellow Stemless Evening Primrose	<i>Oenothera howardii</i>
Blue Lettuce	<i>Lactuca oblongifolia.</i>	Common Evening Primrose	<i>Oenothera villosa</i>
Prickly Lettuce	<i>Lactuca serriola</i>	Scotch Thistle *	<i>Onopordum acanthium</i>
Stickseed	<i>Lappula redowskii</i>	False Gromwell	<i>Onosmodium molle</i>
Purple Peavine	<i>Lathyrus eucosmus</i>	Pale Evening Primrose	<i>Onothera albicaulis</i>
Duckweed	<i>Lemna minor</i>	Little Prickly Pear	<i>Opuntia fragilis</i>
Field Peppergrass	<i>Lepidium campestre</i>	Twistspine Prickly Pear	<i>Opuntia macrorhiza</i>
Peppergrass	<i>Lepidium densiflorum</i>	Plains Prickly Pear	<i>Opuntia polyacantha</i>
Bladderpod	<i>Lesquerella montana</i>	Broomrape	<i>Orobanche fasciculata</i>
White Aster	<i>Leucelene ericoides</i>	Sweet Cicely	<i>Osmorhiza chiliensis</i>
Mountain Lily	<i>Leucocrinum montanum</i>	Anise Root	<i>Osmorhiza longistylis</i>
Blazing Star	<i>Liatris punctata</i>	Gray-Green Wood Sorrel	<i>Oxalis dillenii.</i>
Porter's Lovage	<i>Ligusticum porteri</i>	Purple Locoweed	<i>Oxytropis lambertii</i>
Mudwort	<i>Limosella aquatica</i>	Pennsylvania Pellitory	<i>Parietaria pensylvanica</i>
Texas Toadflax	<i>Linaria canadensis.</i>	James' Nailwort	<i>Paronychia jamesii</i>
Dalmatian Toadflax *	<i>Linaria dalmatica</i>	Nipple Cactus	<i>Pediocactus simpsonii</i>
Butter-and-eggs*	<i>Linaria vulgaris</i>	White Beardtongue	<i>Penstemon albidus</i>
Blue Flax	<i>Linum perenne</i>	Penstemon	<i>Penstemon secundiflorus</i>
Norton's Flax	<i>Linum pratense</i>	Rocky Mountain Penstemon	<i>Penstemon strictus</i>
Plains Flax	<i>Linum puberulum</i>	Slender Penstemon	<i>Penstemon virens</i>
Fog-fruit	<i>Lippia cuneifolia</i>	Penstemon	<i>Penstemon virgatus</i>
Puccoon	<i>Lithospermum incisum</i>	Scorpionweed	<i>Phacelia heterophylla</i>
Puccoon	<i>Lithospermum multiflorum</i>	Clammy Ground cherry	<i>Physalis heterophylla</i>
Great Lobelia	<i>Lobelia siphilitica</i>	Prairie Ground Cherry	<i>Physalis pumila</i>
Wild Parsley	<i>Lomatium orientale</i>	Virginia Ground Cherry	<i>Physalis virginiana</i>
Birdfoot Trefoil	<i>Lotus corniculatus</i>	Double Bladder-pod	<i>Physaria vitulifera</i>
Silvery Lupine	<i>Lupinus argenteus</i>	Pieradeniopsis	<i>Picradeniopsis oppositifolia</i>
American Bugleweed	<i>Lycopus americanus</i>	Popcorn Flower	<i>Plagiobothrys scouleri</i>
Rough Bugleweed	<i>Lycopus asper</i>	English Plantain	<i>Plantago lanceolata</i>
Skeleton-weed	<i>Lygodesmia juncea</i>	Common Plantain	<i>Plantago major</i>
Fringed Loostripe	<i>Lysimachia ciliata</i>	Patagonian Plantain	<i>Plantago patagonica.</i>
Winged Loosestrife	<i>Lythrum alatum</i>	Clammy-weed	<i>Polansia dodecandra</i>
Bigelovi's Tansy Aster	<i>Machaeranthera bigelovii</i>	Knotweed	<i>Polygonum arenastrum.</i>
Hoary Aster	<i>Machaeranthera canescens</i>	Wild Buckwheat	<i>Polygonum convolvulus.</i>
Tarweed	<i>Madia glomerata</i>	Knotweed	<i>Polygonum douglasii</i>
Common Mallow	<i>Malva neglecta</i>	Water Pepper	<i>Polygonum hydropiper</i>
Common Horehound	<i>Marrubium vulgare</i>	Pale Smartweed	<i>Polygonum lapathifolium</i>
Black Medick	<i>Medicago lupulina</i>	Pennsylvania Smartweed	<i>Polygonum pensylvanicum</i>
Alfalfa	<i>Medicago sativa</i>	Lady's Thumb	<i>Polygonum persicaria</i>
White Sweetclover	<i>Melilotus alba</i>		
Yellow Sweetclover	<i>Melilotus officinalis</i>		
Field Mint	<i>Mentha arvensis</i>		
Bluebells	<i>Mertensia lanceolata</i>		
False Dandelion	<i>Microseris cuspidata</i>		

New Jersey Tea	<i>Ceanothus herbaceus</i>
Greenplume	
Rabbitbrush	<i>Chrysothamnus nauseosus</i>
Rubber Rabbitbrush	<i>Chrysothamnus nauseosus</i>
Hawthorne	<i>Crataegus erythropoda</i>
Hawthorn	<i>Crataegus succulenta</i>
Snakeweed	<i>Gutierrezia sarothrae</i>
Common Juniper	<i>Juniperus communis</i>
Mountain Ninebark	<i>Physocarpus monogynus</i>
Ninebark	<i>Physocarpus opulifolius</i>
Wild Plum	<i>Prunus americana</i>
Sand Cherry	<i>Prunus pumila</i>
Chokecherry	<i>Prunus virginiana</i>
Apple	<i>Pyrus malus</i>
Fragrant Sumac	<i>Rhus aromatica</i>
Golden Currant	<i>Ribes aureum</i>
Western Red Currant	<i>Ribes cereum</i>
Common Gooseberry	<i>Ribes inerme</i>
Prickly Wild Rose	<i>Rosa acicularis</i>
Prairie Wild Rose	<i>Rosa arkansana</i>
Western Wild Rose	<i>Rosa woodsii</i>
Boulder Raspberry	<i>Rubus deliciosus</i>
Raspberry	<i>Rubus idaeus</i>
Coyote Willow	<i>Salix exigua</i>
Sandbar Willow	<i>Salix exigua</i>
Bluestem willow	<i>Salix irrorata</i>
Yellow Willow	<i>Salix lutea</i>
Burnet	<i>Sanguisorba minor</i>
Mountain Ash	<i>Sorbus scopulina</i>
Western Snowberry	<i>Symphoricarpos occidentalis</i>
Snowberry	<i>Symphoricarpos oreophilus</i>
Salt Cedar *	<i>Tamarix ramosissima</i>
Highbush Cranberry	<i>Viburnum opulus</i>
Yucca	<i>Yucca glauca</i>

OTHERS

The following types plants have also been identified at Rocky Flats:

- x 15 mosses
- x 24 lichens

TREES

Mountain Maple	<i>Acer glabrum</i>
Box-elder	<i>Acer negundo</i>
Norway Maple	<i>Acer platanoides</i>
Water Birch	<i>Betula occidentalis</i>
Russian Olive *	<i>Elaeagnus angustifolia</i>
Green Ash	<i>Fraxinus pennsylvanica</i>
Rocky Mountain Juniper	<i>Juniperus scopulorum</i>
Blue Spruce	<i>Picea pungens</i>
Ponderosa Pine	<i>Pinus ponderosa</i>
Silver Poplar	<i>Populus alba</i>
Narrow-leaved Cottonwood	<i>Populus angustifolia</i>
Plains Cottonwood	<i>Populus deltoides</i>
Lanceleaf Cottonwood	<i>Populus x acuminata</i>
Douglas-Fir	<i>Pseudotsuga menziesii</i>
Black Locust	<i>Robinia pseudo-acacia</i>
Peach-leaf Willow	<i>Salix amygdaloides</i>
Crack Willow	<i>Salix fragilis</i>
Siberian Elm	<i>Ulmus pumila</i>

VINES

Hedge Bindweed	<i>Calystegia macouni</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hairy Clematis	<i>Clematis hirsutissima</i>
Western Clematis	<i>Clematis ligusticifolia</i>
Field Bindweed *	<i>Convolvulus arvensis</i>
Evolvulus	<i>Evolvulus nuttallianus</i>
Common Hops	<i>Humulus lupulus</i>
Poison Ivy	<i>Toxicodendron rydbergii</i>
Puncture Vine	<i>Tribulus terrestris</i>
River-bank Grape	<i>Vitis riparia</i>

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