Appendices

Appendix A – Glossary & Abbreviations

ABC: American Bird Conservancy.

ACHP: Advisory Council on Historic Preservation. A Presidential advisory board, created by the National Historic Preservation Act, to advise on matters concerning historic preservation. The Advisory Council on Historic Preservation governs review and compliance by federal agencies in conjunction with the state level review by the State Historic Preservation Officer.

ACOE: (United States) Army Corps of Engineers.

ADA: Americans with Disabilities Act.

ADT: Average Daily Traffic.

Adaptive Management: An approach to managing the Monument's resources that builds upon learning—based on best available science, common sense, experience, experimenting, new scientific discoveries and monitoring—by adjusting management practices based on what was learned. Where possible, Monument management projects will be designed to produce knowledge along with meeting other resource objectives.

AEC: (United States) Atomic Energy Commission.

Aesthetic: Of or relating to the sense of beauty. (Source: Webster's II Dictionary)

Affected Environment: In an environmental impact statement, a description of the existing environment covering information that directly relates to the scope of the proposed action and alternatives that are analyzed. (Source: CLUP)

AHPA: Archeological and Historic Preservation Act.

ALE: Fitzner-Eberhardt Arid Lands Ecology Reserve.

Alternative: A set of objectives and strategies or means of achieving refuge purposes and goals, helping fulfill the National Wildlife Refuge System mission, and resolving issues. (Source: Draft FWS Manual 601 FW 4)

Anadromous Fish: Fish that normally migrate to salt water as juveniles and return to freshwater as adults to spawn. (Source: Draft FWS Manual 601 FW 4)

Archeological Resource: Material remains of past human life or activities, including (but not limited to), pottery, basketry, bottles, weapons, tools, structures, and graves, or any portion of the foregoing items, as well as the physical site or context in which it is found. (Source: Considering Cultural Resources)

ARPA: Archaeological Resources Protection Act of 1979. Protects cultural resources and outlines permitting procedures as well as violations and fines. (Source: Considering Cultural Resources)

BAER: Burned Area Emergency Rehabilitation. Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life or property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land resources. Emergency stabilization actions must be taken within one year of containment of a wildland fire. Emergency rehabilitation actions are undertaken within three years of containment of a wildland fire to repair or improve fire-damaged lands unlikely to recover naturally to management approved conditions.

Basalt: A dark grey to black, fine grained igneous rock composed primarily of calcium feldspar and pyroxene, with or without olivine. This material underlies the Hanford Site. (Source: CLUP)

BCR: Bird Conservation Region.

Biological Diversity (Biodiversity): The variety of life and its processes, including the variety of living organisms, the genetic differences among them, and communities and ecosystems in which they occur. (Source: Draft FWS Manual 601 FW 4) It also defines the interrelationships within and among various levels of ecological organization. Conservation, protection and restoration of biological species and genetic diversity are needed to sustain the health of existing biological systems. Federal resource management agencies must examine the implications of management actions and development decisions on regional and local biodiversity.

Biological Integrity: Biotic composition, structure, and functioning at genetic, organism, and community levels comparable with historic conditions, including the natural biological processes that shape genomes, organisms and communities. (Source: Draft FWS Manual 601 FW 4)

BLM: (United States) Bureau of Land Management.

BMP: Best Management Practice(s). As a means of accomplishing an action, the practices that are based on the best available science and generally accepted standards for the field, as well as being the most effective and practicable (including technological, economic and institutional considerations).

BOR: (United States) Bureau of Reclamation.

B.P.: Before Present.

BPA: (United States) Bonneville Power Administration.

CalTech: California Institute of Technology (Irvine).

Candidate Species (Federal): A species for which there is sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list it as endangered or threatened but issuance of the proposed rule is precluded (i.e., by other listing activity or lack of funding).

Candidate Species (State): Wildlife species that are under review by the Washington Department of Wildlife for possible listing as endangered, threatened, or sensitive.

Central Hanford: That portion of the entire Hanford Nuclear Reservation (i.e., Hanford Site) that was not included within the Hanford Reach National Monument.

CCP: Comprehensive Conservation Plan. The master land planning document used by the U.S. Fish and Wildlife Service to administer the agency's lands (i.e., national bison ranges, national game preserves, national monuments, national wildlife refuges, waterfowl production areas, wetland management districts, and wildlife management areas).

CCT: Confederated Tribes of the Colville Reservation.

CD: Compatibility Determination.

Census Bureau: (United States) Census Bureau.

CEQ: (United States) Council on Environmental Quality.

CERCLA: Comprehensive Environmental Response, Compensation & Liability Act.

cfs: Cubic Feet Per Second. The standard measure of the flow rate of a river.

CFR: Code of Federal Regulations.

CIC: (Washington State University) Consolidated Information Center.

CLUP: Comprehensive Land Use Plan. Developed by the Department of Energy to direct land use within the Hanford Site.

Compatibility Determination: A written determination, usually signed by the Refuge Manager and Regional Chief, signifying that a proposed or existing use of a national wildlife refuge is a compatible use or is not a compatible use. (Source: Draft FWS Manual 601 FW 4)

Compatible Use: A proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgement, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose(s) of the national wildlife refuge. (Source: Draft FWS Manual 601 FW 4)

Connectivity (Habitat Connectivity): The arrangement of habitats that allows organisms and ecological processes to move across the landscape.

Conservation and Management: To sustain and, where appropriate, restore and enhance, healthy populations of fish, wildlife, and plants utilizing methods and procedures associated with modern scientific resource programs. (Source: Draft FWS Manual 601 FW 4)

Contaminants: Chemicals present at levels greater than those naturally occurring in the environment resulting from anthropogenic or natural processes that potentially result in changes to biota at any ecological level.

Council: Northwest Power and Conservation Council.

CPI: Consumer Price Index. The Consumer Price Index is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.

Criterion 1 (State Listed and Candidate Species): State listed species are those native fish and wildlife species legally designated as endangered, threatened, or sensitive. State Candidate Species are those fish and wildlife species that will be reviewed by the department for possible listing as endangered, threatened, or sensitive. Federal candidate species are evaluated individually to determine their status in Washington and whether inclusion as a priority species is justified.

Criterion 2 (Vulnerable Aggregations): Vulnerable aggregations include those species or groups of animals susceptible to significant population declines, within a specific area or statewide, by virtue of their inclination to aggregate. Examples include heron rookeries, seabird concentrations, marine mammal haul-outs, shellfish beds, and fish spawning and rearing areas.

Criterion 3 (Species Considered to be of Recreational, Commercial, and/or Tribal Importance by Washington State): Native and non-native fish and wildlife species of recreational or commercial importance and recognized species used for tribal ceremonial and subsistence purposes that are vulnerable to habitat loss or degradation.

CRITFC: Columbia River Intertribal Fish Commission.

Cryptobiotic Crust: See Microbiotic Crust.

Cryptogam: A plant that bears no flowers or seeds but propagates by means of spores. Cryptogamic organisms make up a cryptogamic crust or surface on certain soils.

CTUIR: Confederated Tribes of the Umatilla Indian Reservation.

Cultural Landscape: The distinctive setting or land use pattern associated with an historic site or areas such as a homestead, mining district, or townsite. There is evidence of human manipulation of the land through purposeful design, cultivation or extraction.

Cultural Resources: The physical remains, objects, historic records, and traditional lifeways that connect us to our nations's past. (Source: Considering Cultural Resources)

CWA: Clean Water Act (Federal Water Pollution Control Act).

dB: Decibel.

DOA: (United States) Department of the Army.

DOD: (United States) Department of Defense.

DOE: (United States) Department of Energy.

DOE-RL: (United States) Department of Energy – Richland Operations.

DOI: (United States) Department of the Interior.

Ecosystem: A biological community together with its associated non-living environment, functioning as a unit. (Source: Draft FWS Manual 601 FW 4/LPO) A system made up of a community of animals, plants, and bacteria and its interrelated physical and chemical environment.

ECPA: Electric Consumers Protection Act.

EE: Environmental Education. A teaching process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations and commitments to make informed decisions and take responsible action.

EIS: Environmental Impact Statement. A detailed written statement required by section 102(2)(c) of the National Environmental Policy Act, analyzing the environmental impacts of a proposed action, adverse effects of the project that cannot be avoided, alternative courses of action, and any irreversible and irretrievable commitment of resources. (Source: 40 CFR 1508.11/LPO)

Endangered Species (Federal): A species that is likely to become extinct throughout all or a significant portion of its range. These species are listed by the United States Fish and Wildlife Service.

Endangered Species (State Plants): A species that is likely to become extinct throughout all or a significant portion of its range within the state of Washington.

Endangered Species (State Wildlife): Wildlife species native to the state of Washington that are seriously threatened with extinction throughout all or a significant portion of its range within the state.

Environmental Health: Composition, structure, and functioning of soil, water, air and other abiotic features comparable with historic conditions, including the natural abiotic processes that shape the environment. (Source: Draft FWS Manual 601 FW 4)

Environmental Justice: The fair treatment of people of all races, cultures, and income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Executive Order 12898 requires federal agencies to identify and address and potentially disproportionate high and adverse human health and environmental effects of agency policies, programs and activities on minority and low-income populations. (Source: CLUP)

Environmentally Preferable Alternative: The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in the NEPA, Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources. Section 1505.2(b) requires that, in cases where an EIS has been prepared, the Record of Decision must identify all alternatives that were considered, ". . . specifying the alternative or alternatives which were considered to be environmentally preferable." (Source: Council on Environmental Quality, 40 Questions)

EO: Executive Order.

EPA: (United States) Environmental Protection Agency.

EPZ: Emergency Planning Zone. A land use classification used by the Department of Energy.

Equestrian: Relating to horses or horseback riding.

ESA: Endangered Species Act.

ESU: Evolutionary Significant Unit.

Ethnography: The descriptive and analytic study of the culture of particular groups or communities. Such studies are often done through interviews with community members and often through living in

and observing a community (a practice referred to as "participant observation"). (Source: NPS National Register Bulletin: Guidelines for Evaluating and Documenting Traditional Cultural Properties)

Ethnohistory: The study of historical data, including but not necessarily limited to, documentary data pertaining to a group or community, using an ethnographic perspective. (Source: NPS National Register Bulletin: Guidelines for Evaluating and Documenting Traditional Cultural Properties)

Ethnocentrism: Viewing the world and the people in it only from the point of view of one's own culture and being unable to sympathize with the feelings, attitudes, and beliefs of someone who is a member of a different culture. (Source: NPS National Register Bulletin: Guidelines for Evaluating and Documenting Traditional Cultural Properties)

EUZ: Exclusive Use Zone. A land use classification used by the Department of Energy to denote a singular use.

FAA: (United States) Federal Aviation Administration.

FAC: Hanford Reach National Monument Federal Advisory Committee.

FACA: Federal Advisory Committee Act.

Fauna: The animals of a specified region or time.

FERC: Federal Energy Regulatory Commission.

Fishery: A place to catch fish. The Hanford Reach of the Columbia River is a popular sport fishing area for steelhead, chinook salmon, sturgeon, and smallmouth bass.

Floodplain: A plain along a river subject to periodic flooding (Source: Webster's II Dictionary). Floodplains are composed of sediment deposited by floods.

Flora: The plants of a specified region or time.

FLPMA: Federal Land Policy and Management Act.

FONSI: Finding Of No Significant Impact.

Forage: Vegetation of all forms available and of a type used for animal consumption.

Foundation Plant Communities: Intact assemblages of native plant species that serve as sources for seed and propagation material for disturbed sites and plant community natural regeneration. Also

referred to as "remnant" plant communities, these serve as a representation of plant communities that were historically wide-spread within the Columbia Basin.

FR: Federal Register.

FTE: Full Time Equivalent.

FWS: (United States) Fish and Wildlife Service.

FY: Fiscal Year.

GCEDC: Grant County Economic Development Council.

Geological Resources: Natural features related to the form of the earth or its solid surface. Rattlesnake Ridge, the Saddle Mountains, and the White Bluffs are a few of the key geological resources of Hanford Reach National Monument.

GMA: (Washington State) Growth Management Act.

GMU: (Washington State) Game Management Unit.

Goal: A descriptive, open-ended, often broad statement of desired future conditions that conveys a purpose but does not define measurable units. (Source: Draft FWS Manual 601 FW 4)

GPL: Gravitation Physics Laboratory.

GPS: Global Positioning System.

HAB: Hanford Advisory Board.

Habitat: A specific set of physical conditions in a geographic area that surrounds an organism, a single species, a group of species, or a large community and are required by an organism for survival and reproduction. The place where and organism typically lives. In wildlife management, the major components of habitat are food, water, cover, and living space.

Habitat Diversity: Refers to the number, interspersion, and relative abundance of indigenous plant and animal species and communities. It also refers to the horizontal and vertical structure of a plant community. (Source: Draft FWS Manual 601 FW 4)

HABS/HAER: Historic American Building Survey/Historic American Engineering Record.

Hanford Islands: Hanford Reach National Monument Islands. The 13 islands in the Columbia River that are part of the Hanford Reach National Monument.

Hanford Reach: A reach is a portion or stretch of a river. The 51-mile Hanford Reach is the last free-flowing non-tidal stretch of the Columbia River in the U.S. Most of it, 46.5 miles, is contained in the Monument.

Hanford Site: The entire area, from the top of the Saddle Mountains to the top of Rattlesnake Mountain, originally acquired for the Hanford Nuclear Reservation.

Historic Conditions: Composition, structure and functioning of ecosystems resulting from natural processes that are believed, based on sound professional judgement, to be present prior to substantial human changes to the landscape. (Source: Draft FWS Manual 601 FW 4)

Historic Preservation: Includes identification, evaluation, documentation, excavation, curation, acquisition, protection, rehabilitation, restoration, stabilization, maintenance and any combination of the foregoing activities relative to cultural resources. (Source: Considering Cultural Resources)

Historic Records: Any historical, ethnographic, architectural documents, drawings and images that provide a record of the past. (Source: *Considering Cultural Resources*)

HMS: Hanford Meteorology Station.

HNRTC: Hanford Natural Resource Trustee Council.

HSS: Highways of Statewide Significance.

Hydrology: The science dealing with the properties, distribution and circulation of water.

Hz: Hertz.

IBA: Important Bird Area.

Ibid: Latin for "the same place." Here, it refers to a repetition of the preceding citation.

Impact: Synonymous with effects and includes ecological, aesthetic, historic, cultural, economic, social, or health whether direct, indirect or cumulative. Impacts may also include those resulting from actions which may have both beneficial and detrimental (adverse) effects. Impacts may be considered as direct, indirect or cumulative.

Impact Severity Rating: Thresholds used in this Comprehensive Conservation Plan for analyzing the scope, scale and intensity of effects on natural, cultural, and recreational resources. The four levels of impacts include:

Negligible: Resources would not be affected, or the effects would be at or near the lowest level of detection. Resource conditions would not change or would be so slight that there would not be of any measurable or perceptible consequence to a population, plant community, cultural resource, recreation opportunity or visitor experience.

Minor: Effects would be detectable but localized, small, and of little consequence to a population, plant community, cultural resource, recreation opportunity or visitor experience. Mitigation, if needed to offset adverse effects, would be easily implemented and successful.

Moderate: Effects would be readily detectable and localized, with consequences to a cultural resource, population, plant community level or specific recreation opportunity or visitor experience. Mitigation measures would be needed to offset adverse effects, would be extensive in nature and moderately complicated to implement; and probably would be successful.

Major: Effects would be obvious and would result in substantial consequences to cultural resources, populations, plant communities within the local area and region, or recreation opportunities and visitor experiences within the Monument. Extensive mitigating measures would be needed to offset adverse effects; would be large-scale in nature and very complicated to implement; and the probability of success would not be guaranteed. In some instances, major effects would include the irretrievable loss of the resource.

Time and duration of impacts have been defined as:

Short-term: An effect that generally would last less than a single year or season.

Long-term: A change in a resource or its condition that would last longer than a single year or season.

IMPLAN: Impact Analysis for Planning.

Improvement Act: National Wildlife Refuge System Improvement Act.

Indicator Species: A species of plant or animal that is assumed to be sensitive to habitat changes and represents the needs of a larger group of species.

Interpretation: A communication process that forges emotional and intellectual connections between the interests of the audience and the inherent meanings in the resource.

Invasive Species: Plant or animal species that tend to spread rapidly and harmfully. For example, cheatgrass invasion of native shrub-steppe displaces native species and alter natural fire regimes. Many invasive species are also noxious weeds.

IPM: Integrated Pest Management. Used to treat targeted invasive plant species on the Hanford Reach National Monument. Manual, mechanical, biological, cultural (e.g., prescribed fire, competitive plantings), and chemical treatment methods used to achieve prioritized weed control objectives. Invasive species managers draw upon the full range of appropriate control technologies to develop integrated treatment plans for target species at selected priority sites. Treatment methodologies are based upon the best information available from literature and professional experience, tailored to the characteristics of the particular species and site.

IPSIMP: Integrated Plant Species Inventory and Management Plan.

Issue: Any unsettled matter that requires a management decision, e.g., an initiative, opportunity, resource management problem, threat to the resources of the unit, conflict in uses, public concern, or the presence of an undesirable resource condition. (Source: Draft FWS Manual 601 FW 4)

ISTEA: Intermodal Surface Transportation Efficiency Act.

KOP: Key Observation Point. These are a series of locations identified to describe the Monument's visual and aesthetic resources.

KV: Kilovolt.

LIGO: Laser Interferometer Gravitational Wave Observatory.

Long-term Impact: A change in a resource or its condition that would last longer than a single year or season.

LOS: Roadway Level of Service. These are qualitative measures of road congestion that describe operational conditions within a traffic stream and take into consideration such factors as volume, speed, travel time, and delay.

Major Impact: Effects would be obvious and would result in substantial consequences to cultural resources, populations, plant communities within the local area and region, or recreation opportunities and visitor experiences within the Monument. Extensive mitigating measures would be needed to offset adverse effects; would be large-scale in nature and very complicated to implement; and the

probability of success would not be guaranteed. In some instances, major effects would include the irretrievable loss of the resource.

Management Unit: An administrative unit for refuge management purposes. Under the Preferred Alternative, the Monument is divided into six management units.

MCAS: Mid-Columbia Archaeological Society.

McNary Islands: McNary National Wildlife Refuge Islands. McNary manages six islands in the Columbia River; three are within the Monument boundary and three are adjacent; jurisdiction will be transferred to the Monument.

McRiver NWRC: Mid-Columbia River National Wildlife Refuge Complex.

Microbiotic Crust: A diminutive collection of mosses, lichens, liverworts, algae, and bacteria that form a soil stabilizing crust. Microbiotic crusts are formed by living organisms and their by-products, creating a crust of soil particles bound together by organic materials on the surface of many soil types which fills the spaces between bunchgrass clumps within shrub-steppe habitats. Also known as cryptogamic, cryptobiotic, and microphytic, these organisms serve important functions in soil stability, moisture retention, nutrient transport, and plant community stability. The names are all meant to indicate common features of the organisms that compose soil crusts.

Migratory Birds: Those species of birds that migrate from place to place, either within the United States or between countries, to complete different stages of their life cycle. These species are listed under §10.13 of 50 CFR Chapter 1 - United States Fish and Wildlife Service, Department of Interior. (Source: Draft FWS Manual 601 FW 4)

Minor Impact: Effects would be detectable but localized, small, and of little consequence to a population, plant community, cultural resource, recreation opportunity or visitor experience. Mitigation, if needed to offset adverse effects, would be easily implemented and successful.

MIST: Minimum Impact Suppression Technique(s). Used to describe methods of firefighting having the smallest environmental impacts on resources while still accomplishing fire suppression.

MIT: Massachusetts Institute of Technology.

Mitigation: Avoiding, minimizing, rectifying, reducing, eliminating, or compensating for impacts. (Source: Draft FWS Manual 601 FW 4, paraphrased)

Moderate Impact: Effects would be readily detectable and localized, with consequences to a cultural resource, population, plant community level or specific recreation opportunity or visitor experience.

Mitigation measures would be needed to offset adverse effects, would be extensive in nature and moderately complicated to implement; and probably would be successful.

Monitoring: Tracking changes of selected parameters over time.

Monument: Hanford Reach National Monument.

Monument Proclamation: Hanford Reach National Monument Proclamation, Presidential Proclamation 7319. See also "Proclamation."

MOU: Memorandum of Understanding.

mph: Miles Per Hour.

NABCI: North American Bird Conservation Initiative.

NAGPRA: Native American Graves Protection and Repatriation Act of 1991. Specifies actions to be taken by federal agencies with regard to Native American human remains, funerary objects, objects of cultural patrimony, and sacred objects. (Source: Considering Cultural Resources)

NAS: National Audubon Society.

National Register: National Register of Historic Places. Established through the National Historic Preservation Act of 1966, the register is administered by the National Park Service. It is the nation's master inventory of known historic properties, including buildings, structures, sites, objects and districts that possess historic, architectural, engineering, archaeological or cultural significance at the national, state and local levels. (Source: Considering Cultural Resources)

National Register District: As designated under the National Historic Preservation Act, a district consists of a group of archaeological sites, features, buildings, structures or landscape elements which share a similar context such as theme, location or time frame.

Native: With respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem. (Source: Draft FWS Manual 601 FW 4)

Negligible Impact: Resources would not be affected, or the effects would be at or near the lowest level of detection. Resource conditions would not change or would be so slight that there would not be of any measurable or perceptible consequence to a population, plant community, cultural resource, recreation opportunity or visitor experience.

NEPA: National Environmental Policy Act.

NERP: National Environmental Research Park.

NGO: Non-Government Organization.

NHPA: National Historic Preservation Act. Outlines historic preservation responsibilities of federal agencies. (Source: *Considering Cultural Resources*)

NHS: National Highway System.

NOAA: (United States) National Oceanic and Atmospheric Administration.

NOAA-Fisheries: (United States) National Oceanic and Atmospheric Administration Fisheries. This agency was formerly known as the National Marine Fisheries Service.

Non-native Invasive Species: Invasive species are plants and animals that are introduced into new areas in which they are not among the native flora and fauna, and because they no longer face the natural enemies or competition from their place or origin, spread or reproduce prolifically. Non-native invasive species can cause significant changes to ecosystems, upset the ecological balance, create economic disruptions, and harm plants and wildlife. Within this document the words non-native invasive species, invasives, noxious weeds, and weeds are used synonymously to represent those non-native species that persist on the Monument and increase the risk of habitat fragmentation and degradation.

Noxious Weed: A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive or difficult to manage; parasitic; a carrier or host of serious insect or disease; or non-native, new, or not common to the United States. (Source: Federal Noxious Weed Act)

NPDES: National Pollutant Discharge Elimination System.

NPL: National Priority List. The NPL is a prioritization list under the Comprehensive Environmental Response, Compensation and Liability Act.

NPS: (United States) National Park Service.

NRHP: National Register of Historic Places.

NWI: National Wetlands Inventory.

NWR: National Wildlife Refuge.

NWRS: National Wildlife Refuge System.

NWSRS: National Wild and Scenic Rivers System. Established by the Wild and Scenic Rivers Act of 1968 to protect rivers and their immediate environments that have outstanding scenic, recreation, geologic, fish and wildlife, historic, cultural, and other similar values and are preserved in free-flowing conditions. See also Wild and Scenic River.

OAHP: (Washington) Office of Archaeology and Historic Preservation.

Objective: A concise statement of what we want to achieve, how much we want to achieve, when and where we want 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 should be attainable, time-specific, and measurable. ((Source: Draft FWS Manual 601 FW 4)

ODFW: Oregon Department of Fish and Wildlife.

Ordinary High Water Mark: The line that water impresses on land by covering it for sufficient periods to cause physical characteristics that distinguish the area below the line from the area above it. Characteristics of the area below the line include, when appropriate, but are not limited to, deprivation of the soil and substantially all terrestrial vegetation.

ORV: Off-Road Vehicle.

ORV: When discussing wild and scenic rivers, an ORV is an "outstandingly remarkable value" as defined by the Wild and Scenic Rivers Act. An Outstandingly Remarkable Value is a regionally or nationally significant or exemplary scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar value associated with a river, causing the river to be eligible for inclusion in the National Wild and Scenic Rivers System. (Source: Wild and Scenic Rivers Act of 1968, paraphrased)

OSHA: Occupational Safety and Health Administration.

Overlay Wildlife Refuge: A wildlife refuge on land which is owned by one or more federal agencies but managed by the United States Fish and Wildlife Service. (Source: CLUP)

PALS: Partners for Arid Lands Stewardship.

Paleontological Resources: The preserved (fossilized) remains of plants and animals that existed in various geological periods, usually prior to human existence.

PCB: Polychlorinated Biphenyl.

Permit: A short-term, revocable authorization to use public lands for specific purposes.

PHS: Priority Habitats and Species.

PIF: Partners in Flight.

Planning Area: The area upon which the planning effort will focus. A planning area may include lands outside existing planning unit boundaries currently studied for inclusion in the Refuge system and/or partnership planning efforts. It also may include watersheds or ecosystems outside of our jurisdiction that affect the planning unit. At a minimum, the planning area includes all lands within the authorized boundary of the refuge. (Source: Draft FWS Manual 601 FW 4)

Plateau: Columbia Plateau Physiographic Province.

PMU: (Washington State) Population Management Unit.

PNCA: Pacific Northwest Coordination Agreement.

PNNL: Pacific Northwest National Laboratory.

POC: Points of Contact.

Post-contact: A time period referring to occupation of the area by Euro-Americans, usually assumed to be about 1800 in this region.

Pre-contact: A time period referring to the occupation of the land solely by Native Americans and prior to the occupation by Euro-Americans. Generally equates to approximately pre-1800 in this region.

Preferred Alternative: The alternative which the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors. The concept of the "agency's preferred alternative" is different from the "environmentally preferable alternative," although in some cases one alternative may be both. (Source: Council on Environmental Quality, 40 Questions)

Prescribed Fire: A fire ignited by management actions to meet specific objectives. (Source: Draft FWS Manual 601 FW 4) An intentionally or naturally ignited fire that burns under specified conditions that allow the fire to be confined to a predetermined area and produce the fire behavior and fire characteristics required to attain planned fire treatment and resource management objectives.

Prey Species: An animal taken by a predator as food.

Priority 1 Species (State Plants): Those taxa that are in danger of becoming extinct throughout their ranges. Populations are at critically low levels or their habitats are degraded or depleted to a significant degree. These taxa are the highest priorities for preservation.

Priority 2 Species (State Plants): Those taxa that will become endangered in Washington if factors contributing to their population decline or habitat degradation or loss continue. These taxa are high priorities for preservation efforts.

Priority 3 Species (State Plants): Those taxa that are vulnerable or declining and could become endangered or threatened in Washington without active management or removal of threats. These taxa should be important in the analysis of potential preserve sites.

PRISM: Program for Regional and International Shorebird Monitoring.

Proclamation: Hanford Reach National Monument Proclamation, Presidential Proclamation 7319. See also "Monument Proclamation."

Proper Functioning Condition: Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filtering sediment, capturing bedload; aiding floodplain development; improving flood-water retention and ground-water recharge; aiding development of root masses that stabilize streambanks against cutting action; aiding development of diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and supporting greater biodiversity. The functioning condition of riparian-wetland areas is a result of interaction among geology, soil, water, and vegetation.

Proposed Species For Listing (Federal): A species for which a proposed rule to list as endangered or threatened has been published in the *Federal Register*.

PUD: Public Utilities District.

PUP: Pesticide Use Proposal.

Purposes of the Monument: 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 national wildlife refuge or refuge subunit. (Source: Draft FWS Manual 601 FW 4)

PWC: Personal Watercraft.

Raptors: Birds of prey, such as the eagle, falcon, hawk, or owl.

RCRA: Resource Conservation and Recovery Act.

RCW: Revised Code of Washington.

Review 1 Species: A plant species in need of additional field work before a status can be assigned.

Review 2 Species: A plant species with unresolved taxonomic questions.

RMIS: (National Wildlife) Refuge Management Information System.

Riparian: Of or on the bank of a natural course of water. (Source: Webster's II Dictionary). For example, riparian vegetation includes any and all plant-life growing on the bank of a stream or the edge of, but not within, a pond or lake.

RNA: Research Natural Area. A federal land designation that establishes areas with predominantly natural conditions and processes for research and educational purposes. They may include typical or unusual plant or animal types, associations, or other biotic phenomena; and/or characteristic or outstanding geologic, soil, or aquatic features or processes. The public may be excluded or restricted from such areas to protect resource values and research studies.

ROD: Record of Decision.

RONS: Refuge Operating Needs System.

Sacred Site: As defined by Executive Order 13007, a specific, discrete, narrowly delineated location on federal land that is identified by an Indian tribe as sacred by virtue of its established religious significance to, or ceremonial use by an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site. (Source: Considering Cultural Resources)

SCBID: South Columbia Basin Irrigation District.

Sensitive Species (State Plants): A species that is likely to become endangered or threatened in a significant portion of its range within the state of Washington.

Sensitive Species (State Wildlife): Wildlife species native to the state of Washington that are vulnerable or declining and are likely to become endangered or threatened throughout significant portions of their ranges within the state without cooperative management or the removal of threats.

SEPA: (Washington) State Environmental Policy Act.

Short-term Impact: An effect that generally would last less than a single year or season.

SHPO: (Washington) State Historic Preservation Officer.

Shrub-steppe: Arid land dominated by shrubs and grasses where soil and moisture limit the growth of trees. Washington State Department of Fish and Wildlife considers shrub-steppe a priority habitat. Shrub-steppe habitats on the Monument support many rare plants.

Site: When referring to cultural resources; the location of an event, occupation or activity, building or structure or natural feature with cultural significance.

Solitude: The state of being alone. (Source: Webster's II Dictionary) Many people seek out natural areas, such as the Monument, in order to experience the feeling of solitude and to at least temporarily escape the crowds, noise, and technology of modern society.

Special Status Species: Wildlife and plant species either federally listed or proposed for listing as endangered or threatened; state-listed; or determined priority species.

Spot Treatment: The application of chemicals to control non-native invasive species directly onto a target plant, using a backpack spraying unit, hand-held wand, wick or other application device.

Step-down Management Plan: A plan that provides specific guidance on management subjects (e.g. habitat, public use, fire, safety) or groups of related subjects. It describes strategies and implementation schedules for meeting Comprehensive Conservation Plan goals and objectives and is usually subsequent, subservient and complimentary to the Comprehensive Conservation Plan. (Source: Draft FWS Manual 601 FW 4)

Strategy: A specific action, tool, technique, or combination of actions, tools, and techniques used to meet unit objectives. (Source: Draft FWS Manual 601 FW 4)

SUP: Special Use Permit.

T&E Species: Threatened and Endangered Species.

TCP: Traditional Cultural Property. A historic property whose eligibility for inclusion to the National Register of Historic Places is derived from its significant role in the traditional but often continuing lifeways of a community. (Source: Considering Cultural Resources.

TEA-21: Transportation Equity Act for the 21st Century.

TE&S Species: Threatened, Endangered and Sensitive Species.

Threatened Species (Federal): A species that is likely to become endangered in the foreseeable future.

Threatened Species (State Plants): A species that is likely to become endangered in the foreseeable future.

Threatened Species (State Wildlife): Wildlife species native to the state of Washington that are likely to become endangered in the foreseeable future throughout significant portions of their ranges within Washington without cooperative management or the removal of threats.

TNC: The Nature Conservancy.

TPA: Tri-Party Agreement. Also known as the Hanford Federal Facility Agreement and Consent Order. An agreement between the Department of Energy, United States Environmental Protection Agency, and the state of Washington on cleanup and mitigation measures for the Hanford Site.

Traditional/Religious Values: Places that possess values important to Native American tribal groups or other ethnic groups for traditional cultural or religious reasons. Traditional cultural values may not necessarily be associated with easily definable sites or objects, such as is the case with sacred peaks or viewsheds. (Source: Considering Cultural Resources)

TRIDEC: Tri-City Industrial Development Council.

Trust Responsibility: The fiduciary obligations that attach to the United States as trustee of the assets and resources that the United States holds in trust for Native American governments and their members, the treaty and statutory obligations of the United States toward Native American governments and their members, and other legal obligations that attach to the United States by virtue of the special relationship between the federal government and Native American governments. The identification and quantification of trust assets is recognized as an ongoing and evolving process. (Source: The Native American Policy of the U.S. Fish and Wildlife Service)

USC: United States Code.

USDA: United States Department of Agriculture.

USFS: United States Forest Service.

USGS: United States Geological Survey.

Vegetation Type: A classification of the plant community based on the dominant plant species in the community. (Source: CLUP)

Visitor Center: Hanford Reach National Monument Heritage and Visitor Center.

Visitor Day: Twelve visitor hours which may be aggregated by one or more persons in single or multiple visits.

Visual Resources: The visible physical features on a landscape, such as land, water, vegetation, structures, and other features.

Vision Statement: A concise statement of what the planning unit should be, or what we hope to do, based primarily upon the National Wildlife Refuge System mission and specific refuge purposes, and other mandates. (Source: Draft FWS Manual 601 FW 4)

WAC: Washington Administrative Code.

Watch List Species: A species more abundant and/or less threatened in Washington than previously assumed.

Watershed: All land and water within the confines of a drainage divide.

Watershed Function: The ability of a watershed to effectively and safely capture, store and release precipitation.

WDFW: Washington Department of Fish and Wildlife.

WDNR: Washington Department of Natural Resources.

WDOE: Washington Department of Ecology.

WDPR: Washington Department of Parks and Recreation.

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. (Source: Draft FWS Manual 601 FW 4)

WHR: Washington Heritage Register.

Wild and Scenic River: A portion of a river that has been designated by Congress as part of the National Wild and Scenic Rivers System. (Source: CLUP) In 1994 the Hanford Reach was found eligible and suitable for designation with a "recreational" classification. Recreational classifications are those "rivers or sections of rivers readily accessible by road or railroad that may have some development along their shorelines and may have undergone some impoundment or diversion in the past." (Source: Wild and Scenic Rivers Act)

Wilderness Units: Areas that have been designated by Congress as units of the National Wilderness Preservation System. (Source: Draft FWS Manual 601 FW 4)

Wildfire: An unwanted wildland fire. (Source: Draft FWS Manual 601 FW 4)

Wildlife-dependent Recreation: A use of a national wildlife refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation. The National Wildlife Refuge System Improvement Act of 1997 specifies that these are the six priority general public uses of the National Wildlife Refuge System. (Source: Draft FWS Manual 601 FW 4)

Withdrawn Lands: Lands the Department of Energy has "borrowed" from other federal agencies for its mission. (Source: CLUP)

WIU: Wilderness Inventory Unit. A portion of public land evaluated to determine its roadless character and to find the presence of wilderness characteristics. (Source: Section 2©) of the Wilderness Act)

WNHP: Washington Natural Heritage Program.

WOFM: Washington Office of Financial Management.

WPPSS: Washington Public Power Supply System.

WRIA: Water Resource Inventory Area.

WSDOT: Washington State Department of Transportation.

WSU: Washington State University.

WTP: Washington Transportation Plan.

Yakama Nation: Confederated Tribes and Bands of the Yakama Nation.

YCC: Youth Conservation Corps.

Appendix B – Comments Received During Public/Agency Review Period and FWS Responses

The FWS released the Draft CCP/EIS on December 6, 2006, for public review and comment. The initial comment period was to close on February 23, 2007, eighty days later.[178] During that initial period, requests for extensions were received from the Yakama Nation and Lower Columbia Basin Audubon Society. As a result, the FWS extended the comment period for an additional fifteen days to March 10, 2007.

During the ninety (or ninety-five) day comment period, the FWS received 308 timely comment letters.[179] These comment letters to the Draft CCP/EIS were provided to the Portland, Oregon, offices of Jones & Stokes, an international environmental consulting firm, for review and cataloging. The overwhelming majority of letters focused on four main themes—Boat Launches, Horseback Use, Hunting on Islands, and the Observatory on Rattlesnake Mountain—and comments were organized around these themes.[180] A fifth category, "Other," was included to capture all other comments not fitting within these topics. Additional, minor themes are identified within each of the five main topics.

Very few direct comments were received on the factual content of the draft. Most comments were directed at hunters' rights, access to public lands, wildlife management, etc., expressing the writer's opinion of how the Monument should be managed These comments were grouped together according to the categories discussed above. Where the opinion expressed provided some level of detail, or was based on a real or perceived fact, the FWS has provided a response. Where the comment represented solely an opinion and was not supported by any assertion, the FWS considered them in selection of the preferred alternative but did not respond to them here, other than to thank the writers for expressing their opinions and thoughts.

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[178] Due to mailing transit times and the end-of-year holidays, the comment period was more realistically seventy-five days.

[179] The term 'letters' is defined as an written correspondence received during the comment period related to the Draft CCP/EIS. Most "letters" were actually in the form of email (sixty-three). Eleven comments were submitted through the Monument's web site. Only thirteen letters were actually sent via United States Postal Service mail or through other carriers.

One problem related to the use of email, and especially the web, is that many pieces of correspondence were anonymous. As such, there is no way to verify the validity of the comment/commenter, or to clarify points made. Likewise, there is no way to distribute the final version of the plan back to those providing comments anonymously.

[180] Due to the uniformity of comments and the volume of letters received, copies of the actual letters are not reprinted here.

Boat Launches

The majority of letters received during the comment period were directed at operation of boat launches along the Columbia River. Of these, indicated a desire to continue operations as they currently exist, especially that of the White Bluffs Boat Launch.

Boat Launches – Opposed To Further Restrictions

Comments: While most letters did not provide a rationale as to why the status quo should be maintained, several writers did provide an explanation of their thoughts. Reasons included:

1) Many, if not most anglers like to fish the middle stretch of the river. Eliminating the White Bluffs Boat Launch would mean an increase in travel times, thereby impacting the fishing experience.

2) Increased travel distances would have a corresponding increase in fuel consumption, noise pollution, and bank erosion from boat wakes.

3) Closing the White Bluffs Boat Launch would increase congestion at other boat launches.

4) Closing boat launches would decrease access points for rescue operations and create undue safety issues.

5) Closing launches to motorized use would exhibit 'favoritism' to floatboaters.

6) Closing the White Bluffs Boat Launch would negatively impact handicapped and elderly boaters and could be a violation of the Americans With Disabilities Act (ADA).

7) Closing the White Bluffs Boat Launch would negatively impact the economies of communities north of the Monument.

8) Improvements made to the White Bluffs Boat Launch would create sedimentation and disturb salmon spawning habitat.

9) Closing the White Bluffs Boat Launch would close off mid-river access to anglers and other boaters who did not own, or could not afford, a jetboat.

Response: The argument that closing the White Bluffs Boat Launch would unduly impact people who own propeller or small boats is especially compelling, and the FWS revised preferred alternative reflects the need to maintain this boat launch. Likewise, the desire to limit fuel consumption, keep

noise pollution concentrated, and provide for a quality fishing experience (as opposed to spending significant time in transit) factored into this decision.

Of the other points raised:

1) It is unlikely that erosion would be impacted by any decision over boat launches, given the much larger likely impact of river fluctuations from dam operations and bank slumping from irrigation return.

2) With the understanding that other boat launches would be developed before any would be closed, it is unlikely that congestion would become a factor. Likewise, as any additional boat launches would most likely be located north of the river, there should not be any impact to communities north of the Monument.

3) As the White Bluffs Boat Launch is not currently ADA compliant, there would be no impacts to handicapped or elderly persons. In fact, replacement boat launches would be fully ADA compliant.

4) No construction of any boat launches would occur during periods when it would impact salmon spawning or other sensitive wildlife cycles (e.g., great blue heron nesting).

In short, the points raised by the boating community were compelling, and the preferred alternative has been revised to reflect both the need to retain the White Bluffs Boat Launch and provide for additional, developed boat launches in areas where boat launching is creating safety and resource concerns (see Chapter 4). However, in order to maintain a quality experience and control resource damage, there will likely be a need to develop limits to use at the White Bluffs Boat Launch.

Comments: A couple of letters expressed a desire to see the Ringold launching area remain unchanged, the reasoning being that the undeveloped area supports boat launching at all river levels.

Response: Any boat ramp constructed would be sited and designed to accommodate existing river operations.

Boat Launches – Support Additional Restrictions

Comments: Again, many letters supported alternatives that imposed restrictions on boat launches, including closure in some cases. Of the letters that provided rationale, none proposed a closure of the river to motor traffic or any elimination of all boat launches. Instead, they proposed changes to boat use, such as closing the river to motorboats two days a week or somehow limiting motorboat use. Some letters suggested that the White Bluffs Boat Launch be closed in order to provide sanctuary for wildlife.

Response: Options that control surface use of the river (eliminating boat traffic, implementing motor-free days) are not within the jurisdiction of the FWS. One option proposed that is within the FWS's jurisdiction—closure of the White Bluffs Boat Launch to provide sanctuary for wildlife. However, the FWS does not considered this to be a likely outcome of closure. The area immediately adjacent to the White Bluffs Boat Launch would likely see a decrease in motorboat use; however, as many people like to fish in this area, those traversing long stretches of the river to reach this area would generate significant disturbance in reaching their preferred fishing sites. Likewise, disturbance would increase around launches remaining open. The overall impacts to wildlife could actually be increased should there be no boat launch in the middle section of the river.

Boat Launches – Other Comments

Comments: As noted, comments on boat launches represented the majority of comments received. However, most comments were actually suggestions on how to operate and/or improve either the launches or access. These included:

1) Improving launches at Vernita, Ringold and White Bluffs into fully developed boat launches.

2) Providing launching facilities for floatboaters separate from that of motorboats.

3) Improving road access and parking facilities, and restricting use to those areas.

4) Providing permanent sanitary facilities.

5) Implementing a fee system for boat launching.

6) Providing more law enforcement presence.

7) Provide for a boat launch on the south shore of the river.

Response: Due to numerous factors—public safety, easier access for law enforcement, population increases, and resource protection concerns—the FWS believes many of these ideas could be implemented. The revised preferred alternative reflects a need to provide for better facilities (roads, restrooms, parking, the launches themselves) at all major boat launching sites. Likewise, an increased law enforcement presence is desired, funding dependent. However, although the CCP does include alternatives that consider a boat launch on the south shore, given the current state of Hanford Site cleanup and security concerns, the preferred alternative does not include a boat launch along the south shore; it would be appropriate to reconsider this option when the CCP is revised following changes in DOE operations. The question of fees will be addressed in a step down plan.

Comments: Other comments received centered around resource protection when/if construction occurs. These include consultation with rare plant botanists and cultural resource specialists.

Response: The FWS is committed to involving all experts in design and implementation of recreational facilities.

Horseback Use

Horseback riding was also a controversial topic, generating a large volume of letters. These letters were split along two lines—restricting or eliminating horseback use, or in opposition to restrictions. In should be noted that the Appropriate Uses test (Appendix H) has found that cross-country (unrestricted) horseback use is not an appropriate use of the Monument, but that horseback use on FWS roads and designated trails is an appropriate and compatible use.

Horseback Use – Oppose Additional Restrictions

Comments: Numerous letters were received in opposition to restricting horseback use on the Monument, citing a wide range of rationale. Comment letters stated that insufficient research has been conducted to prove that elimination of cross-country horseback riding from the Monument is necessary, and several letters sent citations for alternative research on the impacts of horses to public lands. Other comments stated that horseback use is less intrusive to wildlife than hiking or that cross-country horseback riding would have minimal effect on habitat relative to the existing elk population. Several letters noted that uses other than horseback riding spread weeds (i.e., shoes, tires, birds, wind, etc.). One letter stated that equestrian use is an alternative to hiking to promote the "Big 6" uses of national wildlife refuges. Others noted that horse could serve as a means to visit non-motorize areas for disabled visitors; one letter stated that limiting horseback use is discriminatory or limiting towards handicapped or elderly individuals and/or non-compliant with the ADA. Several letters requested that the ability to use stock for hunting purposes not be eliminated. Others stated that limiting horseback use to shared trails with motorized traffic is unacceptable. One letter suggested that eliminating horseback use would be detrimental to the local economy.

Response: The preferred alternative allows for horseback use on FWS roads and designated trails. As noted, cross-country (unrestricted) horseback use was found to be not appropriate under the Appropriate Uses test for the Monument (Appendix H), and as described in detail in the Horseback Riding Compatibility Determination (Appendix I). Due to the potential threats to Monument resources which could occur from unrestricted horseback riding, this activity will be allowed only on FWS roads and designated trails.

Horseback Use – Support Additional Restrictions

Comments: Most letters received on horseback use were opposed to restrictions. However, a few supported controlling horseback use. Most of these letters stated that horseback use damages vegetation and microbiotic crust, is not compatible with resource protection, and/or spreads noxious weeds, thereby increasing fire danger. Others stated that horseback use must be restricted to be consistent with Goal 7 and/or resource protection goals while others stated that horses should be limited to designated well-defined trails only.

Response: As described in detail in the Horseback Riding Compatibility Determination, when done in the appropriate manner and locations, the use of horses to support wildlife-dependent activities can be an appropriate use and compatible use on a national wildlife refuge. The preferred alternative supports this and the use of horses on the Monument, although to be compatible with resource needs, horseback use must be limited to FWS roads and designated trails (see Appendix M).

Horseback Use – Additional Comments

Comments: Although most horse-related letters discussed horseback riding restrictions, some writers provided other suggestions. One letter suggested that the FWS work with other agencies and horseback riding groups on promoting a weed-free forage and hay program. Another writer suggested a horse camp be established at Vernita or Ringold. Another requested that the trailhead off Highway 225 not be depicted on maps as it will increase hiking traffic and conflict with horseback use.

Response: These are all viable suggestions which will be addressed through development of a subsequent step down Visitor Services or Equestrian Plan.

Observatory

Comments: The second largest volume of comments received, after boat launches, was over the possible removal of the observatory on Rattlesnake Mountain. Comment letters opposed to the idea stated that the removal of the observatory was not necessary, would limit educational opportunities, particularly astronomy, and would be an unnecessary expense. Other comment letters stated that operation of the observatory has minor environmental impacts, that remote operation limits physical access but still provides educational opportunities via the internet, and that it offers tourist opportunities and the associated economic opportunities. Still other comment letters were opposed to the relocation of the observatory and stated that this action would degrade the quality of the observations as the remote location, dark skies, and elevation improved observations. One letter stated that the telescope was the largest in the state of Washington.

Letters in support of removal noted the positive impacts to natural and cultural resources (e.g., the elimination of artificial raptor perches; see Chapter 4), including restoration of native habitats and a site sacred to Native Americans in the area. Other letters favored relocation of the observatory to promote natural and tribal restoration of the area, or as a better option than demolition.

Response: The observatory is not a recommended use of the Monument (see Section 2.10.2.11 Objective 1-11: Restoration of Lithosol Habitat) and the preferred alternative reflects the actions that the FWS has identified as being in the best interest of resource protection. While the CCP notes that there would be minor environmental impacts from removal (see Chapter 4), the benefits of observatory removal and native habitat restoration outweigh these minor, temporary impacts. Alternate observatory facilities in the area (Sunnyside, Columbia Basin College) can provide education opportunities while protecting Monument resources.[181] Since the observatory is located in a closed area of the Monument where general public access is restricted, relocation of the observatory to a publically accessible location could offer opportunities to develop tourism, economic and educational opportunities.

Hunting

Hunting – Support

Comments: Many comment letters received that were in general support of hunting on the Monument. Specific ideas submitted included: 1) Implementation of a permit system to control hunting; 2) conducting all hunting as per WDFW regulations; 3) allowing the use of temporary blinds; 4) support for the current WDFW pheasant release program; 5) opening the area around the Saddle Mountain Lake for upland bird hunting; and 6) using waterfowl hunting as a means of population control. Hunting by Native American tribal members was also discussed with the idea that tribal access must be maintained according to treaty rights and that Native Americans be given a priority status related to hunting; there were also letters that did not support any special considerations for tribal members.

Response: The FWS supports hunting as a priority public use when determined compatible on a refuge-specific basis with refuge purposes and the NWRS mission. Hunting on the Monument is compatible with the purposes of the Monument and the resources to be protected (see the Hunting Compatibility Determination in Appendix I). This is reflected in the preferred alternative, which allows for the expansion of hunting should the status of lands under DOE control change.

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[181] According to the University of Washington Astronomy Department, the Rattlesnake Mountain telescope is not the largest in the state of Washington, although it is the largest of a certain, narrowly defined type.

In response to specific points, the FWS does not believe a permit system is needed at this point, although that remains an option into the future should the need arise (e.g., if there is too much hunting pressure). All hunting on the Monument is done in accordance with WDFW regulations, but the FWS must retain the option to be more restrictive to protect resources, to comply with FWS policies, or meet the purposes of the Monument. One example is the use of temporary blinds, which are allowed under WDFW regulations and on the Monument; however, blinds on the Monument may not be constructed from live vegetation in order to protect the habitats denoted in the Monument Proclamation. Likewise, the WDFW allows for pheasant releases; however, pheasant releases on the Monument are not allowed as the introduction of non-native species is contrary to FWS policy (601 FW 3.14F. and 3.16B). In other instances, FWS policy and the resource protection goals of the Monument are in perfect concert with WDFW regulations and programs. For example, under the preferred alternative, additional lands may be opened for upland bird hunting, but the lands around Saddle Mountain Lake fall within a long-standing WDFW waterfowl sanctuary and will remain closed to hunting. Additionally, in the case of waterfowl hunting, limits are established nationally in coordination with states based on a harvestable surplus and are not set by the WDFW or the Monument.

With respect to tribal hunting and access, all treaty rights will be honored. Tribal hunting will be conducted in accordance with these existing treaties, national and state laws, and DOE and FWS polices and procedures (see Section 2.3.1). As land management changes, all access and use issues will be developed as per above and in consultation with Native American tribes.

Hunting – Oppose

Comments: Several comment letters stated that hunting is incompatible with resource protection, research on the Monument, and/or the purposes of the NWRS; many of these writers also felt that hunting is morally wrong. Others would allow for hunting, but had specific suggestions on how to improve the program or protect resources, including: 1) Disallowing hunting above the ordinary highwater mark on islands; 2) not allowing the use of blinds; 3) discontinuing the WDFW's pheasant stocking program; and 4) not herding/trapping wildlife via aircraft or motor vehicle.

Response: The U.S. Congress has identified six wildlife-dependent public uses (including hunting) which are to be given special consideration in planning for and management of national wildlife refuges. When determined compatible, such uses are to be encouraged. Although some members of the public find hunting to be morally wrong, others recognize it as a traditional use of a renewable natural resource which provides the user with an enhanced appreciation for, and understanding of, fish, wildlife, plants and their habitats. The FWS manages national wildlife refuges, including associated public uses such as hunting, consistent with this congressional direction (see 16 U.S.C. 668dd-668ee). On the Monument, hunting has been found to be compatible with the purposes of the Monument and resource protection needs (see the Hunting Compatibility Determination in Appendix I); this is reflected in the preferred alternative. The compatibility determination addresses the parameters under

which hunting is compatible. These parameters include: 1) Blinds can be used as long as they are not constructed from live vegetation; 2) hunting above the highwater mark on islands is not compatible with resource protection (hunting below this point does not fall under the jurisdiction of the FWS); 3) and pheasant stocking must be discontinued as introduction of non-native species is contrary to FWS policy (601 FW 3.14F. and 3.16B). When hunting on the Monument, the use of aircraft and motor vehicles for herding/trapping is not allowed under state or federal law; however, these are accepted wildlife management methods in certain situations and under certain circumstances, and the FWS may need to use herding in efforts to control wildlife populations (see Section 2.10.1.5, Objective C-9: Wildlife Population Control).

Hunting – Other

Comments: A few comments were received that were not directly related to a position on hunting. These included: 1) a requested clarification on the meaning of the "hunting exclosure" on Map 11 (now Map 13); 2) a request to specify all hunting seasons on the Monument between September and March; and 3) a questioning of whether or not the FWS has adequate personnel to oversee a hunting program.

Response: Areas where hunting is not permitted, but other public uses are, are identified as "hunting exclosures" (this has been defined in Sections 2.9.2.4.3 and 2.9.2.4.6). At present, individual hunting seasons, bag limits, and take are defined by the state of Washington as published in the annual WDFW Big Game and Migratory and Upland Game Pamphlets. This CCP will establish the areas open/closed to hunting, although changes will first need to be codified in federal regulation. Likewise, variations from state regulations will be identified in federal regulations and, with the help of the state of Washington, in the annual WDFW game pamphlets. The specifics of hunting on the Monument are defined in the existing Sport Hunting Plan, although some modifications will likely be necessary with approval of the final CCP. This Sport Hunting Plan has already established that the Monument has adequate personnel to oversee the hunting program.

Elk Populations and Population Control

Comments: The Monument's elk herd remains a focus of controversy, mostly over the size of the elk population and its corollary depredation of field crops on farms adjacent to the Monument. Several comments received stated that herd size should be based on the carrying capacity of the Monument and that a biological carrying capacity study for the Monument and adjacent lands should be undertaken. A few letters noted that input from local landowners should be considered as to the size of the herd and that plans for herd size management should be included in all alternatives. Other writers focused on specific elk management methods, including: 1) Elk hunting should be allowed on the ALE (Rattlesnake Unit); 2) elk should be relocated if the population becomes too large; 3) government hunters should be used to cull the elk herd; and 4) hazing, baiting, or fencing should be

used as a means of elk control. Finally, a couple of letters stated that the cost to local landowners related to management of elk should be reimbursed by the FWS.

On the other hand, numerous writers did not believe the elk herd is a problem, or that it should be controlled. These letters expressed almost exactly the opposite opinions from those noted above, including: 1) Elk hunting should not be allowed on the Monument; 2) trapping and relocation are not cost or biologically effective; and 3) Government hunters should not be used to cull the elk herd.

Response: The FWS is also committed to working with the WDFW on all wildlife populations and supports the recommendations of the WDFW's Rattlesnake Hills Elk Strategic Management Plan (February 2000) and Yakima Elk Herd Plan (December 2002). These plans call for a population size of 350 or less elk in the Rattlesnake Hills Elk Herd. These plans were developed, and are revised, through a public process whereby all parties (e.g., landowners) participate in determining herd size. In support of these plans—and as good wildlife management practice—the CCP includes the full range of population control measures under each alternative, including the preferred alternative. Included within these measures are most of the suggested strategies. Although the DOE has found elk hunting for recreation is not in line with its goals for the ALE, the FWS believes an elk population control hunt could be a useful management technique in the future.[182] Relocation is a management option and is been included in the range of population control methods covered by the CCP, as has the use of government employees to cull the elk herd and fencing to control it. These are actions that the FWS could undertake and fund on the land the FWS manages. Regulations do not allow for baiting and the hazing of wildlife from federal lands. Management of elk on non-federal lands is the jurisdiction and responsibility of the WDFW.

Island Access

Comments: Access to islands in the Columbia River, both those within the Monument and several that are part of the McNary National Wildlife Refuge but addressed in this CCP, generated several letters, both in favor of keeping the islands closed and in favor of opening them to numerous uses. Several letters expressed a desire to open the islands to boaters (for the beaches) and hunters year round, while a couple of letters stated that seasonal closures would be sufficient. Respondents who acknowledged that FWS jurisdiction ends at the ordinary high water mark requested that this be made clear in the CCP and understood the closure only applies to areas above that point. Other writers wanted management of islands to be consistent between the Monument and the McNary and Umatilla National Wildlife Refuges.

Response: For reasons outlined in the CCP/EIS (see Chapters 2 and 3), the FWS has determined that the islands should be closed above the ordinary high water mark to protect natural and cultural

[182] A recreational elk hunt has been found to be a compatible use of the Monument north of the Columbia River in areas open to the public.

resources. The CCP clearly identifies island access will be maintained below the ordinary high water mark and that hunting and fishing can continue below that point. This continued closure has been coordinated with those of the McNary and Umatilla National Wildlife Refuges, and island access is consistent across all refuges, to the extent possible or practical.

Monument Access

Comments: The FWS received numerous comments regarding access to the Monument. Most of these comments were quite specific as to areas, type of access, or uses allowed. Of the general comments received, several stated public access to the Monument should be increased, while others stated that public access should not be increased. Another suggestion was that all public access and recreational activities should be guided by Goal 7. A couple of letters stated that all areas open to, or being considered for, public access should undergo comprehensive biological inventorying. One writer proposed limiting human trespass/development for wildlife preservation through a firmly established maximum number of visitors per year. Others stated that the accommodation of public use should not decrease the allocation of budget resources for conservation management, while others did not want to see any fees for use.

Response: The FWS has concluded that the Monument can support additional access to certain areas, as outlined in Chapter 2, and the preferred alternative opens additional areas, pending DOE approval under cleanup operations. All access is guided by the ten management goals identified for the Monument, although some balancing of management between the goals will be necessary; the preferred alternative strikes the balance the FWS believes is appropriate for the Monument. All areas will be subject to some form of monitoring, even if it is only observation by professional biologists; monitoring is a component of all resource management goals under all alternatives.[183] At this time, demands and impacts on resources are not sufficient to warrant imposing use limits. The FWS will monitor public use, and should use levels reach a stage where resources are being unduly impacted, the FWS will work with the public and local governments to implement appropriate protections. While protection of Monument resources is paramount, providing for public use and enjoyment of the Monument is also important. The FWS believes the preferred alternative does the best job of balancing public use with resource protection. At this time, no fees are being planned. However, this could change for operation and maintenance of certain facilities (i.e., fee demonstration site).

Comments: Among areas with access specifically identified:

1) Keep access to the top of Saddle Mountain.

2) The entire Wahluke Slope should be open to public access.

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[183] The more administrative resources available, the greater the extent of inventorying and monitoring possible. The FWS will have to make informed trade-offs with limited budgets and staffing.

3) Open access to the Benton County side of the river.

4) Rattlesnake Mountain should be open to public access. A variation of this comment was that the McGee Ranch (west end of the Rattlesnake Unit), including the Umtanum Ridge, should be open to public access.

5) Public access of the Riverlands area (the area immediately adjacent to the Columbia River south and west of the Vernita Bridge) should be allowed to continue, including designated roads and trails. The Vernita area west of State Route 240 should be open to public access.

6) Provide road, trail and/or boat access to B Reactor.

Response: In the same order as presented above.

1) Access to all of Saddle Mountain is provided for in the preferred alternative.

2) The preferred alternative opens the entire area to some form of public access, pending DOE release of areas from safety considerations.

3) The preferred alternative calls for limited, controlled access, budget and agency resources permitting. As the DOE releases lands for possible public access, the FWS will work with the DOE to provide appropriate access.

4) The FWS has determined that the entire Rattlesnake Unit should be closed to unrestricted public access due to resource concerns, as outlined in Chapter 2.

5) Currently, there are no designated trails in the area; all trails are 'social' trails. The DOE has determined that the area on the south side of the river should be closed due to security concerns, and the CCP reflects that decision. The area on the north side of the river is open and would remain so under the preferred alternative (see Chapter 2 for specific details).

6) Should the B Reactor become a publically accessible resource, the FWS will work with the DOE and other agencies (e.g., NPS) to ensure proper access.

Comments: Among the type of access specifically identified:

1) Off-road vehicles should be restricted on the Monument.

2) Only allow low-impact recreational activities.

3) Any management plan selected must be compliant with the Americans with Disabilities Act.

Response: In the same order as presented above.

1) The Monument Proclamation prohibits motorized and non-motorized off-road vehicles.

2) For the most part, the CCP is centered around low-impact activities. However, in accordance with the concepts behind Alternative C-1 (the preferred alternative), certain areas will have high concentrations of use (e.g., around boat launch areas). This is in order to minimize impacts elsewhere.

3) Implementation of the CCP will be in compliance with the ADA, although many of the finer details will not emerge until subsequent stepdown plans are written.

Comments: Among the uses allowed in certain areas specifically identified:

1) The road from the observation point across the White Bluffs should remain open for non-motorized use.

2) Limit access to Rattlesnake Mountain for educational or maintenance only.

3) Open access to Saddle Mountain Lakes for recreational fishing.

Response: In the same order as presented above.

1) The road will remain open as long as the road remains safe for public access.

2) Due to resource concerns, the preferred alternative limits public access to guided tours, conducted by either the FWS or FWS-trained docents.

3) The Saddle Mountain Lakes are managed by the BOR as a valid existing right. The FWS will work closely with the BOR to evaluate public use and access (e.g., fishing) on the Saddle Mountain Lakes. If it is determined that fishing can be safely conducted, and in accordance with DOE releases of lands to other uses, the BOR and FWS may allow fishing in the Saddle Mountain Lakes.

Trails

Comments: As already evidenced, access to the Monument generated by far the greatest interest and number of comments. While most of these were over boat access, numerous comments addressed trails. Some writers would like to see a wide variety of trails and trail uses—hiking, trail running,

mountain biking, and snowshoeing trails.[184] Other comments were focused on specific trail locations: 1) Along Rattlesnake Ridge from Horn Rapids to the Vernita Bridge; 2) along the crest of the White Bluffs traversing the entire Hanford Reach; 3) from the White Bluffs Boat Launch to the Saddle Mountains crest; and 4) interpretative trails at the Saddle Mountain Overlook and Rattlesnake Mountain. Several writers stated that trails on the Monument should be part of a larger interconnected "trail system."

While most of the comments received were in support of trails, there were a few that wanted limitations, or had concerns over resource protection. Comments ranged from the idea that expanding the hiking trails is excessive and not compatible with protecting resources to allowing for trails but limiting them (and all uses) to one side of the Columbia River. Others were focused on specific trails: One writer thought that a proposed trail corridor on the McGee Ranch (Rattlesnake) Unit may be too close to the endemic plant Umtanum desert buckwheat population and that a proposed trail(s) in the Hanford Dunes area may negatively impact the state's largest population of gray cryptantha. In any event, this writer stated that all trails should be developed in consultation with rare plant biologists and herpetologists.

Response: The preferred alternative allows for development of trails systems.[185] However, the exact location, number, design, etc., will be part of a subsequent Visitor Services Plan, not the CCP. The step down planning process will involve the public and existing plans, such as Benton County's Trail Plan, in identifying the appropriate trail configurations and uses. This includes the possibility of one or more trails on the Rattlesnake Unit and interpretive trails there and throughout the Monument. All of the Monument's trails will be designed with the idea of tying into other trail systems (e.g., Benton County, state of Washington) where feasible, appropriate and compatible.

The FWS has concluded that trails can be developed which allow for public use while protecting Monument resources, as analyzed in Chapter 4. While most trails would be on the north side of the river, due to most open areas being on that side, where appropriate and possible, trails on the south side of the river would be considered. For example, a trail through a portion of the Hanford Dunes area would allow the public to enjoy this unique resource. All trails would be sited in environmentally acceptable locations through development of a step down Visitor Services Plan. This includes protection of all rare or sensitive plants and animals. To help ensure this protection, trail development would be a public process, and all appropriate experts would be consulted.

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[184] Trail running is not an appropriate use of national wildlife refuges.

[185] The Monument Proclamation prohibits off-road biking; biking is only allowed on roadways. Certain roadways will be incorporated into the Monument's trail system.

Motorized Road Access

Comments: While few letters focused on motorized access to the Monument, those that did had specific ideas about that access. Among those comments was that there should be automobile access to the top of Rattlesnake Mountain, the Hanford Dunes, and to parts of the Monument's interior for the elderly. On the other hand, a few writers felt that motorized access (including helicopters) should be limited throughout the entire Monument. Another writer wanted to see the road between the locked gates (north of the Ringold Fish Hatchery, upstream of the Hanford Ferry landing) be reconstructed to complete the road east of the Columbia River, allowing for loop travel.

Response: Due to resource and public safety concerns, as outlined in Chapter 2, the FWS and DOE do not intend to open the Rattlesnake Mountain Road to general public access. Resource concerns also are also the reason that the FWS does not propose to open motorized access into the Hanford Dunes. However, access to a hiking trailhead in the Hanford Dunes is a possibility (to be addressed in a step down plan), pending DOE and Energy Northwest concurrence on public safety issues. Most of the available roads within the Monument's interior are open to use under the preferred alternative; the FWS is limited to additional motorized access by the current road configuration.

The FWS believes, as addressed in Chapter 4, that some level of motorized access is possible while still protecting Monument resources. The preferred alternative, which provides for essentially the current levels of road access, will be sufficient to provide public access while first protecting resources. All aircraft are limited to a 1,000 floor over the Monument by the FAA.

Due to safety concerns (over the current landslide location), budget constraints (for moving the road), and resource protection needs, the preferred alternative recommends continuation of the current situation, where access between the locked gates on the Ringold River Road through the area is by foot, horseback, or bicycle. Currently, all but the three miles between the locked gates are accessible by automobile, including for those with limited mobility.

Camping

Comments: Several letters discussed camping on the Monument, ranging from not allowing camping to providing spaces for recreational vehicles. A couple of letters identified specific locations for campsites—including the Hanford Dunes, along Highway 24, at the Ringold and Vernita boat launch areas, and at Sacagawea State Park[186]—while others wanted camping throughout the Monument. However, the vast majority of letters related to camping for floatboaters. While a couple were opposed to the idea, or wanted the sites open to all boaters, most of these letters wanted floatboater campsites

[186] Sacagawea State Park is not part of this CCP and is not near the Monument.

midway along the Hanford Reach. Specific ideas presented included limiting camping to a few days at a time and the establishment of a permit system.

Response: The FWS thoroughly considered allowing camping on the Monument. However, other than camping for floatboaters due to public safety concerns, camping was not found to be an appropriate use of the Monument (see Appendix H). Specifically, camping is not conducive to resource protection needs. There are also numerous other camping opportunities in the vicinity of the Monument.

The one exception to camping on the Monument is in support of floatboating, which in turn is supportive of several "Big 6" wildlife-dependent activities. If funding becomes available, such facilities could be provided in order to accommodate family-oriented wildlife-dependent recreation and to provide for public safety. The entire Hanford Reach often cannot be traversed safely in one day, especially by families.[187] Without providing for a limited number of reservation-only campsites for floatboaters, an entire segment of the public would be excluded from boating on the river. All use would be at designated sites, allocated through a lottery/permit system, and be for one night only to provide for public safety. This option is included in the preferred alternative.

Other Comments

Although most of the comments received were focused on the topics already addressed, the public, Native American tribes, and other agencies provided comments over a broad range of topics.

Other Recreation and Recreation Facilities Comments

Comment: Recreational opportunities should not be restricted on the Monument.

Response: As noted elsewhere, resource protection is the primary responsibility of the FWS. All public uses must be appropriate and compatible with protection of resources (see Appendices H and I).

Comment: The forms and locations of recreational activities should be compatible with high standards of resource protection.

Response: By FWS policy, recreation activities must be found appropriate (Appendix H) and compatible (Appendix I) with the purposes of the Monument before lands can be open to such uses.

[187] Powerboat users can safely access and exit the Monument within one day.

Comment: Dogs should be allowed off-leash.

Response: Dogs allowed off-leash, and not in support of a wildlife-dependent activity (e.g., hunting), was found to be not appropriate under the Appropriate Uses analysis (see Appendix H) and are not consistent with resource protection.

Comment: Sporting dog field trials should be allowed.

Response: Most of the activities associated with field dog trials have been found to be either inappropriate or incompatible with Monument purposes, for example, off-trail horse use, camping, use of non-native species (see Appendices H and I).

Comment: Several suggestions were made to improve recreation:

- Provide sufficient receptacles for litter control in any area of frequent public access.
- Include an unmanned interpretive center at the Vernita Rest Area.
- There should be fewer interpretive signs and trails.

Response: Details like this will be addressed in step down plans, such as a Visitor Services Plan. These comments will be retained for consideration at that time.

Comment: The number of parking areas should not be reduced. Closure of the Ringold parking lots would not reduce maintenance costs.

Response: Several parking lots are underutilized and create avenues for the spread of noxious weeds, as well as causing the need to expend funds that could be best used elsewhere. The closure of two little-used parking lots in the Ringold Unit—none providing boat access—will help reduce maintenance costs and the spread of noxious weeds. Additional parking facilities will likely be constructed in other areas to accommodate public use.

Comment: The size of the parking areas should be increased to accommodate trucks with horse trailers.

Response: This is a detail best addressed in either a Visitor Services or Equestrian Plan.

Comment: Revise map 20 to show the Yakima River and boat launch sites along the river, including Benton City, Horn Rapids Park, Snively Road and Hyde Road.

Response: Due to boat passage impediments along the Yakima River, the FWS does not believe the suggested map modifications are warranted. Map 20 reflects the boat launches that are typically used to access the Hanford Reach.

Comment: The Hanford Reach should be included in the Columbia River Water Trail System.

Response: The FWS has taken tentative first steps to have the Hanford Reach be recognized as a water trail.

Comment: Scientific research should have priority over recreation.

Response: The FWS believes both research and recreation are important and can be accommodated on the Monument. Scientists will have areas like the Rattlesnake Unit to conduct research by permit, while public use can be provided for elsewhere. That does not mean that any use is exclusive of another in any area. For example, research, especially that benefitting the Monument, can be conducted anywhere on the Monument, while limited public use will occur on the Rattlesnake Unit.

Comment: Section 4.13.1.3 acknowledges an increased risk of vandalism on utility facilities associated with those alternatives providing trail and boat launch facilities (page 4-184). However, no measures to mitigate this adverse effect are proposed. We suggest considering the location of utility infrastructure when planning visitor facilities, similar to the proposed best management practices for avoidance of sensitive resources described in Section 4.0.1.2.1).

Response: The change has been made.

Staffing, Budgets and Administration

Comment: Adequate staff and budget should be provided to ensure protection of resources.

Response: The FWS has developed staffing plans to meet the objectives of each alternative (see Chapter 2). The FWS believes the identified staffing levels would provide for public use while protecting the Monument's resources. However, these are optimum staffing levels; near-future budget projections suggest it is unlikely that such levels could be reached for several years.

Comment: Funding should be adequate to meet environmental, safety and staffing needs and to monitor open and closed areas.

Response: The FWS agrees. However, there are many equally important national priorities competing for funding. Staffing is a function of funding, which is a function of the congressional appropriation process. However, if it is believed an area cannot be adequately managed to protect resources with existing staff, by policy it would be closed to public use. At this time, the FWS believes it has adequate staff to keep various areas of the Monument open to public use.

Comment: There should be increased patrols of the Monument and the implementation of fines for those who violate the rules.

Response: The staffing chart in Chapter 2 reflects a desire for additional law enforcement personnel, and if funding becomes available, staffing would be increased. Fines are set by federal and state laws and policies.

Comment: The staff should include a geologist.

Response: If the writer is referring to the current staff, funding and other concerns do not allow for a geologist at this time. If the writer is referring to the future as envisioned by the CCP, most alternatives include a geologist (see the staffing chart in Chapter 2), including the preferred alternative.

Comment: The administrative offices should not be relocated.

Response: In line with national and regional needs and cost-savings, the office will be relocated to Burbank, Washington (McNary National Wildlife Refuge).

Geological and Paleontological Resources

See also specific geological comments at the end of this appendix.

Comment: The CCP/EIS does not adequately address the geologic and paleontologic resources.

Response: The writer did not provide additional rationale around which to respond further.

Comment: Numerous papers exist for additional information on geologic resources. These should be included in the CCP.

Response: The Monument Proclamation identified the geologic resources that must be protected. The CCP addresses those resources and their protection, albeit at a landscape scale. The additional information provided will be retained to be used in step down plans that specifically need that level of detail.

Comment: The slumping of White Bluffs is due to excess irrigation water diverted to ponds and unlined canals behind the bluffs.

Response: While this is likely the cause (see Chapter 3), until additional studies are conducted, the exact cause, and likely remedies, cannot be fully determined. This issue has been determined to be outside the scope of this CCP/EIS.

Comment: The CCP should include a plan for protecting the White Bluffs from landslides.

Response: Landslides are a serious problem, and a comprehensive study by the USGS has been recommended. As noted elsewhere, this issue has been determined to be outside the scope of the CCP process.

Comment: Daily fluctuations of river levels exacerbate bank erosion at Locke Island.

Response: While this is likely occurring, issues related to management of the Columbia River system are outside the scope of this CCP and are addressed through other means (see Chapter 3).

Invasive Species and Noxious Weeds

Comment: The FWS needs to work with partners (local organizations, counties, etc.) on an appropriate noxious weed control program.

Response: The FWS already does this, and every alternative in the CCP includes objectives to expand these partnerships and programs.

Comment: Insufficient response to invasive species may result in irreversible harm to resources.

Response: The FWS agrees and will continue to implement the IPSIMP.

Comment: The costs to local landowners of noxious weed and fire control should be reimbursed by the FWS.

Response: By law and policy, all federal landowners must be involved in noxious weed management, including the FWS. The FWS will follow all regulations to meet its obligations concerning noxious weed management. The FWS has existing management plans to control noxious weeds and fire; the public was involved in their development and will be invited to provide input on future revisions.

Fire Management

Comment: Authorize fire protection to protect the lives and property of those who live and work around the Monument.

Response: The FWS works in partnership with numerous local fire programs and agencies to protect life and property.[188] The FWS and partners will undertake all reasonable measures to protect the public and property.

Comment: The FWS should review and revise the Fire Management Plan sooner than five years.

Response: The FWS Fire Management Plan is a living document and is subject to change and modification within the five years.

Comment: Fire breaks should be created along all roads.

Response: All roads are considered firebreaks. In addition, most Monument road rights-of-way are treated (e.g., mowing, spraying) to widen the fire break and enhance fire protection. Most public highway rights-of-way through the Monument are disked to enhance fire protection.

Comment: Retain water collection/pumping facilities at the foot and/or summit of Rattlesnake Mountain for fire/life protection.

Response: The existing water storage on the Rattlesnake Unit will be maintained.

Comment: Include impacts to special status species resulting from fire prevention and fire fighting activities.

Response: These impacts are addressed in Chapter 4, albeit briefly. They are considered at greater length, appropriately, in the existing Fire Management Plan, and they will be further addressed when the plan is revised.

Biological Resources and Management

See also specific comments of the WDNR at the end of this appendix.

Comment: The FWS should complete a biological inventory of the entire Monument and develop a related monitoring plan.

Response: TNC completed a biological inventory and analysis of the Hanford Site, published in 1999. The FWS and TNC have continued to build on this inventory since that time and will continue to do so into the future. All management goals and alternatives, including the preferred alternative, include a monitoring component.

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[188] FWS policy mandates that the first priority in firefighting is to protect firefighters and the public. The FWS is not authorized to combat structural fires.

Comment: Monitoring of rare or sensitive species on islands, in the riparian areas of the Columbia River Corridor Unit, and on the Hanford Dunes should be conducted. Of special note, the White Bluffs bladderpod should be monitored on the Wahluke Unit to determine the response of the plants to management actions.

Response: Monitoring of rare plant and animal species will occur throughout the Monument, possibly as a cooperative effort with other agencies and groups. Monitoring of the White Bluffs bladderpod will continue; current plans indicate monitoring every three to five years. The most recent monitoring was completed in 2007.

Comment: The source for rare plant occurrences should be referenced.

Response: The FWS has repeatedly listed the WNHP, TNC, PNNL and FWS as the source for the status of rare plants within the Hanford Site. If the commenter was referring to some other usage, insufficient detail was provided to make changes to the CCP.

Comment: Restoration of riparian structure and function affords a high "payoff" in habitat value, and this restoration should be considered under all alternatives.

Response: All alternatives provide for riparian restoration. The differences are in the level of annual restoration efforts.

Comment: Clarify if riverine emergent wetland species are more significant than upland species on page 2-56.

Response: The FWS assumes the writer is referring to the protection of rare plant populations. If so, the FWS has an obligation to protect rare plant populations wherever they are found on the Monument, and one area is not more important than another.

Comment: The CCP/EIS does not adequately address fishery resources.

Response: The writer appended several pages of technical data on the Columbia River fishery that were submitted to other FWS offices that are directly involved in management of fishery resources. As the Monument does not have direct management responsibility over the Columbia River or the fishery, the facts presented are outside the scope of the CCP and are best addressed through these other offices and programs.

Comment: Avoid the use of "listed" when pertaining to species of concern.

Response: The CCP has been amended to reflect this, except where common word usage indicates otherwise.

Comment: The use of the word "severely" with regard to Chinook spawning habitat impacts is unfounded and conflicts with acknowledgment of healthy habitat later in the same sentence.

Response: The FWS cannot find this reference within the CCP/EIS.

Comment: The CCP should acknowledge that the FWS signed the Hanford Reach Fall Chinook Protection Program Agreement; add the FWS and Yakama Nation as signatories to the Hanford Reach Fall Chinook Protection Program Agreement in the footnote on page 3-72.

Response: The CCP has been amended to reflect this.

Comment: Add an objective to work with Mid-Columbia Hourly Coordinating Group on any proposed changes to river flow operations.

Response: There are no proposed changes to river flow operations resulting from this CCP.

Non-treaty Valid Existing Uses

Comment: The water pumping and transmission systems within the Monument must not be negatively affected by Monument management or operation.

Response: The systems related to the BOR's Columbia Basin Project are considered a valid existing right under the Monument Proclamation; the systems on the Monument will not be negatively impacted.

Comment: No closures are required to protect transmission towers from climbing or trespass.

Response: The CCP/EIS does not suggest that any closures are needed to avoid climbing on transmissions towers. Nor is trespass a problem in and of itself requiring any closures. However, protection of sensitive transmission equipment—a valid existing right under the Monument Proclamation—may be needed in certain areas, at certain times, and/or under special circumstances.

Comment: Allow operation of new or modified facilities at the 400 Area.

Response: The CCP would not impact the DOE operations in the 400 Area.

Comment: Evaluate the existing wells for potential use.

Response: Due to public safety concerns, the FWS does not have any plans to use any of the existing wells; most "wells" are actually water quality monitoring facilities. Furthermore, most of the wells

that currently exist are located in the Rattlesnake Unit or on DOE lands within the river corridor on the south shore, which are closed to general public use.

Issues Outside the Scope of the CCP

Comment: Any plans for the Monument must not impact payments in lieu of taxes (PILT).

Response: The FWS is not aware of how any portion of the CCP would impact PILT. At this time, the only action that the FWS is aware of that may impact PILT would be a change in land ownership, which is outside the scope of this CCP.

Comment: The Black Rock Reservoir may affect water levels in the Hanford Reach.

Response: Black Rock Reservoir, like all river flow issues, is outside the scope of the CCP and will be addressed through other processes and divisions of the FWS.

Comment: The EIS does not adequately address hazardous material contamination or cleanup.

Response: This issue is outside the scope of the CCP, is under the purview of other agencies, and has been—and is being—addressed through other processes and procedures.

Boundaries

Comment: The EIS should address the areas that have been cleaned up and might be included in the Monument in the future.

Response: At this time, there are no plans to expand the national wildlife refuge,[189] and the future land disposition plans of the DOE are unclear; the CCP only addresses lands within the Monument. Should additional lands be considered in the future, additional or supplemental NEPA coverage would be needed. Likewise, the CCP would be supplemented at such time as appropriate.

Comment: Boundary issues at the Horn Rapids Enclaves needs to be resolved.

Response: The Horn Rapids Park is not part of the Monument, and therefore any issues related to the park are outside the scope of this CCP.

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[189] The Monument can only be expanded by the President or Congress. However, it must be remembered that the Monument is also a national wildlife refuge, and the FWS could undertake management of additional lands as part of the NWRS.

Comment: Denote private boundaries more distinctly on mapping, fence boundaries, and areas that are susceptible to frequent trespass.

Response: Details on signing and public information will be addressed in either a Visitor Services or Signing Plan. This comment will be retained to be addressed at that time.

Cultural and Archaeological Resources

Comment: The CCP does not adequately address the risk to cultural/archaeological resources.

Response: The FWS acknowledges that specific details concerning cultural resource management are lacking from the CCP. This is by design; the FWS has identified the creation of a cultural resources management plan as a top priority. This step down plan will provide specific management direction for all cultural resources.

Comment: The White Bluffs Ferry Landing should be preserved as an historical monument for families impacted by the Manhattan Project.

Response: Under the preferred alternative, the FWS has no immediate plans to alter the landing. If, at some point in the future, it becomes necessary to make modifications to the landing to accommodate public use, the FWS will make every reasonable effort to be sensitive to the needs of earlier inhabitants of the area.

Comment: Historically significant structures such as the B Reactor and the old Hanford School should be preserved.

Response: The FWS supports the preservation and interpretation of these and other structures related to the Manhattan Project. However, these structures are outside the Monument boundaries, and the FWS has no management responsibilities for them.

Comment: It is stated that five to fifteen archaeological sites and historic structures should be inspected semi-annually. Why 5-15, and how has this number been determined? Does this mean, for example, that two buildings and three archaeological sites will be inspected? Without some explanation, this figure and recommendation seem entirely arbitrary. It also implies that only 5-15 sites merit inspection, while there are other known archaeological sites and historic properties worthy of yearly inspection.

Response: The number was based on the best professional judgement of a staff archeologist as to what could realistically be accomplished given funding and time limitations. The FWS does not consider one site inherently more important than another. Additional detail and identification of sites will be provided in a subsequent step down Cultural Resources Management Plan.

Comment: The bibliography does not show consultation of major historic properties documents prepared for Hanford (Harvey and Battelle).

Response: The Literature Cited (Appendix T) only lists documents and sources the FWS used in preparation of the CCP. It is not intended to be a bibliography and was mistakenly noted as such in the Draft CCP; the correction has been made.

Tribal Issues

Comment: The CCP/EIS does not adequately address tribal treaty rights.

Response: The CCP is very clear—and states it numerous times—that existing treaty rights will be honored in accordance with FWS policy.

Comment: The final CCP/EIS should include the process used to consult with affected tribes, outcomes of such consultations, and how tribal issues were addressed.

Response: Tribal consultation is addressed in Chapter 5.

Working With Others

Comment: There should be opportunities for volunteers to be involved with managing/ maintaining the Monument.

Response: The FWS will continue to make extensive use of volunteers.

Comment: The FWS should include the Ice Age Floods Institute as a consulting organization.

Response: The FWS provided for extensive public involvement in the development of this CCP, including the opportunity for all organizations to be involved. The FWS will continue to partner with the Ice Age Floods Institute on other projects (e.g., Hanford Reach Heritage and Interpretive Center, Columbia National Wildlife Refuge, development of interpretive trails).

Comment: Combine the second and third visual impacts strategies to read: "Seek cooperation with those agencies carrying out projects and activities within the Monument to develop design standards and guidelines for structures and utilities to be built that would minimize visual impacts to the Monument."

Response: The second strategy has been modified to reflect the desire of the FWS to work in cooperation with affected organizations in developing design standards.

Comment: The FWS should work with the BPA on the Implementation MOU agreed upon in the Letter of Agreement dated March 31, 2005.

Response: Until an ROD has been signed for this CCP, the FWS does not have final direction on what to implement. Following the ROD, the FWS will be in a position to work on the MOU.

Comment: Clarify the roles and responsibilities of other entities outside of the FWS and DOE.

Response: Other agency roles have been defined to the extent needed for the CCP.

Comment: The ACOE identified a specific office to discuss partnerships related to management of fish and aquatic habitat.

Response: The FWS thanks the ACOE for its offer and will pursue this offer as appropriate.

Comment: Clarify if "jurisdiction" means "authority" on the Monument.

Response: These terms have been defined in the glossary.

Comment: Section C.1.3 does not include a discussion of Section 404 of the Clean Water Act (page C-5), nor Section 10 of the Rivers and Harbors Act. Please be aware that Fish and Wildlife Service may be required to obtain a Department of the Army permit for some types of activities described in the CCP/EIS (e.g., boat launches).

Response: The FWS is fully aware that permits under either act may be necessary for construction activities within waters of the United States. Section C.1.3 has been changed to mention these acts.

Specific Editorial Comments

The ACOE suggested the following editorial corrections:

- Section 1.10.3, first paragraph: Use of the term, "cultural artifacts" is misleading. It should state, "The historic buildings and structures, including industrial and operational artifacts, associated with the Manhattan Project . . ." **(Correction made.)**

- Section 2.10.6.4: Change "National Register of Historic Sites" to "National Register Listed and Eligible Properties." **(Correction made.)**

- Section 2.10.6.4, Rationale and Strategies: This paragraph is confusing where it states that the site has experienced, "the removal of nearly all historical structures." It would be better to reword to, "Since many historic properties have been removed over time, those that remain,

including buildings, structures, and historic and prehistoric archaeological sites should be fully evaluated for National Register eligibility." **(Correction made.)**

- Section 3.20.3: This Section is inappropriately titled. It should be "National Register Listed and Eligible Properties." **(Correction made.)**

- The explanation of "historic districts" is somewhat misleading. An historic district is a catch-all term for concentrations of resources—prehistoric archaeology, historic archaeology, historic buildings, historic structures, objects, landscapes, etc. The Monument has several National Register listed historic districts, most of which are archaeological in nature. **(No correction necessary.)**

- Page 3-194, top paragraph: It states that 127 sites have been evaluated. It should be clarified whether all of these 127 sites/properties are considered eligible for listing in the National Register, or whether only some of these 127 sites are considered eligible. Are there known to be other eligible sites and districts, beyond the known 127 sites? **(The CCP has been rewritten to attempt to clarify.)**

- Page 3-194: Where it says, ". . . all of which are archaeological in nature and most of which comprise several sites." Again, this is confusing. By its nature, historic districts are composed of individual sites. **(No correction necessary.)**

The WDNR suggested the following editorial corrections:

- Page 2-56: This section should perhaps also cite Caplow, F. 2003. Studies of Hanford Rare Plants, 2002. Washington Department of Natural Resources Natural Heritage Report 2003-04. Prepared for the Washington Office of The Nature Conservancy. **(Correction made.)**

- Caplow and Beck 1996 and Soll and Soper 1996 are cited but not included in the Bibliography in Appendix R. **(Correction made.)**

- Page 2-57: Reference is made to seventeen unusual taxa, but not indicated what these are, or the source of this designation. **(Correction made.)**

- Caplow and Beck 1996 are cited but not included in the Bibliography in Appendix R. **(Correction made.)**

- Soll 1999 is cited but is not included in the Bibliography in Appendix R. Possibly means Soll et al. 1999. **(Correction made.)**

- Page 3-39 (bottom paragraph): Cottonwood is described as non-native. Some species are non-native, but black cottonwood is native and an important riparian tree. **(Correction made.)**

- Page 3-40: Should Beck and Caplow 1996 be cited here? **(No correction necessary.)**

- Awned halfchaff sedge is the common name used in the text on page 3-58 for *Lipocarpha aristulata*; on pg. 3-55 and in table 3.1 it is called *Aristulate lipocarpha*. **(Correction made.)**

- Rattlesnake Mountain milkvetch is the name used for *Astragalus conjunctus* var. *rickardii* on page 3-57, called basalt milkvetch in Table 3.1. **(Correction made.)**

- *Populus trichocarpa* is now named *Populus balsamifera* ssp. *trichocarpa*. **(Correction made.)**

- *Agropyron spicatum* is now named *Pseudoroegneria spicata*. **(Correction made.)**

- Page 3-41: *Oenothera caespitosa* ssp. *caespitosa* (not var.). **(Correction made.)**

- Page 3-41: *Ericameria nauseosa* rather than *Chrysothamnus*, *Chrysothamnus* is still used for *C. viscidiflorus*. **(Correction made.)**

- Page 3-41: *Achnatherum hymenoides* rather than *Oryzopsis*. **(Correction made.)**

- Page 3-41: *Hesperostipa comata* rather than *Stipa*. **(Correction made.)**

- *Hypericum majus* is called Greater Canadian St. John's wort in Table 3.1, but just Canadian St. John's wort on page 3-59. Either one is okay, but since the list is alphabetical by the first word, it makes it hard to cross reference the table and the text. **(Correction made.)**

- Page 3-42: *Poa secunda* rather than *Poa sandbergii*. **(Correction made.)**

- As noted elsewhere, *Physaria* is now recognized as the genus of what was formerly regarded as *Lesquerella*. **(Correction made.)**

- Page 3-55: Now, with the addition of *Gilia leptomeria* to the state threatened list, there are twelve species listed in Washington as threatened or endangered. **(Correction made.)**

- Page 3-56: Could reference source of this information about rare plant occurrences. **(No correction necessary.)**

- Page 3-57: Caplow and Beck 1997 cited, but not in the bibliography. **(Correction made.)**

- Page 3-58: Newcomb 1958 and Lindsey 1994 are cited but are not in the bibliography. **(Correction made.)**

- In the species treatments on pages 3-58 to 3-69, the information is presenting in a variety of formats and orders. For example, the state status may be at the beginning of the treatment or at the end, and various terms like "listed," "considered," or "is" are used. While consistency of presentation may sound repetitive, it would make it much easier to find specific information. **(No correction necessary.)**

- Barnaby 1989 is cited but not in the bibliography in Appendix R. **(Correction made.)**

- Hitchcock et al 1973 should be Hitchcock and Cronquist 1973 (Hitchcock et al was a different publication, published in 1969). **(Correction made.)**

- Middle of the page, sensitive does not need to be capitalized. **(Correction made.)**

- Page 3-63: Gray cryptantha is also a federal species of concern. **(Correction made.)**

- Page 3-63, last paragraph: The status in parenthesis is not done anywhere else and probably not necessary. **(Correction made.)**

- Page 3-64, under Loeflingia: (Hickman ed. 1993) is (Hickman 1993) elsewhere. **(Correction made.)**

- Page 3-64, The Oregon Natural Heritage Program 1993 is cited but not in the Bibliography. **(Correction made.)**

- Page 3-66: As noted elsewhere, sand gilia is now Washington state threatened. **(Correction made.)**

- Page 3-67: Shining flatsedge is no longer on the Washington sensitive list. It is on the watch list. **(Correction made.)**

- Page 3-69: Toothcup is lowland toothcup in Table 3.1. **(Correction made.)**

- Page 3-90, Table 3.3: In some rows the column formatting is out of line. **(Correction made.)**

- The WNHP has just completed its 2007 rare plant list revision, and one species found at Hanford, *Gilia leptomeria*, has been elevated to state threatened status. **(Correction made.)**

- A name change for White Bluffs bladderpod: *Lesquerella tuplashensis* is currently named *Physaria tuplashensis* on the WNHP list. **(Correction made.)**

- Page 3-92, Table 3.5: Washington State does not have a designation of "Species of Concern," and to use that term here may cause confusion with the FWS designation. It would be explicit to call the table "Sensitive, Watch, and Monitor List Species," or "Special Status Species," as the following section is called, would be fine. Should this table be in section 3.12? **(Correction made.)**

- Page 3-92, Table 3.5: *Artemisia lindleyana* genus is mis-spelled. **(Correction made.)**

- Page 3-92, Table 3.5: *Camissonia ('Oenothera) pygmaea*: Is the apostrophe a typo? **(Correction made.)**

- Page 3-92, Table 3.5: *Lindernia dubia* var. *anagallidea*: Add the word "var." **(Correction made.)**

- Page 3-92, Table 3.5: *Penstemon eriantherus* var. *whitedii*: Add the word "var." **(Correction made.)**

- Page 3-92, Table 3.5: *Gilia leptomeria*: As noted above, elevated in status to state threatened, so move to Table 3.3. **(Correction made.)**

- Page 3-92, Table 3.5: Called Great Basin gilia here, sand gilia on pages 3-66 and 3-42. **(Correction made.)**

- Page 3-92, Table 3.5: *Pediocactus nigrispinus*: The correct name for Washington pediocactus. **(Correction made.)**

- Page 3-92, Table 3.5: *Cyperus bipartitus*: Now on the Washington Watch list, rather than sensitive. **(Correction made.)**

- Page 3-92, Table 3.5: *Lipocarpha aristulata*: Threatened, on Table 3.3. Is the apostrophe a typo? **(Correction made.)**

- Page 3-92, Table 3.5: *Pellaea glabella* var. *simplex*: Add the word "var." This is on the Washington watch list, not the threatened list. **(Correction made.)**

- Page 3-92, Table 3.5: *Eremogone franklinii* var. *thompsonii*: The genus name has been changed for Thompson's sandwort; add the word "var." and change status from R2 to R1.

- Page 4-61: Species are federally listed as endangered (E), threatened (T), and designated as candidates under the ESA, but designation as species of concern is more informal. Better to avoid the use of "listed" pertaining to species of concern, because saying "federally listed" does not include species of concern. The second paragraph under 4.2.5 says that federally

listed T&E and candidate species and species of concern on the Hanford Site "comprise . . . and two plant species." There are two plant candidate species, but there are four species of concern: *Astragalus columbianus*, *Cryptantha leucophaea*, *Lomatium tuberosum*, and *Rorippa columbiae*. **(Correction made.)**

- Great Basin gilia is also now state threatened. **(Correction made.)**

- In the last paragraph of page 4-61, the common name for *Ammannia robusta* is given as grand redstem, where in Table 3.3 and 3-67 scarlet ammannia is used (grand redstem included in parenthesis on 3-67.) Likewise, in this paragraph the common name for *Calyptridium roseum* is given as rosy pussypaws, while in Table 3.3 and on 3-66 rosy calyptridium is used. There is no correct common name, but using different ones in the text and tables makes it very hard to cross-reference in the document. **(Correction made.)**

- Appendix R: Bibliography: The Washington Natural Heritage Plan was last printed in 2003, with updates in 2005. **(Correction made.)**

- Appendix R: Bibliography The Washington Natural Heritage Program rare plant list is generally revised every two years. The 2002 or 1997 lists are not necessarily correct for the present time. This document has been revised in 2007, and should be available on-line. The citation should read: Washington Natural Heritage Program. 2007. List of Plants Tracked by the Washington Natural Heritage Program. Department of Natural Resources. Olympia, WA. On-line at: www.dnr.wa. op/refdesk/lists/plantrnk.html. **(Correction made.)**

One prominent local geologist suggested the following editorial corrections:

- Page 1-27, Section 1.10.4: As pointed out later in the document, slumping of the White Bluffs is occurring due to excess irrigation water diverted to ponds and unlined canals behind the bluffs that is seeping down to the Ringold Formation (Bjornstad 2006a). Once water encounters the impermeable Ringold Formation it moves laterally toward the bluffs; where the water seeps out along the bluffs and slumping occurs. This activity is beyond the control of the FWS since a number of federal and state agencies need to agree on the problem and address it together, which probably won't happen anytime soon. **(Change made.)**

- Page 2-37, Table 2.1: Staff needs include a geologist for all but Alternative A and D. It seems with expanded educational and interpretive work proposed for Alternative D a geologist would be needed here more than under any of the other alternatives. **(No correction necessary. Staffing decisions were made on the basis of the alternative's emphasis. In any event, Alternative D has not selected as the preferred alternative.)**

- Page 2-85, line 4: The statement, "The sand dunes are a result of the massive floods . . ." is false and misleading. The sand dunes are all much younger than the floods and not formed

by the floods or a direct result of the floods. The sand dunes have formed from wind reworking the uppermost flood deposits and redepositing the sand into dunes and therefore are only an indirect result of the floods. **(Change made.)**

- Page 2-85, line 6: I disagree with the statement "much is known about the Monument's geological and paleontological resources . . .". While much is known about the geology beneath the Hanford Site, much less is known about the geology beneath the Monument. **(Change made.)**

- Page 2-93, Rationale and Strategies: Erosion of Locke Island is the subject of new report that came out last year (Bjornstad, 2006b.) **(New work incorporated.)**

- Page 2-98, Interpretive Trails: One or both trails on Rattlesnake Mountain (Alternative D) should be interpretive trails to highlight the especially high concentration of ice-rafted erratics and bergmounds, in addition to the wonderful flora of this special area. **(This level of detail will be defined in a step down Visitor Services Plan.)**

- Page 2-101, Rationale and Strategies, second line: Add Earth Science Week (October) to list of special events to promote. **(Change made.)**

- Page 3-13, last paragraph: Daily fluctuations of river level, especially during periods of maximum runoff in June can exacerbate bank erosion at Locke Island (Bjornstad , 2006b), as well as other banks along the Columbia River. **(No correction necessary.)**

- Page 3-16, Vadose Zone, line 3: Since it is an informal stratigraphic term, the word "formation" in Hanford formation is always lowercase. **(No correction necessary.)**

- Page 3-17, Unconfined Aquifer System: The "Plio-Pleistocene unit" is an outdated term. It has been replaced with Cold Creek unit (informal) as documented in DOE (2002). **(Correction made.)**

- Page 3-18 and 3-19, Section 3.3.4: Somewhere in this section the movement of groundwater should be discussed whereby the process of excess irrigation water seeping through the Hanford formation along buried paleochannels atop the relatively impermeable Ringold Formation is leading to the formation of springs and landslide failures along the White Bluffs (Bjornstad 2006a). **(Change made.)**

- Page 3-26, Geologic History, #3: Add "and Cold Creek unit" after "Ringold Formation." **(Correction made.)**

- Page 3-26, Geologic History, #4: Not all Ice Age floods were from Lake Missoula. Therefore it is more accurate to use "Ice Age floods" rather than "Missoula Floods." Might add that the

earliest Ice Age floods occurred 1-2 million years ago (Bjornstad et al. 2001; Bjornstad 2006a). **(Correction made.)**

- Page 3-28, Missoula Floods, second paragraph: (Bjornstad and Fecht 1989) not in list of references. A better, more recent reference is Bjornstad et al. (2001) (in reference list above). **(Correction made.)**

- Page 3-28, 3rd line: Ice Age floods inundated the Monument dozens or more times, not just several times. **(Change made.)**

- Page 3-28, last line: Touchet Beds are composed of sand and silt, not just silt. Substitute "slackwater" for "silt." **(Correction made.)**

- Page 3-28, 3rd to last line: Lake Lewis was not a "glacial" lake. Substitute "hydraulically dammed" for "glacial." **(Correction made.)**

- Page 3-28, last line: Add "above sea level" after 1,200 feet. **(Change made.)**

- Page 3-29, second line: Lake Lewis is estimated to have lasted only a week or less. Replace (Baker 1978) with more recent (O'Connor and Baker 1992). **(Correction made.)**

- Page 3-30, Rock Strata and Structure, 3rd paragraph: The sedimentary deposits between basalt flows (Ellensburg Formation) and above the basalt (Ringold Formation) are unlithified and therefore technically not rock. Delete the term "rock" in reference to these mostly unconsolidated deposits. **(Correction made.)**

- Page 3-30: Cold Creek unit and Hanford formation are informal names so "unit" and "formation" should be lower case. **(No correction necessary.)**

- Page 3-31, Cold Creek Unit: The discussion of the Cold Creek unit is filled with errors and inaccuracies. Suggest the author rewrite after reading most recent documentation related to these strata (DOE 2002, citation in list above). **(Corrections made.)**

- Page 3-31, last line: Delete (Touchet Beds). Touchet Beds only consist of sand and silt and do not dominate the flood deposits. **(Correction made.)**

- Page 3-37: The description of erratics and bergmounds appears to be based on Bjornstad et al. 2003 and Bjornstad 2006a. The citations should be noted. **(Change made.)**

- Page 3-37, Paleontological Resources, first line: Change "middle" to "upper." The White Bluffs represent the uppermost Ringold Formation. **(Correction made.)**

- Page 3-122, second paragraph, line 6: The height of the White Bluffs varies along its length. In places they are up to 600 feet high. Use a range for height (e.g., 200-600 feet). **(Change made.)**

- Page 3-125, Topography: Prominent topographic features within the Wahluke Unit include the White Bluffs and landslides. **(Change made.)**

- Page 3-126, Topography: A prominent and significant topographic feature within the Saddle Mountain Unit is the Corfu Landslide (Bjornstad 2006a). Most of it lies north of the Monument, but parts of are within boundaries of the Monument, I believe. Nevertheless access to a spectacular viewpoint of the landslide is via the Monument from the south. **(Change made.)**

- Page 3-129, Topography: Major topographic features within the Rattlesnake Unit are hundreds of ice-rafted bergmounds that cover the surface between 600-1000 feet in elevation (Bjornstad 2006a). **(Change made.)**

- Page 3-211, 3rd paragraph: New findings on the effects of the river flow fluctuations and riverbank erosion are presented in a report published last year (Bjornstad 2006b, see citation above). **(No correction necessary.)**

- Page 4-22, Effects of Geological/Paleontological Resources, first paragraph: Yes, certain geological features (erratics, bergmonds, etc.) exist, but it is misleading to say they are well known. Locations of most erratics and bergmounds are still unknown. Mapped/inventoried locations of erratics/bergmounds on about 25% of Rattlesnake Unit were noted between 2002-2004 (Bjornstad et al. 2003). Locations for the remaining 75% of the Rattlesnake Unit are unknown. There are hundreds more erratics/ bergmounds on the Wahluke Unit that have yet to be located/inventoried. **(Correction made.)**

- Page 4-164, first paragraph: More trails might be expected to spread out use and increase solitude, not decrease it, as this paragraph seems to suggest.

- Page 5-4, 3rd line: Change "pubic" to "public." **(Correction made.)**

Appendix C – Monument Proclamation And Whitehouse Background Paper

Presidential Documents

Proclamation 7319 of June 9, 2000

Establishment of the Hanford Reach National Monument

By the President of the United States of America

A Proclamation

The Hanford Reach National Monument is a unique and biologically diverse landscape, encompassing an array of scientific and historic objects. This magnificent area contains an irreplaceable natural and historic legacy, preserved by unusual circumstances. Maintained as a buffer area in a Federal reservation conducting nuclear weapons development and, more recently, environmental cleanup activities, with limits on development and human use for the past 50 years, the monument is now a haven for important and increasingly scarce objects of scientific and historic interest. Bisected by the stunning Hanford Reach of the Columbia River, the monument contains the largest remnant of the shrub-steppe ecosystem that once blanketed the Columbia River Basin. The monument is also one of the few remaining archaeologically rich areas in the western Columbia Plateau, containing well-preserved remnants of human history spanning more than 10,000 years. The monument is equally rich in geologic history, with dramatic landscapes that reveal the creative forces of tectonic, volcanic, and erosive power.

The monument is a biological treasure, embracing important riparian, aquatic, and upland shrub-steppe habitats that are rare or in decline in other areas. Within its mosaic of habitats, the monument supports a wealth of increasingly uncommon native plant and animal species, the size and diversity of which is unmatched in the Columbia Basin. Migrating salmon, birds, and hundreds of other native plant and animal species rely on its natural ecosystems.

The monument includes the 51-mile long "Hanford Reach," the last free-flowing, non-tidal stretch of the Columbia River. The Reach contains islands, riffles, gravel bars, oxbow ponds, and backwater sloughs that support some of the most productive spawning areas in the Northwest, where approximately 80 percent of the upper Columbia Basin's fall chinook salmon spawn. It also supports healthy runs of naturally-spawning sturgeon and other highly valued fish species. The loss of other spawning grounds on the Columbia and its tributaries has increased the importance of the Hanford Reach for fisheries.

The monument contains one of the last remaining large blocks of shrub-steppe ecosystems in the Columbia River Basin, supporting an unusually high diversity of native plant and animal species. A large number of rare and sensitive plant species are found dispersed throughout the monument. A recent inventory resulted in the discovery of two plant species new to science, the Umtanum desert buckwheat and the White Bluffs bladderpod. Fragile microbiotic crusts, themselves of biological interest, are well developed in the monument and play an important role in stabilizing soils and providing nutrients to plants.

The monument contains significant breeding populations of nearly all steppe and shrub-steppe dependent birds, including the loggerhead shrike, the sage sparrow, the sage thrasher, and the ferruginous hawk. The Hanford Reach and surrounding wetlands provide important stop-over habitat for migratory birds, as well as habitat for many resident species. The area is important wintering habitat for bald eagles, white pelicans, and many species of waterfowl such as mallards, green-winged teal, pintails, goldeneye, gadwall, and buffleheads. The monument's bluff habitats provide valuable nesting sites for several bird species, including prairie falcons, and important perch sites for raptors such as peregrine falcons.

Many species of mammals are also found within the monument, including elk, beaver, badgers, and bobcats. Insect populations, though less conspicuous, include species that have been lost elsewhere due to habitat conversion, fragmentation, and application of pesticides. A recent biological inventory uncovered 41 species and 2 subspecies of insects new to science and many species not before identified in the State of Washington. Such rich and diverse insect populations are important to supporting the fauna in the monument.

In addition to its vital biological resources, the monument contains significant geological and paleontological objects. The late-Miocene to late-Pliocene Ringold Formation, known as the White Bluffs, was formed from river and lake sediments deposited by the ancestral Columbia River and its tributaries. These striking cliffs form the eastern bank of the Columbia for nearly half of the length of the Reach, and are significant for the mammalian fossils that they contain. Fossil remains from rhinoceros, camel, and mastodon, among others, have been found within these bluffs.

The Hanford Dune Field, located on the western shore of the Columbia in the southeastern part of the monument, is also of geologic significance. This active area of migrating barchan dunes and partially stabilized transverse dunes rises 10 to 16 feet above the ground, creating sandy habitats ranging from 2 to several hundred acres in size.

The monument also contains important archaeological and historic information. More than 10,000 years of human activity in this largely arid environment have left extensive archaeological deposits. Areas upland from the river show evidence of concentrated human activity, and recent surveys indicate extensive use of arid lowlands for hunting. Hundreds of prehistoric archaeological sites have been recorded, including the remains of pithouses, graves, spirit quest monuments, hunting camps, game drive complexes, quarries, and hunting and kill sites. A number of Native American groups still have cultural ties to the monument. The monument also contains some historic structures and other remains

from more recent human activities, including homesteads from small towns established along the riverbanks in the early 20th century.

Section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), authorizes the President, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and to reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected.

WHEREAS it appears that it would be in the public interest to reserve such lands as a national monument to be known as the Hanford Reach National Monument:

NOW, THEREFORE, I, WILLIAM J. CLINTON, President of the United States of America, by the authority vested in me by section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), do proclaim that there are hereby set apart and reserved as the Hanford Reach National Monument, for the purpose of protecting the objects identified above, all lands and interests in lands owned or controlled by the United States within the boundaries of the area described on the map entitled "Hanford Reach National Monument" attached to and forming a part of this proclamation. The Federal land and interests in land reserved consist of approximately 195,000 acres, which is the smallest area compatible with the proper care and management of the objects to be protected.

All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument.

For the purpose of protecting the objects identified above, the Secretary of the Interior and the Secretary of Energy shall prohibit all motorized and mechanized vehicle use off road, except for emergency or other federally authorized purposes, including remediation purposes. There is hereby reserved, as of the date of this proclamation and subject to valid existing rights, a quantity of water in the Columbia River sufficient to fulfill the purposes for which this monument is established. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation.

For the purpose of protecting the objects identified above, the Secretary of the Interior shall prohibit livestock grazing.

The monument shall be managed by the U.S. Fish and Wildlife Service under existing agreements with the Department of Energy, except that the Department of Energy shall manage the lands within the monument that are not subject to management agreements with the Service, and in developing any management plans and rules and regulations governing the portions of the monument for which the

Department of Energy has management responsibility, the Secretary of Energy shall consult with the Secretary of the Interior.

As the Department of Energy and the U.S. Fish and Wildlife Service determine that lands within the monument managed by the Department of Energy become suitable for management by the U.S. Fish and Wildlife Service, the U.S. Fish and Wildlife Service will assume management by agreement with the Department of Energy. All agreements between the U.S. Fish and Wildlife Service and the Department of Energy shall be consistent with the provisions of this proclamation.

Nothing in this proclamation shall affect the responsibility of the Department of Energy under environmental laws, including the remediation of hazardous substances or the restoration of natural resources at the Hanford facility; nor affect the Department of Energy's statutory authority to control public access or statutory responsibility to take other measures for environmental remediation, monitoring, security, safety, or emergency preparedness purposes; nor affect any Department of Energy activities on lands not included within the monument.

Nothing in this proclamation shall be deemed to enlarge or diminish the jurisdiction of the State of Washington with respect to fish and wildlife management.

Nothing in this proclamation shall enlarge or diminish the rights of any Indian tribe.

The establishment of this monument is subject to valid existing rights.

Nothing in this proclamation shall interfere with the operation and maintenance of existing facilities of the Columbia Basin Reclamation Project, the Federal Columbia River Transmission System, or other existing utility services that are located within the monument. Existing Federal Columbia River Transmission System facilities located within the monument may be replaced, modified and expanded, and new facilities constructed within the monument, as authorized by other applicable law. Such replacement, modification, expansion, or construction of new facilities shall be carried out in a manner consistent with proper care and management of the objects of this proclamation, to be determined in accordance with the management arrangements previously set out in this proclamation.

Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the national monument shall be the dominant reservation.

Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this ninth day of June, in the year of our Lord two thousand, and of the Independence of the United States of America the two hundred and twenty-fourth.

William J. Clinton

President's Memo to Energy Secretary Bill Richardson
On the Hanford Reach National Monument

THE WHITE HOUSE
Office of the Press Secretary

For Immediate Release, June 9, 2000

MEMORANDUM FOR THE SECRETARY OF ENERGY

SUBJECT: Hanford Reach National Monument

The area being designated as the Hanford Reach National Monument forms an arc surrounding much of what is known as the central Hanford area. While a portion of the central area is needed for Department of Energy missions, much of the area contains the same shrub-steppe habitat and other objects of scientific and historic interest that I am today permanently protecting in the monument. Therefore, I am directing you to manage the central area to protect these important values where practical. I further direct you to consult with the Secretary of the Interior on how best to permanently protect these objects, including the possibility of adding lands to the monument as they are remediated.

WILLIAM J. CLINTON

Background Paper on the Hanford Reach National Monument[190]

This document was provided by the White House on the date the President signed the Proclamation.

THE ANTIQUITIES ACT

Section 2 of the Antiquities Act, 16 U.S.C. 431, authorizes the President to establish as national monuments "historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States . . ."

A. Objects of Historic or Scientific Interest

The Hanford Reach National Monument is a unique and biologically diverse landscape, encompassing an array of scientific and historic objects. This magnificent area contains an irreplaceable natural and historic legacy, preserved by unusual circumstances. Maintained as a buffer area in a Federal reservation conducting nuclear weapons development and, more recently, environmental cleanup activities, with limits on development and human use for the past 50 years, the monument is now a haven for important and increasingly scarce objects of scientific and historic interest. Bisected by the stunning Hanford Reach of the Columbia River, the monument contains the largest remnant of the shrub-steppe ecosystem that once blanketed the Columbia River Basin. The monument is also one of the few remaining archaeologically rich areas in the western Columbia Plateau, containing well-preserved remnants of human history spanning more than 10,000 years. The monument is equally rich in geologic history, with dramatic landscapes that reveal the creative forces of tectonic, volcanic, and erosive power.

The monument is a biological treasure, embracing important riparian, aquatic, and upland shrub-steppe habitats which are rare or in decline in other areas. Within its mosaic of habitats, the monument supports a wealth of increasingly uncommon native plant and animal species, the size and diversity of which is unmatched in the Columbia Basin. Migrating salmon, birds and hundreds of other native plant and animal species rely on its natural ecosystems.

The monument includes the 51-mile long "Hanford Reach," the last free-flowing, non-tidal stretch of the Columbia River. The Reach contains islands, riffles, gravel bars, oxbow ponds, and backwater sloughs that support some of the most productive spawning areas in the Northwest, where approximately 80 percent of the upper Columbia Basin's fall chinook salmon spawn. It also supports

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[190] The boundaries of the monument are drawn on the map entitled "Hanford Reach National Monument." The Bureau of Land Management (BLM) will produce a description conforming to the BLM *Specifications for Descriptions of Tracts of Land for Use in Land Orders and Proclamations* as soon as practicable.

healthy runs of naturally-spawning sturgeon and other highly-valued fish species. The loss of other spawning grounds on the Columbia and its tributaries has increased the importance of the Hanford Reach for fisheries.

The monument contains one of the last remaining large blocks of shrub-steppe ecosystems in the Columbia River Basin, supporting an unusually high diversity of native plant and animal species. A large number of rare and sensitive plant species are found dispersed throughout the monument. A recent inventory resulted in the discovery of two plant species new to science, the Umtanum desert buckwheat and the White Bluffs bladderpod. Fragile microbiotic crusts, themselves of biological interest, are well developed in the monument and play an important role in stabilizing soils and providing nutrients to plants.

The monument contains significant breeding populations of nearly all steppe and shrub-steppe dependent birds, including the loggerhead shrike, the sage sparrow, the sage thrasher, and the ferruginous hawk. The Hanford Reach and surrounding wetlands provide important stop-over habitat for migratory birds, as well as habitat for many resident species. The area is important wintering habitat for bald eagles, white pelicans and many species of waterfowl such as mallards, green-winged teal, pintails, goldeneye, gadwall, and buffleheads. The monument's bluff habitats provide valuable nesting sites for several bird species, including prairie falcons, and important perch sites for raptors such as peregrine falcons.

Many species of mammals are also found within the monument, including elk, beaver, badgers, and bobcats. Insect populations, though less conspicuous, include species that have been lost elsewhere due to habitat conversion, fragmentation and application of pesticides. A recent biological inventory uncovered forty-one species, and two subspecies of insects new to science and many species not before identified in the state of Washington. Such rich and diverse insect populations are important to supporting the fauna in the monument.

In addition to its vital biological resources, the monument contains significant geological and paleontological objects. The late-Miocene to late-Pliocene Ringold Formation, known as the White Bluffs, was formed from river and lake sediments deposited by the ancestral Columbia River and its tributaries. These striking cliffs form the eastern bank of the Columbia for nearly half of the length of the Reach, and are significant for the mammalian fossils that they contain. Fossil remains from rhinoceros, camel, and mastodon, among others, have been found within these bluffs.

The Hanford Dune Field, located on the western shore of the Columbia in the southeastern part of the monument, is also of geologic significance. This active area of migrating barchan dunes and partially stabilized transverse dunes rises ten to sixteen feet above the ground, creating sandy habitats ranging from two to several hundred acres in size.

The monument also contains important archaeological and historic information. More than 10,000 years of human activity in this largely arid environment have left extensive archaeological deposits. Areas upland from the river show evidence of concentrated human activity, and recent surveys indicate

extensive use of arid lowlands for hunting. Hundreds of prehistoric archaeological sites have been recorded, including the remains of pithouses, graves, spirit quest monuments, hunting camps, game drive complexes, quarries, and hunting and kill sites. A number of Native American groups still have cultural ties to the monument. The monument also contains some historic structures and other remains from more recent human activities, including homesteads from small towns established along the riverbanks in the early 20th century.

The area in the monument was identified for preservation by the U.S. Department of Energy (DOE) in its November of 1999 Record of Decision adopting the Preferred Alternative in the Final Hanford Comprehensive Land-Use Plan EIS issued in September of 1999. Specific portions of this land are already subject to agreements that provide the U.S. Fish and Wildlife Service (FWS) with the responsibility to protect the wildlife and other natural resources. These lands are managed by the FWS under permits and agreements with the DOE. Currently, the FWS manages the 89,000 acre Wahluke Slope area under a 1971 permit from the DOE. The FWS also manages the 77,000 acre Arid Lands Ecology Reserve Unit under a 1997 permit from the DOE.

B. Land Area Reserved for the Proper Care and Management of the Objects to be Preserved

The Antiquities Act authorizes the President, as part of his declaration of a national monument, to reserve land, "the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected . . ." 16 U.S.C. § 431. The area for reservation has been carefully delineated, based on review of available information, to meet the goals of effectively caring for and managing the objects in perpetuity.

The area includes the biological, geological, and historic objects identified in the proclamation and Attachment A accompanying this memorandum. The area of the monument is based on the conservation needs of the objects to be protected. Some of these objects, such as the biological resources, are present throughout the entire monument area. Others, such as the historic sites, are confined to smaller areas. The scientific value of many objects, including the biological resources, derives in part from their location at various sites or elevations throughout the monument.

Preservation of such objects requires, among other things, protection of enough land to maintain the conditions that have made their continued existence possible. The scientific value of many of the objects within the monument requires preservation of areas large enough to maintain the objects and their interactions. The biological objects in the area result from the fact that extensive sections of the Columbia Basin shrub-steppe ecosystem have been preserved by the lack of development and land conversion on the Hanford site. Many species must range within and through the area to maintain viable populations and their role in the ecosystem. This is especially important because of the loss of the shrub-steppe ecosystem and aquatic habitat in other parts of the Columbia Basin. Management of a patchwork of reserved lands would be impractical, as it would make it more difficult to care for the objects, reduce options for natural resource management and lead to inconsistent resource

management standards for overlapping resources. For these reasons, the reservation of a smaller area would undermine the proper care and management of the objects to be protected by the monument.

LEGAL EFFECTS OF THE PROCLAMATION

There are several significant aspects of the proclamation. First, it reserves only the federal lands in the area, because the Antiquities Act applies only to objects of historic or scientific interest "that are situated upon the lands owned or controlled by the Government of the United States." 16 U.S.C. § 431

Second, the proclamation is subject to valid existing rights. Thus, to the extent a person or entity has valid existing rights in the federal lands or resources within the area, the proclamation respects those rights. The exercise of such rights could, however, be regulated in order to protect the purposes of the monument.

Third, the proclamation appropriates and withdraws the federal lands and interests in lands within the boundaries of the monument from entry, location, sale, leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument. This withdrawal prevents the location of new mining claims under the 1872 Mining Law, and prevents the Secretary of the Interior from exercising discretion under the mineral leasing acts and related laws to lease or sell federal minerals within the boundaries of the monument.

Fourth, the proclamation reserves in the portion of the Columbia River within the boundaries of the monument, subject to valid existing rights and as of the date of the proclamation, sufficient water to fulfill the purposes for which the monument is established.

Fifth, nothing in the proclamation revokes any existing withdrawal, reservation, or appropriation; however, the national monument shall be the dominant reservation. Therefore, the federal agencies with existing management responsibilities for the land within the monument boundaries will continue to have such responsibilities, subject to the dominant reservation, as provided for in the proclamation. The reference in the proclamation to the national monument being the dominant reservation makes clear that, in the event of a conflict between this reservation and an existing withdrawal, reservation or appropriation, this reservation controls. The particular provisions of this proclamation, such as the specific reservations of rights and responsibilities of the DOE, are part of this monument reservation.

Sixth, nothing in the proclamation interferes with the operation and maintenance by the Bureau of Reclamation (BOR) of existing Columbia Basin Reclamation Project facilities located within the monument; however, the monument designation precludes new agricultural irrigation within the boundaries.

Seventh, nothing in the proclamation interferes with the operation and maintenance of the Federal Columbia River Transmission System, or other utility services located within the monument.

Eighth, nothing in the proclamation affects DOE's authority to manage lands within the monument as necessary to carry out the environmental cleanup mission or other environmental compliance within the monument. This includes the right to regulate or restrict public access, maintain security, impose safety requirements, install and maintain environmental monitoring facilities, and implement emergency preparedness. Such matters remain the responsibility of DOE. Likewise, nothing in the proclamation affects the DOE's responsibility under environmental laws including the remediation of hazardous substances or the restoration of natural resources injured by hazardous substances on monument lands. Nothing in the proclamation imposes any liability upon the Department of the Interior for the remediation of hazardous substances or the restoration of natural resources at the Hanford facility except as provided in agreements, including permits, between the DOE and the Department of the Interior, nor transfer to the Department of the Interior any of the DOE's responsibility to take measures for environmental remediation, monitoring, security, safety or emergency preparedness purposes. Further, nothing in the proclamation imposes any limitations or restrictions on the DOE activities conducted upon lands that are not included in the monument.

ADMINISTRATION OF THE MONUMENT

A. Management of the Monument

The federal lands in the area described in the proclamation are currently under the jurisdiction of the BLM, BOR, and DOE. In addition to acquiring privately held land, the DOE created the Hanford Site by withdrawing public land and entering into an agreement with the BOR to obtain management responsibility for certain withdrawn and acquired lands held by Reclamation as part of the Columbia Basin Project, north of the Columbia River. The DOE has a similar arrangement with the Bureau of Land Management. The FWS manages some of the lands within the monument area under permits and agreements with the DOE. For example, in the Wahluke Slope Area, the Saddle Mountain National Wildlife Refuge was created by the terms of a 1971 permit with the DOE; this Refuge includes land acquired by the BOR land and managed by the DOE as part of the Hanford Site. These arrangements are not altered by the proclamation, but all agreements should be reviewed to ensure consistency with the proclamation. The FWS and the DOE are expected to extend the agreements to other lands included in the monument that are not now managed by FWS.

The DOE manages the Hanford site pursuant to the Atomic Energy Act of 1954, as amended, and applicable Public Land Orders. The BLM manages public lands pursuant to its organic authorities, primarily the Federal Land Policy and Management Act of 1976 (FLPMA), 43 U.S.C. § 1702 et seq. The BOR holds lands for the Columbia Basin Project Act under that project's authorizing statute, at 16 U.S.C. § 835c, as amended. The FWS manages lands under its management jurisdiction pursuant

to the National Wildlife Refuge System Administration Act, 16 U.S.C. § 668dd-ee, and in accordance with agreements with the DOE.

The proclamation directs the Secretary of the Interior to manage the monument through the FWS under its existing authorities and existing agreements with the DOE, and under future agreements with the DOE as lands within the monument subject to the DOE cleanup responsibilities are determined by the DOE and the FWS to be suitable for transfer of management responsibility. The DOE will manage lands within the monument that are not subject to management agreements with the FWS (primarily the land bordering the south side of the Hanford Reach) under its existing authorities and consistent with the purposes of the monument.

B. Impact of Monument Designation on Existing or Planned Activities in the Area

1. Hazardous waste clean-up and restoration

The monument designation has no effect on hazardous waste clean-up or restoration of natural resources, as provided for in the eighth paragraph in the section on Legal Effects of the Proclamation, above. The DOE continues to be responsible for the clean up of hazardous waste and for any related restoration of natural resource injuries, except as provided in agreements, including permits, between the DOE and the Department of the Interior. Cleanup decisions by the DOE will continue to be coordinated with the appropriate federal and state regulatory agencies. Restoration of any injured natural resources will continue to be the responsibility of the DOE. Cleanup and restoration activities should be planned and accomplished in a cooperative manner among the agencies to facilitate the determination that specific areas are suitable for transfer of management responsibility to the FWS.

2. Agricultural activities

No grazing currently occurs within the monument boundaries. Therefore, the prohibition on grazing included in the proclamation does not change the status quo. The DOE has issued a license (#R006-94LI12799.000) to the S. Martinez Livestock, Inc., for a road right of way to herd livestock across the monument along what is commonly known as the Wanapum Road. This license is a valid existing right that is protected by the preservation of valid existing rights in the proclamation.

3. Recreation, hunting, fishing and similar activities

Much of the monument has been off limits to recreation and public access. However, wildlife dependent recreation (hunting, fishing, environmental education, wildlife observation, interpretation, and photography) does occur on the Wahluke Wildlife Recreation Unit on the Wahluke Slope. Such recreation would generally not be affected except where (1) the land managing agency, through processes required by existing law, identifies places where such uses ought to be restricted or prohibited as necessary to protect the federal lands and resources, including the objects protected by the monument designation; or (2) where the agency finds a clear threat from such a use to the federal

lands and resources, including the objects protected by the monument designation, and the circumstances call for swift protective action. Such uses remain subject to applicable laws and regulations, and therefore remain subject to regulation and limitation under such provisions for reasons other than establishment of the monument.

4. Use of existing rights-of-way (such as those established under Title V of FLPMA)

Use of existing rights-of-way would generally be subject to the same standards as described in the preceding section. Some existing rights-of-way may include valid existing rights. The exercise of such rights may be regulated in order to protect the purposes of the monument, but any regulation must respect such rights.

5. Access

For purposes of protecting the objects identified in the proclamation, it prohibits motorized and mechanized vehicle travel off road, except for emergency purposes, or other federally authorized purposes. The DOE retains its authority to control access to the monument for security, safety or emergency preparedness purposes. Because of the very limited public access to the site, off road vehicle use is already limited.

6. Mineral activities

Although exploration for gas has occurred in the area, deposits have proven to be small. Oil exploration was conducted in the Rattlesnake Mountain and Rattlesnake Hills area in the 1920s and 1930s, but useful deposits were not found. Big Bend Alberta Mining Company asserts an interest in minerals on approximately 1,200 acres within the monument. To the extent that rights exist, they would be treated as valid existing rights.

7. Indian rights

To the extent that Indian Tribes have rights pursuant to the Stevens Treaties of 1855 or any other federal law, those rights would be unaffected.

8. Hydroelectric operations

Instream flows in this stretch of the Columbia River are governed by the terms of the "Vernita Bar agreement" (agreement). That agreement, among several public utility districts, federal agencies and Indian tribes, provides an instream flow regime to protect salmon. Nothing in the proclamation abrogates the agreement.

9. Bonneville Power Administration

The Bonneville Power Administration (BPA) operates the Federal Columbia River Transmission System, which is partially located within the monument. The System is important to the Pacific Northwest, and includes facilities in and around the monument. The BPA has in various planning stages a number of projects to upgrade and expand transmission facilities that could be affected by the proposed monument, including rebuilding the Benton-Franklin Nos. 1 and 2 115 kilovolt (KV) transmission lines, and building a new 500 KV transmission line to parallel an existing (Schultz-Vantage-Hanford) 500 KV line. Nothing in the proclamation interferes with the operation and maintenance of the Federal Columbia River Transmission System located within the monument. Replacement, modification and expansion of existing Federal Columbia River Transmission System facilities, and construction of any new facilities, within the proposed monument, as authorized by other applicable law, may be carried out in a manner consistent with the proper care and management of the objects identified in the draft proclamation, as determined in accordance with the management arrangements set out in the draft proclamation.

Appendix D – Public Laws 100-605 And 104-333, Section 404

PUBLIC LAW 100-605

100th Congress
2nd Session

An Act

To authorize a study of the Hanford Reach of the Columbia River, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. COMPREHENSIVE RIVER CONSERVATION STUDY.

The Secretary of the Interior ("Secretary"), in consultation with the Secretary of Energy, shall prepare a comprehensive river conservation study for that segment of the Columbia River extending from one mile below Priest Rapids Dam downstream approximately fifty-one miles to the McNary Pool north of Richland, Washington, as generally depicted on the map entitled "Proposed Columbia River Wild and Scenic River Boundary" dated May 17, 1988, hereinafter referred to as the "study area" which is on file with the United States Department of the Interior. The study shall identify and evaluate the outstanding features of the study area and its immediate environment, including fish and wildlife, geologic, scenic, recreational, natural, historical, and cultural values, and examine alternatives for their preservation. In examining alternative means for the preservation of such values, the Secretary shall, among other things, consider the potential addition of all or a portion of the study area to the National Wild and Scenic Rivers System, and recommend a preferred alternative for the protection and preservation of the values identified. The Secretary shall cooperate and consult with the State and political subdivisions thereof, local, and tribal governments, and other interested entities in preparation of such a study and provide for public comment. The study shall be completed and presented to Congress within three years after the date of enactment of this Act.

SECTION 2. INTERIM PROTECTION.

(a) For a period of eight years after the enactment of this Act, within the study area identified in section 1 of this Act:

(1) No Federal agency may construct any dam, channel, or navigation project.

(2) All other new Federal and non-Federal projects and activities shall, to the greatest extent practicable:

(A) be planned, designed, located and constructed to minimize direct and adverse effects on the values for which the river is under study; and

(B) utilize existing structures and facilities including, but not limited to, pipes, pipelines, transmission towers, water conduits, powerhouses, and reservoirs to accomplish the purposes of the project or activity.

(3) Federal and non-Federal entities planning new projects or activities in the study area shall consult and coordinate with the Secretary to minimize and provide mitigation for any direct and adverse effects on the values for which the river is under study.

(4) Upon receiving notice from the entity planning the new project or activity, the Secretary shall, no later than ninety days after receiving such notice and consulting with the entity:

(A) review the proposed project or activity and make a determination as to whether there will be a direct and adverse effect on the values for which the river segment is under study; and

(B) review proposals to mitigate such effects and make such recommendations for mitigation as he deems necessary.

(5) If the Secretary determines that there will be a direct and adverse effect that has not been adequately mitigated, he shall notify the sponsoring entity and the Committee on Interior and Insular Affairs of the United States House of Representatives and the Committee on Energy and Natural Resources of the United States Serrate of his determination and any proposed recommendations.

(b) During the eight year interim protection period, provided by this section, all existing projects that affect the study area shall be operated and maintained to minimize any direct and adverse effects on the values for which the river is under study, taking into account any existing and relevant license, permit, or agreement affecting the project.

SECTION 3. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated not more than $150,000 for the purpose of conducting the study pursuant to section 1 of this Act.

Approved *November 4, 1988.*

Public Law 104-333, Section 404

104th Congress
1st Session

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE IV – RIVERS AND TRAILS

Section 404. Hanford Reach Preservation.

Section 2 of Public Law 100-605 is amended as follows:

(1) By striking "Interim" in the section heading.

(2) By striking "For a period of eight years after" and inserting "After" in subsection (a).

(3) By striking in subsection (b) "During the eight year interim protection period, provided by this section, all" and inserting "All."

Appendix E – Applicable Laws, Executive Orders and Policies

E.1 Federal Laws and Treaties

Relevant laws of the United States that might apply to the implementation of the land-use alternatives on the Monument are discussed in the sections that follow.

E.1.1 Treaties of the United States with American Indian Tribes of the Hanford Region

In May and June of 1855, at Wai-I-lat-pu (near present-day Walla Walla, Washington), leaders of various Columbia Plateau American Indian tribes and bands negotiated treaties with representatives of the United States. The negotiations resulted in three treaties, one with the fourteen tribes and bands of what would become the Yakama Nation, one with the three tribes that would become the CTUIR, and one with the Nez Perce Tribe. The treaties were ratified by the United States Senate in 1859. The negotiated treaties are:

- Treaty with the Walla Walla, Cayuse, etc. (June 9, 1855; 12 Stat. 945)
- Treaty with the Yakama (June 9, 1855; 12 Stat. 951)
- Treaty with the Nez Perce (June 11, 1855; 12 Stat. 957)

The terms of all three treaties are essentially the same. Each of the three tribal organizations agreed to cede large blocks of land to the United States. The tribes retained certain lands for their exclusive use (the three reservations) and also retained the rights to continue traditional activities outside the reservations. These reserved rights include the right to fish (and erect fish-curing facilities) at usual and accustomed places. These rights also include rights to hunt, gather foods and medicines, and pasture livestock on open and unclaimed lands.

The act of treaty-making between the United States and an Indian tribe has many legal consequences for both entities. The United States recognizes the existence of the tribe as a sovereign and initiates a government-to-government relationship with the tribe. At the same time, the tribe loses some aspects of its sovereignty, such as the right to negotiate (independently of the United States) with other foreign powers. In return, the United States and the tribe enter into a trust relationship, whereby the United States assumes the responsibility to preserve the rights and resources of the tribe from incursions by private entities, states, or the federal government itself. One aspect of this trust duty is

the need to consult with the tribes concerning decisions made by the federal government that could affect tribal rights or resources. In addition to these general legal consequences of treaty-making, the individual treaty itself defines particular new roles and responsibilities of the two governments, within the terms of the new legal relationship created by the treaty.

Every federal agency that makes decisions potentially affecting the rights or resources of federally recognized American Indian tribes shares in the trust responsibility duties of the federal government. This trust responsibility includes the duty to consult with those tribes concerning the potential impacts of agency decisions. As a result, the FWS regularly consults with the CTUIR, the Yakama Nation, and the Nez Perce Tribe concerning decisions being made by the FWS on the Monument that might affect tribal rights or resources.

E.1.2 International Treaties of the United States

E.1.2.1 Boundary Water Treaty of 1909

The Boundary Water Treaty (and the International Joint Commission) govern flow releases on the Kootenai River. Signed in 1909, it provides the principles and mechanisms to help resolve disputes and to prevent future ones, primarily those concerning water quantity and water quality along the boundary between Canada and the United States.

E.1.2.2 Columbia River Treaty of 1961

In 1961, the United States and Canada signed the Columbia River Treaty; it was ratified in 1964. The treaty provided for building four storage dams—three in Canada (Mica, Keenleyside and Duncan) and one in the United States (Libby). The reservoirs built and operated under the treaty represent almost half the water storage capacity on the Columbia River system. The treaty, however, addresses only hydropower generation and flood control; it contains no provisions related to environmental concerns, specifically the needs of salmon.

The three Canadian storage dams provide regulated flows that enable hydroelectric projects downstream in the United States to produce additional power benefits. The treaty requires the United States to deliver to Canada one-half of these downstream power benefits—the Canadian Entitlement. The United States' obligation to deliver the Canadian Entitlement extends to 2024, the first year the treaty can be terminated with ten years notice. The Canadian Entitlement Allocation Agreements (CEAA), also executed in 1964, established how the Canadian Entitlement was to be attributed to the six federal and five non-federal downstream hydroelectric projects. The CEAAs have been extended until 2024.

E.1.2.3 Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act of 1918, as amended, is intended to protect birds that have common migration patterns between the United States and Canada, Mexico, Japan and Russia. The law regulates the harvest of migratory birds by specifying factors such as the mode of harvest, hunting seasons, and bag limits. This act stipulates that, except as permitted by regulations, it is unlawful at any time, by any means, or in any manner to "kill . . . any migratory bird." The FWS is the lead agency in implementation and enforcement of this act; other agencies consult with the FWS regarding impacts to migratory birds and to evaluate ways to avoid or minimize impacts in accordance with the FWS migration policy.

E.1.2.4 Pacific Salmon Treaty Act of 1985

The Pacific Salmon Treaty Act of 1985 ratified a treaty between the United States and Canada concerning Pacific salmon. The law is intended to protect and maintain Pacific salmon fisheries by regulating the fishing season. The law establishes panels with jurisdiction over certain areas. Associated regulations close the panel area to sockeye and pink salmon fishing unless opened by panel regulations or by in season orders of the Secretary of Commerce that give the effect to panel orders.

E.1.3 Federal Natural Resource Management, Cultural Resource Laws, Water Management, and Pollution Control

E.1.3.1 American Antiquities Preservation Act of 1906

The American Antiquities Preservation Act of 1906, as amended, protects historic and prehistoric ruins, monuments, and antiquities, including paleontological resources, on federally controlled lands.

E.1.3.2 American Indian Religious Freedom Act of 1978

The American Indian Religious Freedom Act of 1978 reaffirms American Indians' religious freedom under the First Amendment and sets United States policy to protect and preserve the inherent and constitutional right of American Indian tribes to believe, express and exercise traditional religions. This act also requires that federal agencies avoid interfering with access to sacred locations and traditional resources that are integral to the practice of religion.

E.1.3.3 Archeological and Historic Preservation Act of 1974

The Archaeological and Historic Preservation Act of 1974, as amended, protects sites that have historic and prehistoric importance.

E.1.3.4 Archaeological Resources Protection Act of 1979

The Archaeological Resources Protection Act of 1979, as amended, requires a permit for any excavation or removal of archaeological resources from federal or Indian lands. Excavations must be undertaken for the purpose of furthering archaeological knowledge in the public interest, and resources removed are to remain the property of the United States. Consent must be obtained from the Indian tribe or the federal agency having authority over the land on which a resource is located before issuance of a permit; the permit must contain terms and conditions requested by the tribe or federal agency.

E.1.3.5 Atomic Energy Act of 1954

The Atomic Energy Act of 1954, as amended, authorizes the DOE to establish standards to protect health or minimize dangers to life or property with respect to activities under DOE jurisdiction. The DOE has used a series of departmental orders to establish an extensive system of standards and requirements to ensure safe operation of DOE facilities.

E.1.3.6 Bald and Golden Eagle Protection Act of 1972

The Bald and Golden Eagle Protection Act of 1972, as amended, makes it unlawful to take, pursue, molest, or disturb bald and golden eagles, their nests, or their eggs anywhere in the United States. A permit must be obtained from the DOI to relocate a nest that interferes with resource development or recovery operations.

E.1.3.7 Clean Air Act of 1970

The Clean Air Act of 1970, as amended, is intended to "protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population." Section 118 of the act requires each federal agency with jurisdiction over properties or facilities engaged in any activity that might result in the discharge of air pollutants to comply with all federal, state, interstate, and local requirements with regard to the control and abatement of air pollution.

E.1.3.8 Clean Water Act of 1977

The Clean Water Act of 1977, as amended, was enacted to "restore and maintain the chemical, physical and biological integrity of the Nation's water." The CWA prohibits "discharge of toxic pollutants in toxic amounts" to navigable waters of the United States. Section 313 of the CWA requires all branches of the federal government with jurisdiction over properties or facilities engaged in any activity that might result in a discharge or runoff of pollutants to surface waters, to comply with federal, state, interstate, and local requirements. Section 404 of the CWA authorizes the ACOE to regulate, through permits, the discharge of dredged or fill material into waters of the United States, including wetlands. Section 10 of the Rivers and Harbors Act of 1899 authorizes the ACOE to regulate, through permits, structures and work in navigable waters of the United States.

E.1.3.9 Comprehensive Conservation Study of the Hanford Reach of the Columbia River Act 1988

Public Law 100-605, passed by Congress on November 4, 1988, authorized a study of the Hanford Reach of the Columbia River to identify the outstanding features of the Hanford Reach and its immediate environment (including fish and wildlife, geologic, scenic, recreational, natural, historical, and cultural values), and to examine alternatives for their preservation. In addition to authorizing the study, the act protected the Hanford Reach from certain development for a period of eight years. In 1996, Section 404 of Public Law 104-333, the Omnibus Parks and Public Lands Management Act of 1996, amended this from an eight year period to permanent protection from certain types of development and mitigation of other actions.

Public Law 100-605, as amended, states:

- No federal agency may construct any dam, channel, or navigation project.

- All other new federal and non-federal projects and activities shall, to the greatest extent practicable: 1) be planned, designed, located and constructed to minimize direct and adverse effects on the values for which the river is under study; and 2) utilize existing structures and facilities including, but not limited to, pipes, pipelines, transmission towers, water conduits, powerhouses, and reservoirs to accomplish the purposes of the project or activity.

- Federal and non-federal entities planning new projects or activities in the study area shall consult and coordinate with the Secretary [of the Interior] to minimize and provide mitigation for any direct and adverse effects on the values for which the river is under study.

- Upon receiving notice from the entity planning the new project or activity, the Secretary [of the Interior] shall . . .: 1) review the proposed project or activity and make a determination as to whether there will be a direct and adverse effect on the values for which the river segment is under study; and 2) review proposals to mitigate such effects and make such recommendations for mitigation as he deems necessary. If the Secretary determines that there will be a direct and adverse effect that has not been adequately mitigated, he shall notify the sponsoring entity and the Committee on Interior and Insular Affairs of the United States House of Representatives and the Committee on Energy and Natural Resources of the United States Senate of his determination and any proposed recommendations.

- All existing projects that affect the study area shall be operated and maintained to minimize any direct and adverse effects on the values for which the river is under study, taking into account any existing and relevant license, permit, or agreement affecting the project.

The DOI, through the NPS, found the river eligible and suitable for designation as a national wild and scenic river. As such, federal agencies must comply with Section 5(d) of the Wild and Scenic Rivers Act and a 1979 Presidential Directive on avoiding or mitigating impacts to river eligible for designation into the National Wild and Scenic Rivers System.

E.1.3.10 Electric Consumers Protection Act of 1986

The Electric Consumers Protection Act amended the Federal Power Act (see Section C.1.3.13 below) to provide additional environmental protections in the licensing of hydroelectric projects. Each license is to include conditions to protect, mitigate and enhance fish and wildlife affected by the project. These conditions are to be based on recommendations received from the FWS, NOAA-Fisheries, federal land managers on whose land the project sits, and state fish and wildlife agencies (16 U.S.C. § 803(j)(1)). The FERC is empowered to resolve any instances in which such recommendations are viewed as inconsistent while according "due weight to the recommendations, expertise and statutory responsibilities" of the resource agencies.

E.1.3.11 Endangered Species Act of 1973

The Endangered Species Act of 1973, as amended, is intended to prevent the further decline of endangered and threatened species and to restore those species and their habitats. This act is jointly administered by the Departments of Commerce and Interior. Section 7 of this act requires agencies to consult with the FWS or the National Oceanic and Atmospheric Administration-Fisheries. This consultation determines whether endangered and threatened species or critical habitats are known to

be in the vicinity of a proposed action and whether an action will adversely affect listed species or designated critical habitats.

E.1.3.12 Federal Insecticide, Fungicide, and Rodenticide Act of 1972

The Federal Insecticide, Fungicide, and Rodenticide Act of 1972, as amended, governs the storage, use, and disposal of pesticides through product labeling, registration, and user certification.

E.1.3.13 Federal Power Act of 1920

The original Federal Power Act provides for cooperation between the FERC and other federal agencies, including resource agencies, in the licensing of hydropower projects. The FERC is authorized to issue licenses to construct, operate and maintain dams, water conduits, reservoirs and transmission lines to improve navigation and to develop power from any streams or other bodies of water over which it has jurisdiction. Following 1986 amendments (see Section C.1.3.10 above, Electric Consumer Protection Act), in deciding whether to issue a license, the FERC is required to give "equal consideration" to the following purposes—power and development; energy conservation; protection, mitigation of damage to, and enhancement of, fish and wildlife (including spawning grounds and habitat); protection of recreational opportunities; and preservation of other aspects of environmental quality.

E.1.3.14 Federal Water Pollution Control Act Amendments of 1972

The Federal Water Pollution Control Act Amendments of 1972 is the predecessor federal statute to the Clean Water Act of 1977.

E.1.3.15 Fish and Wildlife Conservation Act of 1980

The Fish and Wildlife Conservation Act of 1980, as amended, encourages all federal entities (in cooperation with the public) to protect and conserve the nation's fish and wildlife.

E.1.3.16 Fish and Wildlife Coordination Act of 1934

The Fish and Wildlife Coordination Act of 1934, as amended, promotes more effectual planning and cooperation between federal, state, public, and private agencies for the conservation and rehabilitation of the nation's fish and wildlife and authorizes the DOI to provide assistance.

E.1.3.17 Flood Control Act of 1944

The Flood Control Act, as amended and supplemented by other flood control acts and river and harbor acts, authorizes various ACOE water development projects. This statute expressed congressional intent to limit the authorization and construction of navigation, flood control, and other water projects to those having significant benefits for navigation and which could be operated consistent with other river uses. The act authorized the construction of numerous dams and modifications to previously existing dams. The Secretary of the Interior was authorized to construct, operate and maintain irrigation projects at ACOE reservoirs and dams, in accordance with existing reclamation laws, if authorized by Congress. Surplus power from reservoir projects was to be provided to the Secretary of the Interior to be transmitted for use at the "lowest possible rates."

E.1.3.18 Historic Sites, Buildings, and Antiquities Act of 1965

The Historic Sites, Buildings, and Antiquities Act of 1965 sets national policy to preserve historic sites, buildings, and antiquities for the inspiration and benefit of United States' citizens.

E.1.3.19 National Environmental Policy Act of 1969

The National Environmental Policy Act of 1969 (NEPA), as amended, establishes a national policy that encourages awareness of the environmental consequences of human activities and promotes consideration of those environmental consequences during the planning and implementing stages of a project. Under the NEPA, federal agencies are required to prepare detailed statements to address the environmental effects of proposed major federal actions that might significantly affect the quality of the human environment.

E.1.3.20 National Historic Preservation Act of 1966

The National Historic Preservation Act of 1966, as amended, provides for nomination for placement of sites with significant national historic value on the National Register of Historic Places (NPS 1988). Permits and certifications are not required under this act; however, consultation with the Advisory Council on Historic Preservation is required if a federal undertaking might impact a historic property resource. This consultation generally results in a memorandum of agreement that includes stipulations to minimize adverse impacts to the historic resource. Coordination with the State Historic Preservation Office is undertaken to ensure that potentially significant sites are properly identified and appropriate mitigation measures are implemented.

E.1.3.21 National Wildlife Refuge System Administration Act of 1966 (Amended by the National Wildlife Refuge System Improvement Act of 1997)

The National Wildlife Refuge System Administration Act of 1966, as amended, provides guidelines and directives for the administration and management of all lands within the system, including "wildlife refuges, areas for the protection and conservation of fish and wildlife that are threatened with extinction, wildlife ranges, game ranges, wildlife management areas, or waterfowl production areas." The Secretary of the Interior is authorized to permit by regulations the use of any area within the system provided "such uses are compatible with the major purposes for which such areas were established."

E.1.3.22 Native American Graves Protection and Repatriation Act of 1990

The NAGPRA directs the Secretary of the Interior to guide federal agencies in the repatriation of federal archaeological collections and collections affiliated culturally to American Indian tribes, which are currently held by museums receiving federal funding. This act established statutory provisions for the treatment of inadvertent discoveries of American Indians' remains and cultural objects. Specifically, when discoveries are made during ground disturbing activities, the following must take place: 1) activity in the area of the discovery must cease immediately; 2) reasonable efforts must be made to protect the items discovered; 3) notice of discovery must be given to the FWS Director and the appropriate tribes; and 4) a period of 30 days must be set aside following notification for negotiations regarding the appropriate disposition of these items.

E.1.3.23 Occupational Safety and Health Act of 1970

The Occupational Safety and Health Act of 1970, as amended, establishes standards to enhance safe and healthy working conditions in places of employment throughout the United States. The act is administered and enforced by the Occupational Safety and Health Administration (OSHA), an agency of the United States Department of Labor. Although the OSHA and the EPA both have a mandate to limit exposures to toxic substances, the jurisdiction of the OSHA is limited to safety and health conditions in the workplace. In general, each employer is required to furnish a place of employment free of recognized hazards likely to cause death or serious physical harm to all employees. The OSHA regulations establish specific standards telling employers what must be done to achieve a safe and healthy working environment. Employees have a duty to comply with these standards and with all rules, regulations, and orders issued by OSHA.

E.1.3.24 Pacific Northwest Electric Power Planning and Conservation Act of 1980

The Pacific Northwest Electric Power Planning and Conservation Act created the Northwest Power and Conservation Council (Council)—an interstate compact agency—and directed the Council to put fish and wildlife mitigation and enhancement on a par with hydroelectric power generation in the operation of the Federal Columbia River Power System. The goals of the act include: 1) ensuring an adequate, efficient, economical and reliable power supply; and 2) protecting, mitigating and enhancing fish and wildlife harmed by hydroelectric projects. The Council is responsible for promulgating a Regional Power Plan and a Fish and Wildlife Program. When developing its Fish and Wildlife Program, the Council defers to the recommendations of fish and wildlife managers, i.e., agencies and the tribes.

The act includes a duty for federal agencies that manage, operate, or regulate hydroelectric facilities in the Columbia Basin to provide "equitable treatment" for fish and wildlife with the other purposes for which the hydropower facilities are managed and operated. The Council describes equitable treatment as "meet[ing] the needs of salmon with a level of certainty comparable to that accorded the other operational purposes."

E.1.3.25 Wild and Scenic Rivers Act of 1968

The Wild and Scenic Rivers Act of 1968, as amended, protects selected national rivers possessing outstanding scenic, recreational, geological, fish and wildlife, historical, cultural, or other similar values. These rivers are to be preserved in a free-flowing condition to protect water quality and for other vital national conservation purposes. This act also instituted a National Wild and Scenic Rivers System, designated the initial rivers within the system, and developed standards for the addition of new rivers in the future.

E.2 State Laws

State and local statutes also apply to activities on the Monument when federal law delegates enforcement or implementation authority to state or local agencies. In general, state laws do not apply to the federal government based on the National Supremacy Clause that reads, "This constitution, and the laws of the United States which shall be made in pursuance thereof; and all treaties made, or which shall be made, under the authority of the United States, shall be the supreme law of the land; and the judges in every state shall be bound thereby, any thing in the constitution or laws of any state to the contrary notwithstanding" (Article 4, U.S. Constitution).

E.2.1 Growth Management Act of 1989

Most planning by local governments falls under the State of Washington Growth Management Act (GMA), which established a state-wide planning framework and created roles and responsibilities for planning at the local, regional, and state levels. The GMA required the largest and fastest growing counties (counties with more than 50,000 people or with a population growth of more than twenty percent in the past ten years) and cities within those counties to develop new comprehensive plans. Counties not required to plan may elect to do so. Benton, Franklin, and Grant Counties, along with the city of Richland, have elected to plan under the GMA requirements. Jurisdictions under GMA must prepare comprehensive plans that project growth for a minimum of twenty years.

E.2.2 Shoreline Management Act of 1971

The Shoreline Management Act of 1971 uses authority passed to the state by the federal Rivers and Harbors Act of 1899. Section 10 of the Rivers and Harbors Act prohibits the unauthorized obstruction or alteration of any navigable waters of the United States. Examples of activities requiring a United States Army Corps of Engineers permit include constructing a structure in or over any waters of the United States, excavation or deposit of material in such waters, and various types of work performed in such waters, including fill and stream channelization. The state is considered the owner of all navigable waterways within its boundaries.

The state has passed regulatory responsibility for the Shoreline Management Act to the affected county. Counties in Washington State regulate the shoreline (i.e., from the high-water mark to the low-water mark) through each county's Shoreline Management Master Plan and a shoreline permit system consistent with WDOE guidelines.

E.2.3 State Environmental Policy Act of 1971

The Washington State legislature enacted the State Environmental Policy Act of 1971 (SEPA). The statute was amended in 1983, and new implementing regulations (the SEPA rules) were adopted and codified by the WDOE in 1984 as Washington Administrative Code 197-11. The purpose and policy sections of the statute are extremely broad, including recognition by the legislature that "each person has a fundamental and inalienable right to a healthful environment. . . ." SEPA contains a substantive mandate that "policies, regulations, and laws of the State of Washington shall be interpreted and administered in accordance with the policies set forth."

The SEPA applies to all branches of state government, including state agencies, municipal and public corporations, and counties. It requires each agency to develop procedures implementing and supplementing SEPA requirements and rules. Although the SEPA does not apply directly to federal actions, the term "government action" with respect to state agencies is defined to include the issuance

of licenses, permits, and approvals. Thus, as in the NEPA, proposals (federal, state, or private) are evaluated, and may be conditioned or denied through the permit process, based on environmental considerations. The SEPA does not create an independent permit requirement, but overlays all existing agency permitting activities.

E.3 Executive Orders

This section identifies Presidential Executive Orders that clarify issues of national policy and provide guidelines relevant to Monument land-use planning.

E.3.1 Executive Order 11593, Protection and Enhancement of the Cultural Environment

Executive Order 11593 requires federal agencies to direct their policies, plans, and programs in a way that preserves, restores, and maintains federally owned sites, structures, and objects of historical or archaeological significance.

E.3.2 Executive Order 11988, Floodplain Management

Executive Order 11988 directs Federal agencies to establish procedures to ensure that the potential effects of flood hazards and floodplain management are considered for actions undertaken in a floodplain. This order further directs that floodplain impacts are to be avoided to the extent practicable.

E.3.3 Executive Order 11990, Protection of Wetlands

Governmental agencies are directed by Executive Order 11990 to avoid, to the extent practicable, any short- and long-term adverse impacts on wetlands wherever there is a practicable alternative.

E.3.4 Executive Order 12372, Intergovernmental Review of Federal Programs

Executive Order 12372 applies to state review of NEPA documents and to the coordination of state and federal NEPA processes. The goal of this Executive Order is to foster an intergovernmental partnership and a strengthened coordination and consultation process.

E.3.5 Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 directs all federal agencies, to the greatest extent practicable and permitted by law, to achieve environmental justice by identifying and addressing disproportionately high and adverse human health or environmental effects of agency programs, policies and activities on minority populations and low-income populations in the United States and its territories and possessions. This order directs each federal agency, to the extent permitted by existing law, to develop strategies to identify and address environmental justice concerns. The order further directs each federal agency, to the extent permitted by existing law, to collect, maintain, analyze, and make available information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding facilities or sites expected to have a substantial environmental, human health, or economic effect on the surrounding populations. This action is required when these facilities or sites become the subject of a substantial federal environmental administrative or judicial action.

E.3.6 Executive Order 13007, Indian Sacred Sites

Executive Order 13007 directs federal agencies to take measures to protect and preserve American Indian tribes' religious practices. Federal agencies shall, to the extent practicable and permitted by law, and when consistent with essential agency functions, accommodate access to and ceremonial uses of sacred sites by American Indian tribes' religious practitioners. Further, the Executive Order states that federal agencies will comply with presidential direction to maintain government-to-government relations with tribal governments.

E.3.7 Executive Order 13112, Invasive Species

Issued on February 11, 1999, Executive Order 13112 is intended to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. The Executive Order established an Invasive Species Council which created a National Invasive Species Management Plan detailing and recommending

performance-oriented goals, objectives and specific measures of success for federal agencies concerned about invasive species.

E.3.8 Executive Order 13175, Consultation and Coordination with Indian Tribal Governments

Executive Order 13175 further ensures that federal government agencies recognize the unique legal relationship the United States has with Indian tribal governments as set forth in the Constitution of the United States, treaties, statutes, other Executive Orders, and court decisions. It once again recognizes the right of Indian tribes to self-government and to "exercise inherent sovereign powers over their members and territory." It directs federal agencies to work with Indian tribes on a government-to-government basis to address issues concerning Indian tribal self-government, tribal trust resources, and Indian tribal treaty and other rights.

E.4 Presidential and Executive Branch Policies

President Clinton issued a memorandum to the heads of executive departments and agencies regarding government-to-government relations with tribal governments on April 29, 1994. This memorandum directed executive departments and agencies to implement activities that affect tribal rights in a "knowledgeable, sensitive manner respectful of tribal sovereignty." The memorandum outlined principles for executive departments and agencies to follow in their interactions with tribal governments and clarified the responsibility of the federal government to operate within a government-to-government relationship with federally recognized American Indian tribes.

The United States Department of Justice reaffirmed a long-standing policy regarding the relationship between the federal government and American Indian tribes (61 FR 29424). The policy states that the United States recognizes the sovereign status of Indian tribes as "domestic dependent nations" from its earliest days. The Constitution recognizes Indian sovereignty by classifying Indian treaties among the "supreme Law of the Land," and establishes Indian affairs as a unique area of federal concern.

The FWS American Indian policy commits the FWS to working with tribal governments on a government-to-government basis, recognizes the federal trust relationship with tribes and tribal members' treaty rights, and commits the FWS to consultation with tribes regarding agency activities that could potentially affect the tribes.

E.5 Federal and State Laws and Executive Orders That May Apply to the Department of Energy

As the underlying land owner, the DOE is a joint manager of the Monument. There are numerous other laws and orders that apply to the DOE, especially with regard to environmental cleanup of hazardous wastes.[191] These include:

- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Federal)
- Emergency Planning and Community Right-to-Know Act of 1986 (Federal)
- Federal Urban Land-Use Act of 1949 (Federal)
- Hazardous Waste Management Act of 1976 (State)
- Model Toxics Control Act of 1989 (State)
- National Defense Authorization Act of 2002 (Federal)
- Noise Control Act of 1972 (Federal)
- Nuclear Waste Policy Act of 1982 (Federal)
- Pollution Prevention Act of 1990 (Federal)
- Resource Conservation and Recovery Act of 1976 (Federal)
- Safe Drinking Water Act of 1974 (Federal)
- Toxic Substances Control Act of 1976 (Federal)
- Washington Clean Air Act of 1991 (State)
- Water Pollution Control Act of 1945 (State)
- Executive Order 12088, Federal Compliance with Pollution Control Standards
- Executive Order 12580, Superfund Implementation
- Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements
- Executive Order 12866, Regulatory Planning and Review
- Executive Order 12875, Enhancing the Intergovernmental Partnership
- Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks

[191] These laws and orders also apply to the FWS. However, due to the differing missions of the FWS and the DOE, these laws and orders impact the DOE to a greater extent.

E.6 International Agreements

E.6.1 Pacific Northwest Coordination Agreement with United States Utilities

The Pacific Northwest Coordination Agreement (PNCA) is a direct outgrowth of the Columbia River Treaty. The PNCA, also signed in 1964, is a complex contract that provides for coordination of electric power production on the Columbia River to maximize reliability and power production and accommodates non-power objectives.

E.6.2 Non-Treaty Storage Agreement with Canada

This agreement governs the coordination and use of 4.5 million acre-feet of water storage behind Mica and Arrow Dams in British Columbia.

Appendix F – Permit to Operate A National Wildlife Refuge[192]

FIRST AMENDED MEMORANDUM OF UNDERSTANDING
BETWEEN
THE U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE
AND
THE U.S. DEPARTMENT OF ENERGY, RICHLAND OPERATIONS OFFICE
FOR
THE OPERATION OF THE FITZNER-EBERHARDT ARID LANDS ECOLOGY RESERVE AT THE HANFORD SITE

FOURTH AMENDEMENT TO THE WAHLUKE SLOPE PERMIT

This is the First Amended version of the document entitled: "The Memorandum of Understanding between the U.S. Fish and Wildlife Service and the U.S. Department of Energy, Richland Operations Office for the Operation of the Fitzner-Eberhardt Arid Lands Ecology Reserve at the Hanford Site," original signed June 20, 1997 (hereafter "Original MOU"). This document wholly incorporates and amends the originally signed version. The ALE permit issued concurrently with the Original MOU remains in force, with the understanding that nothing in said permit shall be interpreted to be inconsistent with this Amended MOU. This document is the fourth amendment to the Wahluke Slope Permit, Contract No. AT(45-1)-2249, and nothing in that permit shall be interpreted to be inconsistent with this Amended MOU.

WHEREAS, the U.S. Department of Energy (DOE) Hanford Site, Washington, possesses nationally significant natural, cultural, and scientific resources;

WHEREAS, under the 1971 Permit for Management and Recreational Use of the Wahluke Slope between the DOE and the U.S. Fish and Wildlife Service (FWS) and the Washington State Department of Fish and Wildlife (WDFW), as amended, the 1999 Memorandum of Concurrence for understanding management authorities and responsibilities between the DOE Assistant Secretary for Environmental Management and the DOI Assistant Secretary for Fish, Wildlife and Parks for the North Slope (Wahluke Slope) of the Hanford Site, and the 1997 Permit and Memorandum of Understanding for Management of the Fitzner-Eberhardt Arid Lands Ecology Reserve Between the DOE and FWS, the FWS currently manages the fish, wildlife, resources on a large portion of the Hanford Site as the Saddle Mountain unit of the National Wildlife Refuge System;

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[192] Taxonomy follows Hitchcock and Cronquist 1973. See Sackschewsky and Downs (2001) for a complete listing of Hanford Site vascular plants.

WHEREAS, the President of the United States in Presidential Proclamation 7319 created the Hanford Reach National Monument (Monument) which is superimposed over a large portion of the DOE Hanford Site and most of Saddle Mountain National Wildlife Refuge;

WHEREAS, the mission of the FWS is to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people; the mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans; resource management activities by the FWS will preserve the character of the Monument; and the Secretary of the Interior is authorized to provide assistance to, and cooperate with, Federal, State, Tribal governments and public or private agencies and organizations to protect and preserve wildlife and its habitat;

WHEREAS, DOE and the United States Department of the Interior are mutually interested in preserving the nationally significant resources which are present on the Monument;

WHEREAS, DOE has entered into agreements with the FWS, under which FWS has assumed management of these resources on portions of the Monument; and consistent with above authorities described herein, DOE remains responsible for the management and protection of these resources for those lands within the Monument not currently managed by FWS, as well as those lands on the Hanford Site not within the Monument;

WHEREAS, FWS and DOE have determined that the conservation and continued protection of the nationally significant resource values of the Refuge will further the mission of the FWS;

WHEREAS, to ensure that the Refuge is managed as a resource that provides an opportunity for Native Americans to exercise traditional religious and cultural activities consistent with the foregoing objectives;

THEREFORE, DOE-RL and FWS agree as follows:

1.0 DEFINITIONS:

1.1 The term "CCP" means Comprehensive Conservation Plan; a FWS document that describes the desired future conditions of the Refuge and provides long-range guidance and management direction for the Refuge project leader/manager to fulfill the purposes of the Refuge, contribute to the mission of the National Wildlife Refuge System, and to meet other relevant mandates.

1.2 The terms "Department of Energy" and "DOE" mean the United States Department of Energy including the DOE-Headquarters Office, District of Columbia (DOE-HQ), and/or DOE-Richland, Washington, Office (DOE-RL), and Office of River Protection (ORP), or any duly authorized representatives thereof.

1.3 The term "DOE Contractor" refers to the various key contractors at the Hanford Site, identified in Attachment 2 of the Memorandum of Understanding (MOU), which are delegated responsibility by DOE-RL for certain aspects of operations that may be on, or may affect, the Monument. DOE-RL may amend the list of contractors found in Attachment 2 and the amended list will become effective after DOE-RL notifies FWS in a manner consistent with the MOU.

1.4 The term "FACA" means Federal Advisory Committee Act. The Hanford Reach National Monument Planning Advisory Committee was formed under this Act, at the direction of the Secretary of the Interior, to make recommendations to FWS and DOE on the preparations of a Comprehensive Conservation Plan (CCP) for the Monument.

1.5 The term "FWS" means the United States Fish and Wildlife Service or any duly authorized representative thereof.

1.6 The term "FWS Project Leader" means the FWS designated official responsible for those areas of the Hanford Site under FWS management.

1.7 The term "Government" means the United States of America or any agency thereof.

1.8 The term "Hanford Reach National Monument" or "Monument" means the area identified in Presidential Proclamation 7319. Pending completion of a final legal description of the Monument, an interim boundary map is included in Attachment.

1.9 The term "Hanford Site" is that area of federally-owned land that lies within the semiarid Pasco Basin of the Columbia Plateau in southeastern Washington State which is managed by the DOE-RL. The site occupies an area of approximately 586 square miles located north of the city of Richland at the confluence of the Yakima River with the Columbia River. The Hanford Site extends approximately 48 miles north to south and 38 miles east to west.

1.10 The term "Service policy" means direction found in the FWS Manual, Refuge Manual, Executive Orders, or similar documents providing approved management guidance for FWS-administered lands and programs.

1.11 The terms "Saddle Mountain National Wildlife Refuge" or "Refuge" means:

> The 32, 000 acre area of the Hanford Site administered by FWS in accordance with the 1971 Permit for Management and Recreational Use of the Wahluke Slope between DOE and the Fish and Wildlife Service (FWS) and the Washington State Department of Fish and Wildlife as amended (1971 Permit), and the 1999 Memorandum of Concurrence for understanding management authorities and responsibilities between the DOE Assistant Secretary for Environmental Management and the DOI Assistant Secretary for Fish Wildlife and Parks for the North Slope (Wahluke Slope) of the Hanford Site (1999 MOC)

except for those areas within the Wahluke Slope that remain under DOE management (See Appendix 1 Map); the approximately 57,000 acres of the former Wahluke Wildlife and Recreational Area formerly managed by the Washington Department of Fish and Wildlife in accordance with the 1971 Permit and 1999 MOC except for those areas within the Wahluke Slope that remain under DOE management (See Appendix 1 Map); and the 77,000-acre Fitzner-Eberhardt Arid Lands Ecology Reserve managed in accordance with the 1997 Permit and Memorandum of Understanding for Management of the Fitzner-Eberhardt Arid Lands Ecology Reserve Between DOE and FWS, except for those areas that remain under DOE management (See Appendix 1 Map);

1.12 The term "Designated Federal Official" means an agency employee designated by the sponsoring agency to manage the affairs of a Federal Advisory Committee. As provided by the Federal Advisory Committee Act, the Designated Federal Official is responsible for: calling, attending, and adjourning meetings; approving agendas, maintaining required records on costs and membership; ensuring efficient operations; maintaining records for availability to the public; and providing copies of committee reports to the Committee Management Officer for forwarding to the Library of Congress.

2.0 AUTHORITIES:

2.1 DOE-RL enters into this agreement pursuant to the authority of the Economy Act, as amended (31 U.S.C. §1535); the Atomic Energy Act of 1954, as amended (42 U.S.C. §§ 2011-2259); the Energy Reorganization Act of 1974 (P.L. 93-438); the Department of Energy Organization Act (P.L. 95-91); Executive Order 12512; Presidential Proclamation 7319 and other applicable authorities.

2.2 FWS enters into this agreement pursuant to the authority of Sections 1 and 4 of the Fish and Wildlife Coordination Act, 16 U.S.C. Sections 661 and 664; the National Wildlife Refuge System Administration Act of 1966, 16 U.S.C. §§ 668dd-668ee as amended; the National Wildlife Refuge Improvement Act of 197 (P.L. 105-57); Antiquities Act 16 U.S.C. 431-433; Presidential Proclamation 7319; and other applicable authorities.

3.0 OBJECTIVES:

3.1 The primary objective of DOE in entering into this agreement is to ensure the preservation of natural and cultural resources of the Refuge while continuing current use of portions of the Refuge as a Research Natural Area and as a safety buffer for DOE-RL's ongoing missions on the Hanford Site.

3.2 The primary objective of the FWS in entering into this agreement is to ensure that the parts of the Monument managed by FWS are managed in accordance with Presidential Proclamation 7319 of June 9, 2000, under the:

1971 Permit for Management and Recreational Use of the Wahluke Slope between DOE and the Fish and Wildlife Service (FWS) and the Washington State Department of Fish and Wildlife as amended;

1999 Memorandum of Concurrence for understanding management authorities and responsibilities between the DOE Assistant Secretary for Environmental Management and the Department of Interior Assistant Secretary for Fish Wildlife and Parks for the North Slope (Wahluke Slope) of the Hanford Site;

1997 Permit and Memorandum of Understanding for Management of the Fitzner-Eberhardt Arid Lands Ecology Reserve Between DOE and FWS;

3.3 Other objectives of importance to both DOE and FWS are:

3.3.a To ensure that the integrity of the Refuge as an intact ecological unit is maintained;

3.3.b To ensure that the Refuge is managed as a resource that provides an opportunity for Native Americans to exercise traditional religious and cultural activities consistent with the foregoing objectives;

3.3.c To ensure that access to the Refuge is available for the educational, scientific, and recreational benefit of the public to the extent this access and use is consistent with the foregoing objectives and compatible with Refuge purposes;

3.3.d To ensure that worker safety and public protection are maintained;

3.3.e To ensure protection and preservation and continued monitoring of nationally significant cultural resources including archeological and historic resources and traditional cultural places.

4.0 FWS RESPONSIBILITIES:

4.1 MANAGEMENT PLANNING - FWS will be the lead agency developing a CCP and accompanying National Environmental Policy Act (NEPA) documentation for the Monument. This plan will be developed with the involvement of the public, local governments, other affected agencies, and affected Native American Tribes. Subject to appropriate funding, FWS will in good faith attempt to have a draft plan developed within 36 months of the signing of this MOU. The draft and final plan will be subject to timely review and approval by DOE-RL.

4.1.a The FWS will be the lead agency to form and work with the Hanford Reach National Monument Federal Planning Advisory Committee to develop the plan.

4.1.b FWS will consider using existing resource management plans (Hanford Site Biological Resources Management Plan, Noxious Weed Management Plan, Annual Sampling Plans, and the Hanford Cultural Resources Management Plan) and other resources and expertise to maximize efficiencies and minimize duplication of effort in developing the CCP.

4.2 ACCESS - FWS shall have responsibility for controlling access to the Refuge except for those entering under the authority of DOE-RL.

4.2.a An access agreement will be developed between FWS and DOE-RL to coordinate timely access.

4.2.b FWS shall provide those under FWS authority entering the restricted areas in the Refuge with information furnished by DOE concerning potential risks and appropriate procedures as required under the emergency preparedness planning documents and require that they have necessary equipment to allow for immediate notification in case of emergency situations.

4.2.c FWS shall identify appropriate points of contact (POC) and will consult with appropriate DOE-RL POCs, as identified in Attachment 4 of this MOU, regarding access control, and protective measures related to emergency preparedness.

4.2.d FWS will promptly notify the appropriate DOE-RL (POC) of any FWS activity, or activity by others under the jurisdiction of FWS, that may have the potential to impact any DOE-RL activity on the Hanford Site, or that may impact the ability of DOE-RL to adequately assess potential impacts from operations at Hanford on the health of the public or the environment. In addition, FWS will provide to DOE-RL a summary of ongoing activities, activities identified in active Special Use Permit applications, and planned activities on an agreed upon frequency, but no less than semi-annually.

4.2.e An FWS official will be the "Federal Agency Official" for implementing the Native American Graves Protection and Repatriation Act (NAGPRA) and the National Historic Preservation Act (NHPA) on the Refuge. FWS will promptly notify the appropriate DOE-RL POC of any "determination" under the NHPA, and any "inadvertent discovery" or planned "intentional excavation" under NAGPRA.

4.3 FWS shall be responsible for notifying DOE-RL if FWS discovers any hazardous (or dangerous), toxic, or radioactive wastes or other substances of concern, or of the release or threatened release of such substances on the Refuge as soon as reasonably possible following discovery.

4.4 FWS shall notify DOE-RL of any accident, injuries, fires, thefts, or similar events as soon as reasonably possible following discovery. Appropriate DOE-RL POCs are identified in Attachment 4.

4.5 FWS and its authorized representatives are responsible for assuring that the design, siting, construction, operation, maintenance, and repair of any new or existing facilities needed in the operation of the Refuge meet all cultural, environmental, health, and safety criteria under applicable laws and regulations, and are in accordance with FWS policy and the Monument Proclamation. All proposed new construction or modification of existing structures on Hanford Site lands must be approved by DOE-RL. DOE-RL will consult with FWS concerning structures required by DOE-RL to be placed on the Refuge to fulfill DOE missions. List of facilities on lands designated in Section 1.11 identified in Attachment 5.

4.6 FWS and its authorized representatives are responsible for compliance with all applicable laws and regulations for activities at the Hanford Site performed by FWS or its authorized representatives.

4.7 Unless otherwise agreed to by DOE-RL, the FWS and its authorized representatives are responsible, upon termination or expiration of this MOU, for funding the ultimate disposition of any FWS facilities constructed during the effective term of this agreement, including performing and documenting the environmental analysis of such disposition as required by NEPA and any other applicable statutory requirements. FWS proposed methods of disposition of constructed facilities on the Refuge are subject to DOE-RL approval.

4.8 FWS may, consistent with Service policy and within the limits of available personnel, provide various services to DOE-RL, upon request, on a cost reimbursable basis.

4.9 FWS will seek to enter into consultation agreements and access agreements as appropriate with Native American Tribes and peoples concerning traditional, cultural, and religious activities on the Refuge. Such agreements shall be subject to DOE-RL approval.

4.10 It is understood that FWS and DOE will cooperate to evaluate and reduce threats to the public and the environment. The FWS expressly recognizes that it shall be responsible for the costs associated with any removal or remedial action required by applicable laws or regulations which arise solely as a result of FWS management actions on the Refuge, or as a result of actions of others present on the Hanford Site who are under authority of the FWS, except for those parties authorized by DOE.

4.11 The Refuge Project Leader will serve as the Designated Federal Official to the Hanford Reach National Monument Planning Federal Advisory Committee.

4.12 The FWS is responsible for implementation of Public Law 100-605 as amended by Section 404 of P.L. 104-333 (Hanford Reach Protection).

4.13 FWS will promptly share environmental and cultural resource information with DOE-RL.

4.14 FWS will consult with DOE-RL in regards to any new land use proposals which may affect the Hanford Site or land designated by the Comprehensive Land Use Plan, Proclamation, or Memorandum as suitable for inclusion into the Monument and/or Refuge.

5.0 DOE-RL RESPONSIBILITIES:

5.1 DOE-RL is responsible for Payment in Lieu of Taxes for the Hanford Site to the extent such payments are required under the Atomic Energy Act.

5.2 DOE-RL is responsible for the administration of all third party rights and uses, including easement, licenses, and permits granted by DOE-RL to third parties for activities that are ongoing on the Hanford Site as identified in Attachment 3 to this MOU. This responsibility includes administrative controls, access, and infrastructure maintenance to support the third party activities. DOE-RL will consult with the FWS Project Leader regarding any new, or changes to, grants of easements, licenses, permits, or any other activities involving third parties on the Monument.

5.3 DOE-RL shall revise Attachments 2, 3, 4, and 5 of this MOU on an annual basis, or more often as required. Copies of the revisions shall be made available to FWS.

5.4 DOE-RL will consult with FWS to determine the need for additional analysis and monitoring of contaminants on the Refuge. FWS shall be responsible, fiscally and physically, for meeting objectives solely the responsibility of FWS. FWS will consult with and utilize existing capabilities and monitoring programs to maximize efficiency in performing any monitoring programs and avoid duplication of activities and/or capabilities to the extent possible.

5.5 DOE-RL, through its contractor(s), to the extent that DOE-RL and FWS agree to be appropriate and feasible, is responsible for providing FWS the use of, and making available, the existing and future developed Hanford Site support services, including the infrastructure, the electric power supply, telecommunications support, records and data from past, present, and future Refuge programs, and other needed site services for these lands.

5.6 DOE-RL shall notify the FWS Project Leader of any significant accident, injuries, fires, material releases, thefts, or other unusual occurrences or which might affect Refuge lands as soon as reasonably possible following discovery.

5.7 DOE-RL will continue to support tribal participation in the Hanford Site decision making process commensurate with their responsibilities identified in this MOU.

5.8 DOE-RL shall be responsible for providing to the FWS Project Leader access to available information on past or present hazardous (or dangerous) toxic, or radioactive wastes or other substances of concern which could potentially affect the Refuge.

5.9 DOE shall have responsibility for controlling access to the Refuge for those entering under the authority of DOE-RL, and shall keep the FWS Project leader for the Refuge informed regarding access and use needs for DOE-RL or DOE-RL approved activities.

5.10 DOE will work with FWS to identify, plan and seek funding for land surveys for the Monument and boundary marking as appropriate.

5.11 DOE will cooperate in the preparation of a CCP and accompanying NEPA documentation for the Monument.

5.12 DOE will, at no cost, provide the opportunity for FWS personnel and FWS-authorized representatives working on the Hanford Site to receive appropriate HAZWOPER, Radiation Worker I, and any other safety and first aid training necessary to access the site.

5.13 DOE-RL will designate a representative to work with Hanford Reach National Monument Federal Advisory Committee.

5.14 DOE will make the Hanford Cultural Resources Laboratory at the Pacific Northwest National Laboratory available to FWS as a repository and central clearinghouse for cultural resources.

5.15 DOE-RL will consult with FWS regarding any land use proposals which may affect the Refuge.

5.16 DOE will provide, as necessary, badging and dosimetry to FWS personnel.

5.17 DOE must approve all proposed land use changes or proposed construction sites.

5.18 DOE will consult with FWS on long-term management of the cultural, natural, and biological resources as part of integrated long-term stewardship planning for the Hanford Site.

5.19 DOE will share environmental and cultural resource information with FWS and designated contractor(s).

6.0 PROGRAM FUNDING:

6.1 DOE-RL and FWS will fund, on a basis proportionate to their respective use, continuing maintenance of Refuge facilities including roads.

6.2 FWS and/or its authorized representatives will fund any cultural or environmental mitigation required to allow construction and/or operations by the FWS and/or its authorized representatives on the Hanford Site.

6.3 DOE-RL and FWS will work together to determine funding needs for facility operations, improvements and facilities to enhance Monument operations and accommodate increased tribal and public access consistent with the CCP.

6.4 Any requirements for payment or obligations of funds by FWS or DOE-RL established by the terms of this MOU shall be subject to the availability of appropriated funds and other legal limitations.

6.5 Except as otherwise negotiated in separate funding agreements, each party shall be responsible for funding its responsibilities under this MOU.

6.6 DOE will provide FWS with existing and updated GIS data as available for lands and resources associated with management of the Refuge. Costs associated to provide information and underlying data available in FWS-usable format, if different than existing format, will be provided by FWS. In addition, FWS and DOE must evaluate the need to duplicate existing site capabilities and expertise and ensure controls are in place to preclude the generation of conflicting versions of GIS layers, environmental data, and assessment results and/or the release of outdated information as time proceeds.

7.0 INTERAGENCY INTEGRATED MANAGEMENT ARRANGEMENTS:

7.1 This MOU allows and encourages direct communication between DOE and FWS officials involved in managing the Refuge. Sharing of information regarding natural and cultural resources will be a priority. The parties will make available to each other existing GIS, historical surveys/studies, biological surveys, cultural surveys, contaminant related information, and other information necessary to appropriately manage and protect the Refuge resources. Each party will take actions necessary to assure confidentiality of all natural and cultural resource data where appropriate, as determined by each agency.

8.0 PUBLIC INFORMATION COORDINATION:

8.1 The agencies agree that prior to the release of any significant information regarding the Refuge or management thereof, such as a statement to the press, they shall consult together regarding the content of such a release. Each agency will identify a specific point of contact to coordinate the release of information to the public pertaining to the Refuge.

9.0 AMENDMENT AND TERMINATION:

9.1 This MOU may be amended by written agreement between the Manager, DOE-RL and the FWS Pacific Northwest Regional Director.

9.2 It is the intent of the Parties that this MOU shall remain in effect for twenty-five years unless terminated earlier as provided herein. This Permit shall be renewed automatically upon expiration of each effective period unless either party indicates a contrary intent.

9.3 With respect to the ALE, this MOU and the ALE permit shall be terminable upon the same conditions under which the June 1997 ALE permit may be terminated. With respect to the Wahluke Slope, this MOU and the Wahluke Slope permit shall be terminable upon written agreement of the FWS Regional Director and the DOE-RL manager.

9.4 The MOU may be terminated for cause if either party fails to abide by the terms and conditions of the MOU.

10.0 EFFECTIVE DATE AND EXTENSIONS:

10.1 This MOU shall become effective upon the latter date of signature of the parties. It shall remain in effect until terminated pursuant to Section 9.0 of this MOU.

11.0 OTHER PROVISIONS:

11.1 Nothing in this MOU will be deemed to establish any right or provide a basis for any action, either legal or equitable, by any person or class of persons challenging a government action or a failure to act.

11.2 All areas managed by the FWS within the Hanford Site will be managed as an overlay Refuge unit of the National Wildlife Refuge System unless otherwise noted by amending this agreement.

11.3 Additional land within the Hanford Site currently managed by DOE may also become part of the Refuge by amending this agreement.

11.4 Lands may be transferred back to DOE management in the event that FWS-managed lands become contaminated through DOE operations from groundwater movement, air deposition, or by other means. Particular portions of Refuge lands will be transferred back to DOE management upon request of DOE and 180 days notice.

11.5 Law enforcement, emergency planning, fire protection and emergency medical services shall be managed in accordance with existing and future agreements, permits, MOUs, and memoranda.

11.6 Nothing in this agreement shall be interpreted to impose upon DOE standards for environmental cleanup, or any other form of liability, which exceed or which are different from those which would be imposed in the absence of this agreement.

11.7 If required by DOE for safety or security buffer zone purposes, FWS shall impose use and occupancy restrictions as specified by DOE upon particular parcels of land.

U.S. Department of Energy
Manager, Richland Operations Office, WA

Signature: _____

Name: KEITH KLEIN

Date: June 14, 2001

U.S. Fish and Wildlife
Pacific Regional Director

Signature: _____

Name: ANNIE BADGLEY

Date: June 14, 2001

Appendix F – Refuge Permit, Attachment 1, Maps

Omitted, see Map Section for Monument maps.

Appendix F – Refuge Permit, Attachment 2, Hanford Site Operations and Contractors

DOE Richland Operations Office Contractors and Subcontractors

- Battelle Memorial Institute (Operates Pacific Northwest National Laboratory)
- Bechtel Hanford, Inc.
- CH2M Hill Hanford, Inc.
- Eberline Services Hanford, Inc.
- Benton County Sheriff
- Fluor Daniel Hanford, Inc.
- Babcock and Wilcox Hanford Company
- Numatec Hanford Corporation
- Waste Management Federal Services of Hanford, Inc.
- DynCorp Tri-Cities Services, Inc.
- Protection Technology Hanford
- Hanford Environmental Health Foundation
- Interstate Nuclear Services (operates off-site laundry for contaminated clothing)
- Johnson Controls, Inc. (operates steam producing boilers)

DOE Office of River Protection Contractors

- British Nuclear Fuels Limited, Inc.
- Lockheed Martin Hanford Corporation

Other Activities Onsite

- Bonneville Power Administration (Operates electrical substations and switching stations.)
- US Ecology, Inc. (Operates commercial radioactive waste disposal site.)
- Energy Northwest (Operates commercial nuclear power plant.)
- National Science Foundation (Operates Laser Interferometer Gravitational-Wave Observatory.)
- Kaiser Aluminum and Chemical Corporation (Operates commercial metal extrusion press.)
- Washington State University (Operates three laboratories.)

Appendix F – Refuge Permit, Attachment 3, Ongoing ALE Research, Studies, Projects, Activities and Users

Agency/Organization	Project	Contact
WSU Pullman	Insect Diversity	Richard Zack
WSU Tri-Cities	Insect Ecology	Lee Rogers
WSU Tri-Cities	Misc. M.S. Thesis Projects	Gene Schreckhise
WSU Tri-Cities	Rorripa Study	Sally Simmons
WSU-Agriculture	Biological Control Insects	Wyatt Cone, Keith Pike
WSU/PNNL	Sagebrush Physiology and Genetics	Jannelle Downs
DOE PASS Program	Joint Research	Karen Wieda
DOE/PNNL	Soil Moisture	Karin Hover
DOE/PNNL	LIGO Vibration	Alan Rohay
DOE/PNNL	NN20 Broad	Alan Rohay
DOE/PNNL	Ground Water Surveillance	Doug Hildebrand
DOE/PNNL	Ecosystem Monitoring Sampling	Larry Cadwell
DOE-HQ/PNNL	Global Climate	Jerry Stokes
DOE-HQ/PNNL	Global Climate	Harvey Bolton
TNC	Biotic Inventory	Curt Soper
USEPA	Pesticide Drift	Mike Marsh
WDFW	Avian Diversity/Habitat	Mathew VanderHaegen
WDFW	Sagebrush Restoration	Lisa Fitzner
WDFW	Understory Effects of Habitat	Lisa Fitzner
WDFW	CERCLA Restoration Site Monitor	J. McConnaughey
University of Washington	Earth Crust Small Scale Movement	Alan Rohay
National Seismic Network	Low Vibration	Alan Rohay

Agency/Organization	Project	Contact
PNNL	Utilities Operations	J. Massey
PNNL	ALE Facilities	C. Nelson
PNNL	Cultural Resource Reviews	Darby Stapp
PNNL	Operations Manager	B. Robertson
PNNL	Soil ET Lysimeters	Glendon Gee
Waste Management Federal Services of Hanford, Inc.	Ground Water Well Maintenance	M. Gardner
Waste Management Federal Services of Hanford, Inc.	Ground Water Well Sampling	D. Edwards
Waste Management Federal Services of Hanford, Inc.	Integrated Pest Management	R. Giddings
Washington Public Power Supply System	Emergency Alert Siren	Bill Flynn
DOE	Radio Site on Rattlesnake Mountain	Bill Spocich
Columbia Communications	Radio Site on Rattlesnake Mountain	Mike Gerdes
Motorola Network Services	Radio Site on Rattlesnake Mountain	Ron Kohler
Western Paging I	Radio Site on Rattlesnake Mountain	Bob Young
Tri-Cities Amateur Radio Club	Radio Site on Rattlesnake Mountain	Ernie Place
WA Department of Transportation	Gravel Stockpile along Highway 240	Elba Richards
Big Bend Alberta Company	Mineral Rights	Currently Undetermined

Agency/Organization	Project	Contact
Alliance of Advancement of Science through Astronomy Lawrence Berkeley Lab.	Electronic Access to Rattlesnake Observatory	Roy Gephardt
University of Washington University of California	Basic Research	Roy Gephardt
BHI/CERCLA	Vegetation Restoration	Ken Gano
U.S. Biological Service	Plant Growth Patterns/Stress	Steve Link
AWU Northwest	Ecology Studies	Kathy Lundgren
PNNL	Public Affairs Tours	K. Blasdel
PNNL	General Maintenance	R. Gooding, C. Rosscup
PNNL	Ecological Assessments Vegetation Restoration	C. Brandt, M. Sackschewsky
PNNL	Seismic Monitoring	Alan Rohay
PNNL	Climatological and Meteorological Research	D. Knight

Appendix F – Refuge Permit, Attachment 4, Point of Contact List

U.S. Fish and Wildlife Service Refuge Project Leader. . . . . Greg Hughes

Elements Associated with Managing the Monument Lands, DOE Point of Contact

Biological and Natural Resources; Radiation
Protection of the Public and Environment;
Existing Uses Coordination. . . . . Dana Ward
Industrial Mineral Resources Management. . . . . Jamie Zeisloft
Noxious Weed Control. . . . . John Hall
Signs, Markers, Boundary Survey; Utilities and Infrastructure. . . . . Steve Burnum
Emergency Planning and Preparedness. . . . . Judy Tokarz-Hames
Environmental Regulatory Compliance (hazardous waste, air, water). . . . . Cliff Clark
National Environmental Policy Act. . . . . Paul Dunigan
Cultural Resources. . . . . Dee Lloyd
Hanford Comprehensive Land Use Plan Environmental
Impact Statement; Visual and Aesthetics Management. . . . . Tom Ferns
Environmental Restoration; Contaminant Issues;
Natural Resource Trustee Council. . . . . Jamie Zeisloft
Emergency Services (Fire Control). . . . . Craig Christenson
Occupational Radiation Protection. . . . . Brenda Pangborn
Federal Advisory Committee; Public Information Releases. . . . . Marla Marvin
Native American Affairs. . . . . Kevin Clarke
Tourism/Visitation/Public Access. . . . . Mary Goldie
Payment in Lieu of Taxes. . . . . Ed Hiskes
Realty and Use Permits. . . . . Roger Jacob, Boyd Hathaway
Site Planning; Long-Term Stewardship. . . . . Jim Daily
Budget. . . . . Jim Peterson
Nuclear Safety Analysis. . . . . Mark Jackson
Aviation Safety. . . . . Gerry Bell

Appendix F – Refuge Permit, Attachment 5, List of Facilities

Space Science Laboratory
Storage Building
Pumphouse
Atmospheric Facility
Atmospheric Facility
Lysimeter Preparation Building
ALE Field Storage
ALE Laboratory I
ALE Headquarters
ALE Laboratory II
Pumphouse
Rattlesnake Mountain Lower Pumphouse
Fallout Laboratory
Storage Building
Fire Protection Pumphouse
Upper Pumphouse
NIKE Missile Silo
Rattlesnake Springs Research Facility
DOE Repeater Facility
Navy Mars Radio Building

Appendix G – Hanford Reach National Monument Federal Advisory Committee Members

The FAC was comprised of thirteen members, thirteen alternates, and one Designated Federal Officer from the FWS. Although the FAC charter was amended to include nineteen members, this was never implemented, and the charter expired with the initial member composition in use. At the time of the FAC charter expiring, the FAC members included:

State of Washington:
Member: Jeff Tayer, Washington Department of Fish and Wildlife
Alternate: Ron Skinnarland, Washington Department of Ecology

Native American:
Member: Vacant
Alternate: Rex Buck, Wanapum

County:
Member: Leo Bowman, Benton County (Commissioner)
Alternate: Frank Brock, Franklin County (Commissioner)

City:
Member: Vacant
Alternate: Bob Thompson, City of Richland (Mayor)

K-12 Education:
Member: Karen Wieda
Alternate: Royace Aikin

Economic Development:
Member: Jim Watts (Chair) Tri-Cities Industrial Development Council
Alternate: Harold Heacock, Tri-Cities Industrial Development Council

Irrigation/Public Utility Districts:
Member: Vacant
Alternate: Nancy Craig, Grant County Public Utilities District #5

Conservation/Environmental:
Member: Rick Leaumont, Lower Columbia Basin Audubon Society
Alternate: Mike Lilga, Lower Columbia Basin Audubon Society

Outdoor Recreation:
Member: Rich Steele, NW Conservation League
Alternate: Mike Wiemers, NW Conservation League

Public-At-Large:
Member: Kris Watkins
Alternate: Valora Loveland

Scientific/Academic:
Member: Michele Gerber
Alternate: Eric Gerber

Scientific/Academic:
Member: David Geist, Pacific Northwest National Laboratory
Alternate: Dennis Dauble, Pacific Northwest National Laboratory

Scientific/Academic:
Member: Gene Schreckhise, Washington State University
Alternate: Vacant

Designated Federal Officer: Greg Hughes, Project Leader, Hanford Reach National Monument

Appendix H – Appropriate Monument Uses

Public uses on national wildlife refuges are considered 'closed' until specifically opened. Opening such uses is a two-part process. First, the proposed use must be determined to be an "appropriate use" of the refuge. Second, if a use is found to be appropriate, then it must be found to be compatible with the purposes of the refuge (see Appendix I) in order to be allowed. Compatibility determinations do not need to be developed for uses found to be not appropriate.

Under the FWS Appropriate Refuges Uses policy (601 FW 1), there are nine categories of refuge uses and activities which are found to be appropriate or otherwise exempt from the requirement for evaluation of appropriateness. These are:

1) Situations where the FWS does not have adequate jurisdiction to prohibit a use.

2) The exercise of reserved rights, treaty rights by Native Americans, or other situations where legal mandates state FWS-NWRS must allow certain uses.

3) Refuge management activities, not including refuge management "economic" activities (see 603 FW 2.6 N.).

4) Wildlife-dependent public uses—hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

5) The take of fish and wildlife regulated by a state (e.g., through fishing, hunting, and trapping).

6) Authorized military activities that directly benefit refuge purposes.

7) Uses which have already been described in a refuge CCP or step-down management plan approved after October 9, 1997.

8) Uses which contribute to fulfilling the NWRS mission, or refuge purpose(s), goals, or objectives which are described in a refuge management plan approved after October 9, 1997.

9) State fish and wildlife agency activities which have been documented to directly contribute to achievement of refuge purpose(s), goals, and the NWRS mission; are addressed in a CCP or formal agreement; or are approved under national policy.

This appendix provides the FWS's appropriateness review for uses identified by some portion of the public as being desirable on the Monument. With few exceptions (below), the refuge manager must decide if a new or existing use is appropriate. In assessing whether a secondary use is appropriate, the refuge manager must evaluate the following ten factors (the letters correspond to the evaluation criteria in the Appropriate Uses form):

a) Does the FWS have jurisdiction over the use? If the FWS does not have jurisdiction over the use or the area where the use would occur, then there is no authority to consider the use.

b) Does the use comply with all applicable laws and regulations? The proposed use must be consistent with all applicable laws and regulations (e.g., federal, state, tribal and local). Uses prohibited by law are not appropriate.

c) Is the use consistent with applicable Executive Orders and Department and FWS policies? If the proposed use conflicts with an applicable Executive Order or Department or Service policy, the use is not appropriate.

d) Is the use consistent with public safety? If the proposed use creates an unreasonable level of risk to visitors or staff, or if the use requires staff to take unusual safety precautions to assure the safety of the public or refuge staff, the use is not appropriate.

e) Is the use consistent with refuge goals and objectives in an approved management plan or other document? Refuge goals and objectives are designed to guide management toward achieving refuge purpose(s). Goals and objectives for the Monument are defined in Chapter 2 of the CCP.[193] If the proposed use, either itself or in combination with other uses or activities, conflicts with a refuge goal, objective, or management strategy, the use is generally not appropriate.

f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed? If the use was already considered and rejected as not appropriate, then it should not further unless circumstances or conditions have changed significantly.

g) For uses other than wildlife-dependent recreational uses, is the use manageable with available budget and staff? If a proposed use diverts management efforts or resources away from proper, reasonable management of a refuge activity or wildlife-dependent recreational use, the use is generally not appropriate.

h) Will the use be manageable in the future within existing resources? If the use would lead to recurring requests for the same or similar activities that will be difficult to manage in the future, then the use is not appropriate.

I) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to those resources? If not, then the use will generally not be further considered.

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[193] Refuges may also rely on goals and objectives found in comprehensive management plans or refuge master plans developed prior to passage of the Improvement Act, as long as these goals and objectives comply with the tenets and directives of the Improvement Act.

j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality, compatible, wildlife-dependent recreation into the future? If not, the use is generally not further considered.

If an existing use is found to be not appropriate, the refuge manager must eliminate or modify the use as expeditiously as practicable. If a proposed new use is not appropriate, the refuge manager must deny the use (601 FW 1.3).

Rationale

As Monument staff developed the Appropriate Uses findings, it became apparent that the assumptions and ideas that went into the process should be documented. The following is not a full representation of the hours of discussions and research that went into the appropriateness use evaluation process, but it does identify the key concepts involved in the findings.

1) The most common or traditional application of the use was addressed. For example, geocaching typically involves the leaving or taking of an item as part of the activity. Participants in field dog trials in the area like to use horses. Etc. These common uses will be addressed individually below.

2) The answer to Decision Criteria E was, in all instances, "no." This was based on the fact that the Monument designation is a recent event, and as such, it has never had an "approved" management plan. However, the fact that the Monument does not yet have an approved management plan was not a factor in making appropriateness findings for the Monument.

3) Several activities were broken into different parts for the sake of clarity. For example, camping, when considered as a whole, was not an appropriate use of the Monument with the current resources available. However, limited camping along the river to ensure public safety is possible with existing or reasonably foreseeable resources. Splitting these activities into two different appropriate use analyses provided for a clear picture of what was appropriate and possible.

4) The analysis for biking on roads was limited to roads directly under the control, management and maintenance of the FWS. County and state roads (e.g., State Route 24), even though within the Monument, were not considered as part of the appropriateness evaluation as the FWS does not have jurisdiction over these roads.

5) Biking on specially constructed and/or designated trails was determined not be an appropriate use due to the Monument Proclamation and accompanying implementation paper from the White House. Those documents ". . . prohibits motorized and mechanized vehicle travel off road . . .." The FWS has interpreted this to include trails; that is, trail use

is considered an "off road" use. This is consistent with final rules established by the USFS on November 9, 2005 (FR 70, 216, pages 68263-91; 36 CFR Parts 212, 251, 261 and 295), whereby a road is defined as "a motor vehicle route over 50 inches wide" and a trail is "a route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail." The FWS may dually designate some existing roads as trails, in which case, biking on the 'trail' would be allowed.

6) Camping—other than for floatboating—was defined as needing at least minimal facilities and maintenance, such as sanitation, fire protection, site hardening, garbage removal, and toilet pumping. The appropriate use analysis was based on these minimum facilities and not on specialized facilities, such as recreational vehicle hookups, showers, etc.

7) Floatboat camping was defined on a pack-it-in, pack-it-out basis with no open flames allowed. All camping would be at a minimum number of defined and hardened sites distributed through a lottery system.

8) The analysis for field dog trials was based on past activities on the Monument. These previous field dog trials involved camping, the use of horses, cooking, and overnight horse tie-ups.

9) As mentioned, geocaching was defined as the taking or leaving of objects, which is inconsistent with FWS policy.

10) Hang gliding is not consistent with airspace restrictions over the Hanford Site.

11) The cost to repair damage from cross-country horseback use (see the compatibility determination for horseback riding) was determined to be unmanageable with current staff and budgetary resources.

12) Since the use of the observatory on the Monument is not within the jurisdiction of the FWS at this time, it was not evaluated for appropriateness. Should jurisdiction change in the future, the use will be reassessed for its appropriateness. The FWS has addressed the observatory in a variety of sections throughout the CCP (e.g., 2.10.2.11 Objective 1-11: Restoration of Lithosol Habitat).

Finding of Appropriateness of a Use on the Monument[194]

Refuge Name: Hanford Reach National Monument

Use: Biking, FWS-Managed Public Roads

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[195]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[194] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[195] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate ___ **Appropriate** X

Monument Project Leader: _____

(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: _____

(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[196]

Refuge Name: Hanford Reach National Monument

Use: Biking, Trails

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?	✓	
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[197]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?	✓	
(h) Is the use manageable in the future with existing resources?	✓	
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[196] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[197] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** _X_

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate _X_ **Appropriate** ___

Monument Project Leader: _____

(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: _____

(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[198]

Refuge Name: Hanford Reach National Monument

Use: Camping, Floatboat

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[199]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[198] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[199] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate ___ **Appropriate** X

Monument Project Leader: _____

(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: _____

(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[200]

Refuge Name: Hanford Reach National Monument

Use: Camping, Other Than Floatboating

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[201]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?	✓	
(h) Is the use manageable in the future with existing resources?	✓	
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[200] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[201] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ___

Monument Project Leader: _____

(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: _____

(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[202]

Refuge Name: Hanford Reach National Monument

Use: Dog Walking

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[203]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?	✓	

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[202] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[203] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ___

Monument Project Leader: _____

(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: _____

(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[204]

Refuge Name: Hanford Reach National Monument

Use: Field Dog Trials

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[205]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?	✓	
(h) Is the use manageable in the future with existing resources?	✓	
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[204] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[205] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ___

Monument Project Leader: _____

(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: _____

(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[206]

Refuge Name: Hanford Reach National Monument

Use: Geocaching

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?	✓	
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?	✓	
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[207]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[206] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[207] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ___

Monument Project Leader: _____

(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: _____

(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[208]

Refuge Name: Hanford Reach National Monument

Use: Hang Gliding

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?	✓	
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?	✓	
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[209]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?	✓	

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[208] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[209] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ___

Monument Project Leader: _____

(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: _____

(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[210]

Refuge Name: Hanford Reach National Monument

Use: Foot Travel (Hiking, Jogging)

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[211]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[210] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[211] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate ___ **Appropriate** X

Monument Project Leader: _____

(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: _____

(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[212]

Refuge Name: Hanford Reach National Monument

Use: Horseback Riding, Roads and Designated Trails

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[213]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[212] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[213] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate ___ **Appropriate** X

Monument Project Leader: _____

(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: _____

(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[214]

Refuge Name: Hanford Reach National Monument

Use: Horseback Riding, Cross-country

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[215]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?	✓	
(h) Is the use manageable in the future with existing resources?	✓	
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[214] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[215] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ___

Monument Project Leader: _____

(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: _____

(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[216]

Refuge Name: Hanford Reach National Monument

Use: Research and Management Studies

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[217]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[216] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[217] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate ___ **Appropriate** X

Monument Project Leader: _____

(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: _____

(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Appendix I – Compatibility Determinations

Compatibility determinations must be completed for all recreational uses, or other uses of the Monument by the public or other non-Monument entity. This includes actions the FWS might take associated with a particular recreational use or other general public use, including any economic activity (e.g., commercial guiding) proposed for the Monument. The Monument Manager and the FWS's Regional Chief must determine that the activity is a "compatible use." That is, it is a wildlife-dependent recreational use, or other use of the Monument that, based on sound professional judgment, will not materially interfere with, or detract from, the mission of the NWRS or the purposes of the Monument. The compatibility determination itself is simply the written determination by the Monument Manager and Regional Chief signifying that the use is or is not a compatible use.

In determining what is a compatible use, the Refuge Administration Act relies on the "sound professional judgment" of the person authorized to make the decision.[218] Compatibility determinations are inherently complex and require the Monument Manager to consider their field experiences and knowledge of the Monument's resources, particularly its biological resources, and make conclusions that are consistent with principles of sound fish and wildlife management and administration, available scientific information, and applicable laws.

The Monument Manager must also consider the extent to which available resources (funding, personnel and facilities) are adequate to develop, manage and maintain the proposed use so as to ensure compatibility. The Monument Manager must make reasonable efforts to ensure that the lack of resources is not an obstacle to permitting otherwise compatible wildlife-dependent recreational uses (hunting, fishing, wildlife observation and photography, and environmental education and interpretation). If reasonable efforts do not yield adequate resources to develop, manage and maintain the wildlife-dependent recreational use, the use will not be compatible because the FWS will lack the administrative means to ensure proper management of the public activity on the Monument.

Since permitting uses of the Monument is a determination vested by law to the FWS, under no circumstances (except emergency provisions necessary to protect the health and safety of the public or any fish or wildlife population) may a use be authorized which is not determined to be compatible with the purposes of the Monument and/or the NWRS.

On the pages that follow, seven compatibility determinations are completed for the Monument. Others will be completed as need dictates. It should be noted that the activities of foot travel and biking (see Appendix I, Appropriate Uses) are included in the compatibility determination for wildlife observation, photography, environmental education, and interpretation.

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[218] The Refuge Administration Act designates the Director of the FWS as the ultimate decision maker. The Director, in turn, delegates authority to make compatibility determinations through the Regional Director to the Monument Manager. Therefore, it is the Monument Manager who is required and authorized to exercise sound professional judgment.

Compatibility Determination – Camping For Floatboaters

Use

Camping for Floatboaters

Refuge Name

Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument)

Establishing and Acquisition Authorities

The Saddle Mountain National Wildlife Refuge (24,000 acres) was established on November 30, 1971, through a permit with the Department of Energy and under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754).

The Hanford Reach National Monument (195,000 acres), which includes the Saddle Mountain National Wildlife Refuge, was established on June 9, 2000, through Presidential Proclamation 7319 under the authority of the Antiquities Act of 1906.

Refuge Purposes

National wildlife refuges are established ". . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . ." (16 U.S.C. §742f(a)(4)) and also ". . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . ." (16 U.S.C. §42f(b)(1); Fish and Wildlife Act of 1956, 16 U.S.C. §742(a)-754, as amended).

The Monument was established ". . . for the purpose of protecting the objects identified above [riparian, aquatic and upland shrub-steppe habitats; native plant and animal species; free-flowing, non-tidal stretch of the Columbia River; shrub-steppe ecosystems; breeding populations of birds; habitat for migratory birds; mammals; insect populations; geological and paleontological objects; Archaeological and historic information] . . ." (Monument Proclamation 7319, dated June 9, 2000).

National Wildlife Refuge System Mission

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

Description of Use

While not one of the six wildlife dependent public uses listed or identified in the National Wildlife Refuge System Administration Act, as amended (1997), camping can facilitate wildlife observation and photography, but is not necessary to achieve it. Historically, camping has not been allowed on the Monument.

As proposed, camping would only be allowed at three to six established sites along the Hanford Reach of the Columbia River and would be limited to holders of special permits in order to provide for public safety. Traversing the entire Hanford Reach in one day is difficult to accomplish, especially by families or if the frequently strong winds in the area impede travel.

Availability of Resources

The following funding/annual costs would be required to administer and manage floatboat camping as described above.

Activity or Project	*One Time Expense*	*Recurring Expense*
Develop Camping Sites	$50,000	
Signs/Interpretive Panels	$5,000	
Maintenance of Facilities		$10,000
Law Enforcement		$5,000
Monitoring, Administration and Issuing of Permits		$6,000
Totals	**$55,000**	**$21,000**

Anticipated Impacts of the Use

Floatboating (i.e., the use of nonmotorized craft) tends to be less disturbing to most species of wildlife than motorized boating.[219] The effects of nonmotorized boating are anticipated to be similar to that of access for fishing, albeit more transitory in nature; please refer to the discussion of anticipated impacts under the Fishing Compatibility Determination.

The camp sites themselves would have minimal direct impact to the Monument. At most, six delineated sites would be established adjacent to the river that would be no more 400 square feet in order to accommodate two to three tents. Within this area, vegetation would be removed and the soil compacted (hardened). Of greater impact would be the presence of people in a time and place that has not previously seen people. Social trailing will impact soils and vegetation around the site. This could include an increased potential for erosion, soil compaction (Liddle 1975), reduced seed emergence (Cole and Landres 1995), alteration of vegetative structure and composition, and sediment loading (Cole and Marion 1988). Other impacts could result from littering, a failure to follow sanitation regulations (i.e., pack it in, pack it out), and an increased potential for fire.

Human activities at these points can result in direct effects on wildlife through harassment, a form of disturbance that can cause physiological effects, behavioral modifications, or death (Smith and Hunt 1995). Numerous studies have confirmed that the presence of people can cause a variety of disturbance reactions in wildlife, including flushing or displacement (Erwin 1989, Fraser et al 1985, Freddy 1986), heart rate increases (MacArthur et al 1982), altered foraging patterns (Burger and Gochfeld 1991), and even, in some cases, diminished reproductive success (Boyle and Samson 1985).[220] These studies and others have shown that the severity of the effects depends upon the distance to the disturbance and its duration, frequency, predictability and visibility to wildlife (Knight and Cole 1991).

On the Monument, birds are especially vulnerable and can be impacted from human activities when they are disturbed and flushed from feeding, resting, or nesting areas. Flushing, especially repetitive flushing, can strongly impact habitat use patterns of many birds species. Flushing from an area can cause birds to expend more energy, be deterred from using desirable habitat, affect resting or feeding patterns, increase exposure to predation, or cause abandonment of sites (Smith and Hunt 1995). Migratory birds are observed to be more sensitive than resident species to disturbance (Klein 1989). Herons and shorebirds were observed to be the most easily disturbed (when compared to gulls, terns and ducks) by human activity and flush to distant areas away from people (Burger 1981). A reduced number of shorebirds were found near people who were walking or jogging, and about 50% of flushed birds flew elsewhere (Burger 1981). In addition, the foraging time of sanderlings decreased, and

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[219] The U.S. Fish and Wildlife Service does not have jurisdiction over the surface water of the Columbia River and cannot control the activity of floatboating. The agency would only be able to control the associated camping.

[220] Based on this information, it is likely that horseback riding and bicycling would have similar impacts.

avoidance (e.g., running, flushing) increased as the number of humans within 300 feet increased at a coastal bay refuge on the Atlantic (Burger and Gochfeld 1991).

Nest predation for songbirds (Miller et al. 1998), raptors (Glinski 1976), colonial nesting species (Buckley and Buckley 1978), and waterfowl (Boyle and Samson 1985) tends to increase in areas more frequently visited by people. In addition, for many passerine species, primary song occurrence and consistency can be impacted by a single visitor (Gutzwiller et al. 1994). This could potentially limit the number of breeding pairs of certain passerine species, thus limiting production within Monument riparian habitats (Reijnen and Foppen 1994).

All of the above potential impacts could be exacerbated by the fact that the presence of people is for an extended period and for periods that have not seen visitors (i.e., overnight); this could also impact different species. In order to mitigate these potential impacts, the implementation of best management practices (e.g., seasonal closures during sensitive life cycles, establishment of sites away from sensitive areas) will be crucial to minimize impacts to natural and cultural resources.[221]

Public Review and Comment

This Compatibility Determination was prepared concurrent with the Monument's CCP/EIS. Open houses were held and written comments were solicited from the public during the scoping period for the Monument's CCP/EIS, during which time this activity solicited considerable interest. However, this Compatibility Determination was not included in the draft CCP/EIS and is being developed in response to comments received during the comment period for the draft CCP/EIS.

Determination

_____ The use is not compatible.

__X__ The use is compatible with the following stipulations.

[221] Best management practices are described in detail in Chapter 4 of the *Hanford Reach National Monument Comprehensive Conservation Plan and Environmental Impact Statement.*

Stipulations Necessary to Ensure Compatibility

- Monitoring will be conducted to insure that high-quality habitat for wildlife feeding, resting, breeding is maintained in the immediate vicinity of designated campsites.
- Camping will be limited to holders of permits issued by the U.S. Fish and Wildlife Service (FWS).
- Camping could be reduced or closed if significant negative impacts to Monument facilities or natural and cultural resources occurs.
- Use is limited to one night per permit holder.
- Participants will be restricted to the designated sites.
- Litter and human waste will be required to be packed out by users.
- No open flames will be allowed.
- All users will be required to acknowledge that they have read and agree to the conditions outlined in a camping brochure, which will be issued with the permit.
- Seasonal or other closures will be implemented, if necessary, to protect natural and cultural resources.

Justification

Floating the Hanford Reach in a nonmotorized boat offers a unique opportunity to experience the Monument and supports the priority public uses of wildlife observation, photography and environmental education. However, due to the length of the Hanford Reach and the limited number of access points and shuttle opportunities, traversing the entire stretch in one day is difficult, especially for families or in high winds. In order to provide this recreational opportunity while protecting public safety means that camping sites must be established. The opportunity to engage in several priority public uses provided through camping would outweigh any anticipated negative impacts associated with implementation of the program.

It should also be noted that, although the typical trip length covers all 46.5 miles of the Hanford Reach, camping would only be allowed at three to six campsites, covering a maximum area of 0.06 acres. Disturbance is anticipated to be higher for an eighth of a mile in each direction, which would cover an area of 60 acres (maximum), and some disturbance is anticipated up to a quarter mile in each

direction, covering an area of 230 acres (maximum).[222] Within the almost 30,000 acres of the River Corridor Unit and the 196,000 acres of the Monument itself, overall impacts would be minor, at most, especially as the impacts would be transitory and limited in time to the hours of camper activity. Given the scale of the activity, the stipulations outlined above, as well as the best management practices identified, potential impacts relative to wildlife/ human interactions will be minimal.

Mandatory 10- or 15-year Re-evaluation Date

Provide month and year for "allowed" uses only.

__X__ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses).

_____ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses).

NEPA Compliance for Refuge Use Decision

_____ Categorical Exclusion without Environmental Action Statement.

_____ Categorical Exclusion and Environmental Action Statement.

_____ Environmental Assessment and Finding of No Significant Impact.

__X__ Environmental Impact Statement and Record of Decision.

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Signatures

Monument Project Leader: _____
(Signature and Date)

Refuge Supervisor: _____
(Signature and Date)

Regional Chief: _____
(Signature and Date)

Compatibility Determination – Fishing

Use

Fishing

Refuge Name

Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument)

Establishing and Acquisition Authorities

The Saddle Mountain National Wildlife Refuge (24,000 acres) was established on November 30, 1971, through a permit with the Department of Energy and under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754).

The Hanford Reach National Monument (195,000 acres), which includes the Saddle Mountain National Wildlife Refuge, was established on June 9, 2000, through Presidential Proclamation 7319 under the authority of the Antiquities Act of 1906.

Refuge Purposes

National wildlife refuges are established ". . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . ." (16 U.S.C. §742f(a)(4)) and also ". . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . ." (16 U.S.C. §42f(b)(1); Fish and Wildlife Act of 1956, 16 U.S.C. §742(a)-754, as amended).

The Monument was established ". . . for the purpose of protecting the objects identified above [riparian, aquatic and upland shrub-steppe habitats; native plant and animal species; free-flowing, non-tidal stretch of the Columbia River; shrub-steppe ecosystems; breeding populations of birds; habitat for migratory birds; mammals; insect populations; geological and paleontological objects; Archaeological and historic information] . . ." (Monument Proclamation 7319, dated June 9, 2000).

National Wildlife Refuge System Mission

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

Description of Use

In the NWRS Improvement Act, the United States Congress declared fishing one of six wildlife-dependent public uses of the NWRS. If determined compatible, fishing would become a priority public use for the Monument. Currently, on FWS-administered Monument lands, recreational bank fishing occurs on the east bank of the Columbia River north of the WDFW Ringold Fish Hatchery.[223] Bank fishing areas are accessed from one of eight existing parking lots; anglers walk cross-country or on user-created trails from between 1/10 mile to more than 1/4 mile to the river shore.[224] Additional user-created trails follow the shoreline in some areas.[225]

Fish caught by Monument visitors include Chinook and chum salmon (seasonally), sturgeon, and resident game fish, including catfish and bass. Although the U.S. Fish and Wildlife Service (FWS) does not closely monitor all fishing on the Monument, we anticipate that use will increase over the next fifteen years.

Availability of Resources

The Monument is open for many public uses other than fishing, including hunting, environmental education and interpretation, wildlife photography, and wildlife observation. The same facilities used for these activities are also useful for fishing. However, access trails, parking lots, signs and other facilities are inadequate, as are staff resources, to enforce regulations and maintain these facilities. The costs outlined in the table below would be required to administer and manage fishing on the Monument.

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[223] Primary jurisdiction for bank fishing below the mean high water mark lies with the state of Washington and primary jurisdiction for public activities within the easement associated with the WB-10 Ponds and wasteways lies with the Bureau of Reclamation. See the following footnote regarding fishing from the river.

[224] Boat anglers can access the river from improved boat launches in Richland, a hardened launch near the White Bluffs townsite, or primitive boat launches (i.e., launch over the bank) at the Ringold Fish Hatchery or Parking Lot 7 on the Monument. Fishing from the river is controlled by the state of Washington.

[225] The Monument would also investigate fishing opportunities for disabled users.

Activity or Project	One Time Expense	Recurring Expense
Law Enforcement		$5,000
Development/Maintenance of Parking & Trails	$10,000	$500
Placement and Maintenance of Signs	$2,000	$500
Outreach, Education, Monitoring	$3,000	$2,000
Development/Maintenance of Accessible Sites	$50,000	$5,000
Totals	***$65,000***	***$13,000***

Anticipated Impacts of the Use

Fishing as a solitary and stationary activity tends to be less disturbing to wildlife than hunting or motorized boating (Tuite et al. 1983). However, there would be disturbance of birds and other wildlife using the open waters where fishing would occur. Fishing activities may influence the composition of bird communities, as well as distribution, abundance, and productivity of waterbirds (Tydeman 1977, Bouffard 1982, Bell and Austin 1985, Bordignon 1985, Edwards and Bell 1985, and Cooke 1987). Anglers often fish in shallow, sheltered bays and creeks that birds prefer, negatively impacting distribution and abundance of waterfowl, grebes, and coots (Cooke 1987). Increases in anglers and associated shoreline activity discouraged waterfowl from using otherwise suitable habitat (Jahn and Hunt 1964). In Britain, anglers displaced waterfowl from their preferred feeding and roosting areas and caused wigeon, green-winged teal, pochard, and mallard to depart from a reservoir prematurely (Jahn and Hunt 1964). Anglers influenced the numbers, behavior, and diurnal distribution of avian scavengers present at sites in Washington, when compared to non-fishing days (Knight et al. 1991). Shoreline activities, such as human noise, would cause some birds to flush and go elsewhere.

Bank fishing allows the anglers direct access to the river, bays and sloughs. Waterbird and waterfowl use of these areas varies seasonally, as does angler presence. Waterfowl are prevalent on the river in the winter, especially when surrounding wetlands freeze, but angler presence is little or none, as is disturbance to waterfowl (see the Hunting Compatibility Determination for impacts to waterfowl). Bald eagle roost sites occur within the bank fishing area, but eagles are more common in winter months when angler presence is low. The nesting period identified in the Bald Eagle Recovery Plan identifies January 1 as the beginning of the nesting season when special protective measures should begin (FWS 1986). As most bank fishing activity takes place outside of bald eagle nesting habitat, adverse impacts are not anticipated. Bank fishing occurs in a slough near a heron rookery near one of the parking areas along the Ringold River Road. Access to the banks of this slough, however, is difficult, and most bank fishing occurs at the opposite end of the slough, away from the rookery. Washington State requires a minimum 900-foot buffer zone to protect colonies from human disturbances (WDFW 2001). Based on the literature, we would expect there to be some disturbance to the rookery during its seasonal use.

In addition, trampling of vegetation and deposition of sewage or other chemicals are expected to commonly occur (Liddle and Scorgie 1980). Disturbance and destruction of riparian vegetation, bank stability, water quality, and littering may result from high levels of bank fishing activities.

By its nature, fishing results in the intentional take of individual fish. Catch and release fishing can also harm individual fish, killing them or reducing their likelihood of long-term survival. Although creel and fishing activity censuses have not been made in this particular area, it is estimated that use will increase and that the WDFW will continue to monitor harvest by anglers and routinely adjust regulations to ensure that overall populations of game species remain healthy into the future. The number of people fishing and any potential impacts will be monitored and access points, areas open/closed to fishing, and seasonal/temporary closures will be considered in coordination with the WDFW.

It is well recognized that fishing can give many people a deeper appreciation of fish and wildlife and a better understanding of the importance of conserving habitat, which ultimately contributes to the NWRS mission. Furthermore, when determined compatible, fishing is one of the six priority public uses on the NWRS.

Public Review and Comment

This Compatibility Determination was prepared concurrent with the Monument's CCP/EIS. Open houses were held and written comments were solicited from the public during the scoping period for the Monument's CCP/EIS. Public review and comment were solicited during the draft CCP/EIS comment period.

Determination

_____ The use is not compatible.

__X__ The use is compatible with the following stipulations.

Stipulations Necessary to Ensure Compatibility

- Monitoring will be conducted to ensure that high-quality habitat for feeding, resting, breeding and thermal protection for waterfowl, waterbirds and other wildlife species is maintained.

- The Monument will provide information on bank fishing and access at appropriate sites and through printed brochures. Information will also include current migratory bird and Monument regulations, as well as maps of closed areas.

- Monument officers will enforce any closed areas and use restrictions.

- All fishing on the Monument would require an appropriate state license and tag and all fishing will be consistent with applicable state regulations.

The Monument will monitor and evaluate the fishing program and users to determine if objectives are being met.

Justification

When determined compatible, fishing is one of the six priority public uses of the NWRS. Providing a quality fishing program contributes to achieving one of the Monument's goals. This program as described was determined to be compatible with the Monument purposes even though jurisdiction where most of the bank fishing would occur (below the mean high water level) lies with the state of Washington. Sufficient restrictions will be placed on fishing to ensure that an adequate amount of high-quality feeding, breeding and resting habitat would be available for migratory birds in relatively undisturbed areas (sanctuaries). Based on monitoring, bank fishing activity may need to be confined to designated areas.

In addition, the majority of waterfowl and bald eagle use near bank fishing areas occurs in the winter and spring months, although a few birds arrive as early as September and October. Since the majority of fishing activity occurs in the spring, summer and fall (through mid-October), disturbance to waterfowl species and eagles is expected to be minimal.

It is anticipated that wildlife, primarily waterbirds, will find sufficient food resources and resting places such that their abundance and use of the Monument will not be measurably lessened, fishing pressure will not cause fish stocks (i.e., forage) to decline, the physiological condition and production of waterfowl and other waterbirds will not be impaired, their behavior and normal activity patterns will not be altered dramatically, and their overall welfare will not be negatively impacted.

Mandatory 10- or 15-year Re-evaluation Date

Provide month and year for "allowed" uses only.

__X__ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses).

_____ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses).

NEPA Compliance for Refuge Use Decision

_____ Categorical Exclusion without Environmental Action Statement.

_____ Categorical Exclusion and Environmental Action Statement.

_____ Environmental Assessment and Finding of No Significant Impact.

__X__ Environmental Impact Statement and Record of Decision.

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Signatures

Monument Project Leader: _____
(Signature and Date)

Refuge Supervisor: _____
(Signature and Date)

Regional Chief: _____
(Signature and Date)

Compatibility Determination – Horseback Riding

Use

Horseback Riding

Refuge Name

Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument)

Establishing and Acquisition Authorities

The Saddle Mountain National Wildlife Refuge (24,000 acres) was established on November 30, 1971, through a permit with the Department of Energy and under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754).

The Hanford Reach National Monument (195,000 acres), which includes the Saddle Mountain National Wildlife Refuge, was established on June 9, 2000, through Presidential Proclamation 7319 under the authority of the Antiquities Act of 1906.

Refuge Purposes

National wildlife refuges are established ". . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . ." (16 U.S.C. §742f(a)(4)) and also ". . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . ." (16 U.S.C. §42f(b)(1); Fish and Wildlife Act of 1956, 16 U.S.C. §742(a)-754, as amended).

The Monument was established ". . . for the purpose of protecting the objects identified above [riparian, aquatic and upland shrub-steppe habitats; native plant and animal species; free-flowing, non-tidal stretch of the Columbia River; shrub-steppe ecosystems; breeding populations of birds; habitat for migratory birds; mammals; insect populations; geological and paleontological objects; Archaeological and historic information] . . ." (Monument Proclamation 7319, dated June 9, 2000).

National Wildlife Refuge System Mission

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

Description of Use

While not one of the six wildlife dependent public uses listed or identified in the National Wildlife Refuge System Administration Act, as amended (1997), horseback riding is an existing use on the Monument that can facilitate wildlife observation, but is not necessary to achieve it. Historically, horseback riding (on roads and cross-country) has occurred on the Ringold, Saddle Mountain, and Wahluke Units.

As proposed, horseback riding would only be allowed on roads open to vehicular travel, designated administrative roads, and designated trails on the Ringold, Saddle Mountain, and Wahluke Units. Presently, most use occurs in the spring and fall months, and it is anticipated that use patterns would be similar if horseback riding is designated as a compatible activity. Currently the Monument has no hard numbers on how many user days can be attributed to this activity; however, use appears to occur only seasonally and infrequently.

Availability of Resources

Costs to appropriately develop horseback riding, included signing, required maintenance and rehabilitation, monitoring, and parking lot improvements, would be moderate. The direct costs for road maintenance would be minimal, with road maintenance and monitoring for other public use activities covering all costs. Base funding is available to cover staff costs.

Activity or Project	One Time Expense	Recurring Expense
Development and Accessibility Improvements	$25,000	$5,000
Maintenance		$25,000
Program Operations/Monitoring		$15,000
Totals	***$25,000***	***$45,000***

Anticipated Impacts of the Use

Impacts related to horseback riding range from exotic plant seed dispersal (Beck 1993, Hammitt and Cole 1987) in horse coats, soil compaction and erosion (Bainbridge 1974, Hendee et al. 1990, Hammitt and Cole 1987), stream sedimentation (Wilson and Seney 1994), trail widening (Whitaker 1978), vegetation trampling (Nagy and Scotter 1974, Weaver and Dale 1978, Whitaker 1978), aesthetic concerns relative to horse manure (Lee 1975), and direct wildlife disturbance (Owen 1973), to direct and indirect conflicts with other recreationists. Exotic plants can also be spread to new sites through forage (e.g., hay brought in to feed horses, which contains seeds of exotic plants) and manure (Beck 1993).

Exotic plant establishment is further facilitated by increased trail disturbance, as many exotic plants gain a competitive advantage in highly disturbed sites. This soil disturbance is often created through soil compaction.[226] Additionally, hoof action tends to dig up and puncture the soil surface (McQuaid-Cook 1978), which causes greater sediment loss than any other form of recreational trail use (Seney and Wilson 1991) and increases the potential for disturbance-tolerant vegetation (e.g., exotic plant) establishment. Vegetation impacts can be much more pronounced than from that of hikers, who tend to flatten vegetation while horses tend to churn up soil, thus cutting plants off at the rootstalk (Whitaker 1978). This can increase the spread of previously established exotics by providing loose, disturbed soil for germination and spreading reproductive plant structures. This impact initially increases exotic plant encroachment with light to moderate trail use and eventually lowers species richness values to near zero with heavy impacts (Hendee et al. 1990).

Trail widening is also a consideration as horses tend to walk on the down slope sides of trails (Whitson 1974). Anticipated results of a wider trail include a much wider area of disturbance and ongoing trail maintenance problems.

Possible biological impacts of horseback riding are disturbance to wildlife and habitat. Wildlife can be affected through the sight and sound of recreationists (Boyle and Sampson 1985). Some of the effects of disturbance to wildlife from recreational activities include changes in foraging behavior; reduction of productivity; abandonment or alteration of breeding territories; alteration of animal distribution; alteration of flight behavior; energy depletion; and disruption of nest and brood rearing attentiveness (Klein 1989, Knight and Skagen 1988).

Wildlife disturbance relative to horseback riding has been poorly studied, with most references using other activities such as hiking and cross-country skiing to infer horseback riding impacts. Only one study identified disturbance tolerance of waterfowl to horseback riders and found that horseback riders could approach geese up to a distance of 150 feet. This is compared to suggested hiking trail distances of 250 feet (Miller et al. 1998) and boat buffers ranging from 250 to 900 feet (depending on type of

[226] Horse hooves can produce as much as 1,500 pounds per square inch of pressure exerted on the soil surface with each step (Hendee et al.1990).

boat, whether motorized, and species impacted; Burger et al. 1999). The 150-foot approach distance offered by Owen (1973) is consistent with observations suggesting that horseback wildlife observers can approach wildlife at closer distances than through other forms of travel. Many wildlife species appear to be habituated to livestock and thus are less likely to flee when approached through this method. However, any form of approach is expected to cause some disturbance, which will vary according to the species affected and the type, level, frequency and duration of disturbance, as well as the time of day or year that it occurs.

In addition to direct impacts to wildlife, habitat can be affected through vegetation trampling, soil compaction and erosion (Cole 1983, 1990). Public use activities can also have adverse impacts on vegetation and soil conditions. Impacts from vegetation trampling can lower species richness, decrease ground cover and density of plant species, increase species diversity through an increase in weedy annuals, and induce changes in species composition (Grabherr 1983, Bright 1986, Bonanno 1992).

The extent of impacts from horseback riding varies. Horseback riding in the spring may contribute to short-term, albeit moderate to severe, disturbances of ground nesting birds. At other times of the year, wildlife would likely not experience significant impacts from disturbance. Impacts to native vegetation would occur from horses as they moved over the landscape and could be extensive depending on the amount of use and the time of year. Noxious weeds could be spread further into shrub-steppe habitat from either on-site weed sources or from horse droppings; vegetation maintenance (noxious weeds and native plants) along roads and trails would be less problematic than treating new or managing existing weed sources out on the landscape. Overall, disturbances along trails and roads and out on the landscape will result in minor impacts to resident wildlife but may have long-term impacts such as noxious weed spread and infestation.

Public Review and Comment

This Compatibility Determination was prepared concurrent with the Monument's CCP/EIS. Open houses were held and written comments were solicited from the public during the scoping period for the Monument's CCP/EIS. Public review and comment were solicited during the draft CCP/EIS comment period.

Determination

_____ The use is not compatible.

__X__ The use is compatible with the following stipulations.

Stipulations Necessary to Ensure Compatibility

At present, horseback riding on the Monument is unmonitored, and the impacts to wildlife and associated habitat are unknown. However, use is relatively low, and most occurs during cooler months when wildlife is not as active or when disturbance is not as likely to be detrimental (i.e., during breeding or nesting seasons). However, as stated by the anticipated impacts described in the previous section, any increased or unrestricted horseback riding could lead to impacts on wildlife resources through exotic seed encroachment, vegetative trampling, erosion, and wildlife disturbance. These impacts would be cumulative with associated impacts from other public use opportunities. Therefore, in order to ensure the compatibility of this use, the following stipulations would be necessary.

- Horseback riding must be restricted to certain areas (e.g., roads open to vehicular travel, administrative roads, dedicated or multi-use trails). In these areas, anticipated impacts are not believed to exceed those already induced by vehicles and foot travel associated with other public use activities.

- Any horseback riding area would be subject to seasonal closures based on the presence of sensitive wildlife populations.

- Horse trailers would be restricted to designated parking areas listed in the Monument brochure and posted on site.

- Horseback riding would be a day-use only.

- Designated horseback riding areas would be signed at both ends and at regular intervals throughout the length of the road/trail. Riders would be required to ride single-file.

- A maximum number of riders per party, day, or season will be established through a step down plan.

- A system to monitor the level of use and vegetation damage and impact along roadsides, designated parking areas, and trails would need to be established.

- The activity could be reduced or closed with the finding of significant negative impacts to Monument facilities or natural and cultural resources.

Justification

While not listed as a primary, wildlife-dependent recreational use under the National Wildlife Refuge System Administration Act, as amended, horseback riding is believed to be a compatible public use under the stipulations outlined in this compatibility determination. The primary reasons for this determination include:

1) Wildlife observation can be an element of horseback riding.

2) Horseback riding allows the U.S. Fish and Wildlife Service (FWS) to reach a target audience that would not be reachable through any other opportunity; horseback riders are potential partners and a potential source of support for the Monument.

3) Impacts associated with horseback riding are not believed to exceed impacts already caused by other public use activities in select areas.

It is understood from the summary of anticipated impacts that many elements of the horseback riding program have the potential to detract from the FWS's ability to achieve Monument purposes. These impacts will be monitored and if they, or any as yet not considered impacts are discovered, this compatibility determination would be reevaluated.

Mandatory 10- or 15-year Re-evaluation Date

Provide month and year for "allowed" uses only.

__X__ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses).

_____ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses).

NEPA Compliance for Refuge Use Decision

_____ Categorical Exclusion without Environmental Action Statement.

_____ Categorical Exclusion and Environmental Action Statement.

_____ Environmental Assessment and Finding of No Significant Impact.

__X__ Environmental Impact Statement and Record of Decision.

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Signatures

Monument Project Leader: _____
(Signature and Date)

Refuge Supervisor: _____
(Signature and Date)

Regional Chief: _____
(Signature and Date)

Compatibility Determination – Hunting

Use

Hunting (Big Game, Waterfowl, and Upland Game Birds)

Refuge Name

Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument)

Establishing and Acquisition Authorities

The Saddle Mountain National Wildlife Refuge (24,000 acres) was established on November 30, 1971, through a permit with the Department of Energy and under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754).

The Hanford Reach National Monument (195,000 acres), which includes the Saddle Mountain National Wildlife Refuge, was established on June 9, 2000, through Presidential Proclamation 7319 under the authority of the Antiquities Act of 1906.

Refuge Purposes

National wildlife refuges are established ". . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . ." (16 U.S.C. §742f(a)(4)) and also ". . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . ." (16 U.S.C. §42f(b)(1); Fish and Wildlife Act of 1956, 16 U.S.C. §742(a)-754, as amended).

The Monument was established ". . . for the purpose of protecting the objects identified above [riparian, aquatic and upland shrub-steppe habitats; native plant and animal species; free-flowing, non-tidal stretch of the Columbia River; shrub-steppe ecosystems; breeding populations of birds; habitat for migratory birds; mammals; insect populations; geological and paleontological objects; Archaeological and historic information] . . ." (Monument Proclamation 7319, dated June 9, 2000).

National Wildlife Refuge System Mission

In the NWRS Improvement Act, the United States Congress declared hunting one of six wildlife-dependent public uses of the NWRS. If determined compatible, hunting would become a priority public use for the Monument.

Description of Use

Hunting on the Ringold, Saddle Mountain and Wahluke Units, shorelines of the Columbia River Islands between river miles 343-351, and shorelines of the Columbia River Corridor[227]

The U.S. Fish and Wildlife Service (FWS) proposes to allow hunting of resident game and migratory waterfowl within Washington Department of Fish and Wildlife (WDFW) established seasons, bag limits, and species sanctuaries. Hunting on these areas for specific species generally begins September first and ends on the third weekend in January. The longest continuous species-specific hunting seasons during this time are waterfowl (second weekend in October to the third weekend in January) and upland birds (October-January); the shortest seasons are dove (first two weeks of September) and deer and elk (selected seven- to thirty-day periods in September, October and November/December, depending on the area and weapon used).

Species That Can Be Hunted On The Monument[228]

- California Quail
- Chukar
- Gray (Hungarian) Partridge
- Mourning Dove
- Ring-necked Pheasant
- Snipe
- Coot
- Ducks (All Species)
- Geese (Brant, Canada, Snow)
- Deer (White-tailed and Mule)
- Elk

[227] Currently, hunting of differing species is allowed in what would be the north shore of Columbia River Corridor Unit (east of the fence marking the Saddle Mountain National Wildlife Refuge), Ringold Unit, Saddle Mountain Unit, and eastern half of the Wahluke Unit.

[228] In accordance with Washington State hunting regulations and subject to certain restrictions as noted elsewhere. For example, waterfowl hunting is not allowed within 1/4-mile of the Columbia River between the Vernita Bridge and the old Hanford town site wooden (tower) powering. Please refer to the WDFW hunting regulations for full details. Species not identified here cannot be hunted.

Hunting as a Population Control Measure

As one of several measures proposed to control wildlife population numbers in the event of overpopulation, hunting of the target species by the public at-large or by identified groups could be implemented. At this time, the only wildlife population creating socio-economic concerns is the Rattlesnake Hills Elk Herd; hunting to address those concerns is included in this Compatibility Determination. Elk population-control hunting on the Rattlesnake Unit is included in Alternative C of the CCP/EIS.

Under the potential action, the FWS and WDFW would conduct a heavily regulated elk hunt on the Rattlesnake Unit.[229] This potential action was developed in response to the WDFW's request for assistance in cooperative management of the Rattlesnake Hills Elk Herd (see Chapter 3 of the CCP/EIS, Section 3.21.2, for a description of the elk herd).[230] The potential regulated elk hunt would be part of a three-tiered approach to elk management.[231]

Availability of Resources

The Monument requires additional staff and funding to administer the current hunting program. All or portions of the (new) Columbia River Corridor, Ringold, Saddle Mountain, and Wahluke Units have been open to hunting (by the state of Washington) from 1971-1999; these areas have remained

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[229] The DOE has determined that hunting in the Rattlesnake Unit is not consistent with its current mission. As the mission of the DOE changes, or as the current ownership situation changes, hunting may be desirable and possible for elk population management.

[230] The Rattlesnake Hills Elk Herd population objective is equal to or less than 350 elk (WDFW 2002). The current population estimate is approximately 639 elk, based on 2007 surveys.

[231] The initial tier would include a state-regulated, limited-permit, modern-firearms hunt with a maximum of ten permits issued per designated hunting period. The number of permits per hunting period, number and length of hunt periods, and types of animals to be taken (cow, spike, bull, etc.) would be determined by the FWS in consultation with the WDFW annually, based on harvest data from proceeding years and winter aerial survey results.

If the regulated population control hunts on the Rattlesnake Unit—in combination with landowner access permits issued to private landowners by the WDFW, special permits, and the general elk hunting season—did not reduce herd numbers to management goals, then the FWS could proceed to a second-tier action. This would involve a trapping and relocation of elk in a quantity and composition (i.e., bull, spike, cow, calf) at least sufficient to meet management goals.

If management goals could not be met due to lack of funding, herd health issues, and/or a lack of release sites for captured animals, then the Monument could proceed to a third-tier action. This third tier would involve a management cull (elk removed by qualified FWS/WDFW personnel).

Any of these actions can be used in combination to control populations. As the final two tiers are an FWS-authorized management activity, they are not subject to a compatibility determination.

open to hunting since the Monument was established. Access trails, parking lots, signs and other facilities are inadequate, as well as are staff resources, to enforce regulations and maintain these facilities. Funding associated with facilities (roads, parking areas, signs, etc.) maintenance are included in other refuge programs requiring the same support.

Position & GS Level	Involvement	FTE	Recurring Expense
Project Leader/Deputy Project Leader (GS 13/14)	Oversight Coordination with the WDFW; Program Management	0.05	$9,000
Wildlife Biologist (GS-11)	Elk Monitoring; Reporting; Hunt Plan Updates; Coordination; Program Management	0.23	$17,750
Law Enforcement (GS-09)	Coordination with WDFW Law Enforcement; Field Monitoring of Hunters	0.33	$21,000
Recreation Planner (GS-11)	Outreach; Briefings	0.20	$18,000
Total Annual FTEs and Cost (Not Including Elk Population Control)		***0.81***	***$65,750***

Anticipated Impacts of the Use

Hunting has given many people a deeper appreciation of wildlife and a better understanding of the importance of wildlife and habitat conservation, which ultimately contributes to the NWRS mission. Furthermore, a goal of the Monument is to provide opportunities for quality wildlife-dependent recreation. By law, hunting is one of the six priority public uses of the NWRS.

Hunting, by its nature, results in the intentional take of individual animals, as well as wounding and disturbance (DeLong 2002). It can also alter behavior (e.g., foraging time), population structure, and distribution patterns of wildlife (Owens 1977, Raveling 1979, White-Robinson 1982, Thomas 1983, Bartelt 1987, Madsen 1985, and Cole and Knight 1990).

Harvest data are reported by hunters to WDFW and season and bag limits are adjusted accordingly to ensure that overall populations of game species remain healthy into the future. While hunter use of these areas has not been closely monitored, we would expect hunter numbers to increase over the next fifteen years. Impacts will be monitored, and, if necessary, additional measures would be developed in coordination with WDFW to protect Monument resources.

Ringold, Saddle Mountain and Wahluke Units

There will be over 67,000 acres available for hunting in these units.[232] Even though there is the potential of having hunters on either the Wahluke or Saddle Mountain Units, or both, every day of the week from September through January, they are dispersed across the landscape (upland bird and big game hunting), more concentrated where target species are more likely to occur (waterfowl hunting), and/or more populous on weekends (any species) and opening and closing days of specific seasons (deer hunting). Additionally, access into the majority of both units is from peripheral roads and parking areas, with access to more remote areas by foot only. While hunting in these units may affect non-target species through disturbance and shooting, there will be areas where little or no disturbance occurs.

Shorelines of the Columbia River Corridor and Islands Between River Miles 343-351

All activities below the mean high water level are regulated by the state of Washington.

Shoreline hunting allows the hunters direct access to the river, bays and sloughs and islands. Access to Columbia river shorelines would be by foot or boat. Land access would be from Parking Lots 1-7 and hunters would either hike cross-country or on established trails to the shoreline. Waterbird and waterfowl use of these areas varies seasonally, as does hunter presence. Waterfowl are prevalent on the river in the winter, especially when surrounding wetlands freeze. Bald eagles roost sites occur within the hunting area, with eagles more common in winter months. The nesting period identified in the Bald Eagle Recovery Plan identifies January 1 as the beginning of the nesting season when special protective measures should begin (FWS 1986). With a waterfowl hunting sanctuary located upstream of the wooden powering crossing at the old Hanford Townsite, hunting areas along the Hanford Reach have very little overlap with bald eagle nesting habitat. Heron rookeries occur along the river corridor. Based on the literature there may be some disturbance to rookeries during the early part of the hunting season as young birds could still be in the vicinity. In the middle to later part of the hunting season, no disturbance is anticipated.

Islands within the Hanford Reach are characterized by significant cultural resources. Access to islands above the mean high water mark has the potential to adversely impact cultural resources. No access will be permitted above the mean high water mark.

Rattlesnake Unit

There would be approximately 42,000 acres (52% of the Rattlesnake Unit) available for elk population control hunting. At no time would all of the hunting area have hunters on it. Depending on where the elk are located and the time of year hunting occurs, it is anticipated that less than 25% of the 42,000

[232] Areas in the current Saddle Mountain National Wildlife Refuge (west end of the Wahluke Unit) cannot be opened to any public use until released by the Department of Energy from safety buffer restrictions.

acres would have reoccurring hunting. A maximum of ten hunters will be allowed to use the Monument in any one day. Because of the open nature of the landscape, larger numbers of hunters could impact elk distribution and behavior with subsequent reduced elk harvest rates. Hunting periods would only be implemented when there is a high likelihood of harvesting elk. For these reasons and those listed below, it is anticipated that there will be none or very little hunting on the Rattlesnake Unit in either the early or late parts of the hunting season. It is likely that more effort will be expended in controlled hunting during the winter months (December-February) to maximize elk harvest and minimize any impacts.

In addition to the death of individual elk, some short-duration disturbance is expected to the elk herd. However, as noted above, the Monument's primary purpose in implementing this action is to assist the WDFW in controlling the population of the Rattlesnake Hills Elk Herd.[233] Controlling the numbers of elk also may help to maintain the biological integrity, diversity and environmental health of the Monument as a whole if numbers were to become too great for the forage available.

Hunting may affect other species in the hunting area, including mule deer, coyotes and various bird species. Elk hunters can be expected to disturb other species by their movements and shooting activities in the field. Even though there is the potential of having hunters on the Rattlesnake Unit from September-April, the limited acreage open to hunt would limit the disturbance factor. Nearby resting and feeding areas would be available for use by other refuge species that are disturbed. These species would likely move to other areas of the unit which are less accessible to the hunters or are not designated hunting areas. Due to the limited hunting areas, effects to vegetation would be localized and are anticipated to be minor.

Effects to other public uses are expected to be minimal due to the location of the hunt, which would be on the interior of the Rattlesnake Unit, which currently is otherwise closed to public use. Some noise from the firearms may be experienced by the public driving along State Route 240, but this is unlikely as most hunting will occur within the interior of the unit, far removed from public roads. The public traveling on State Route 240 may occasionally observe elk or other wildlife species flushed into the open due to hunter activity. Again, due to the limited hunt area and distance from public roads, all effects are expected to be minor and of short duration.

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[233] Options for controlling the size of the elk herd are limited due to state of Washington concerns regarding relocation of animals, limited funds for moving elk, and social tolerances for a government cull. For detailed information concerning a description of affected habitats and wildlife and the environmental consequences of the proposed action, the reader may reference Chapters 3 and 4 of the EIS.

Public Review and Comment

This Compatibility Determination was prepared concurrent with the Monument's CCP/EIS. Open houses were held and written comments were solicited from the public during the scoping period for the Monument's CCP/EIS. Public review and comment were solicited during the draft CCP/EIS comment period.

Determination

_____ The use is not compatible.

__X__ The use is compatible with the following stipulations.

Stipulations Necessary to Ensure Compatibility

Monument hunting programs will be designed to provide high-quality experiences. A quality hunt experience means that: 1) hunters are safe; 2) hunters exhibit high standards of ethical behavior; 3) hunters are provided with uncrowded conditions; 4) hunters have reasonable harvest opportunities; 5) hunters are clear on which areas are open and closed to hunting; and 6) minimal conflicts occur between hunters and other visitors, especially those engaging in other wildlife-dependent priority public uses. The seven-day-per-week recreational hunting program proposed on the Columbia River Corridor, Ringold, Saddle Mountain and Wahluke and Units, and the potential limited-entry, population-control elk hunt on the Rattlesnake Unit, would include the following management actions and/or restrictions to reduce impacts:

- The existing WDFW waterfowl sanctuary on the Columbia River (from the Vernita Bridge downstream to the wooden power lines, a locally known landscape feature) will be maintained.

- A sanctuary from hunting on the Rattlesnake (except for the potential population control elk hunt) and western end of the Wahluke Units will be maintained.

- Sufficient escape, feeding and resting habitat for wildlife in both open and closed areas will be provided.

- Periodic biological and social monitoring—and evaluation of hunting programs, including feedback from users—will be conducted to determine if objectives are being met.

- All hunting on the Monument would require the appropriate state license and tag and would occur consistent with applicable state regulations.

- Waterfowl hunting would be allowed at the WB-10 Ponds, along the shoreline of the Columbia River between Parking Lots 1 and 7, and below the mean high water level on islands between river miles 343-351.[234]

- Only non-toxic shot is allowed for upland birds and migratory waterfowl.

- Per Department of Energy (DOE) restrictions, no centerfire rifles are allowed for big game hunting, and only shotguns, muzzleloaders, and archery are allowed for taking elk or deer on these units.

- Hunters will use existing open roads and parking areas to access hunting sites, and all hunting will be conducted on foot.

- Hunter compliance with current migratory bird, upland and big game hunting and Monument regulations would be achieved through a combination of printed information (WDFW and Monument), signs, outreach efforts, and enforcement of regulations by FWS, WDFW or other law enforcement officers.

- Camping, overnight use, and fires are prohibited.

- Construction of pit blinds is not permitted.

Stipulations Specific to the Rattlesnake Unit

- Population-control hunting will be by permit only.

- Only modern firearms can be used, with safety zones/no access zones established near roads, facilities, sensitive habitats and research areas.

- Any hunt must be coordinated with ongoing FWS and DOE research, monitoring, management, and education activities and hunts can be suspended at any time.

- Hunting activities will take place in the interior of the Rattlesnake Unit to minimize/eliminate movement towards public roads and Central Hanford.

- A maximum of ten hunters will be allowed to use the Monument in any one day, with one hunting period consisting of one month (Monday through Friday only).

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[234] Primary jurisdiction below the mean high water mark along Columbia River shorelines within the Monument lies with the state of Washington. Primary jurisdiction within the easement associated with the WB-10 Ponds, Saddle Mountain Lake, and irrigation return wasteways is administered by the Bureau of Reclamation.

- One person per permitted hunter will be allowed to assist the hunter during the hunt.
- Additional help may be allowed to retrieve an elk.
- Timing will generally coincide with hunting seasons established by the WDFW.
- The WDFW will publish the hunting dates, number of permits to be issued, and other regulations in the Washington State's Big Game Hunting pamphlet. This information may also be obtained by contacting the Monument headquarters.
- All elk population control hunters must attend an FWS-led orientation each year prior to hunting. The orientation would cover rules and regulations specific to the population control hunt and to Rattlesnake Unit access in general. Orientation material would be designed to facilitate a successful hunt while minimizing impacts to sensitive resources on the Rattlesnake Unit.
- Hunters must sign in and out each day they hunt.
- Hunters must report success/failure and any hit-but-not-retrieved animals when they sign out each day.
- Hunting is on Mondays through Fridays only.
- Initial hunts may utilize Native Americans and the Advanced Hunter Education Program to provide for tribal use and help minimize the chances of missed shots and impacts on other species.
- Hunters are only allowed to operate motorized vehicles on designated roads and parking areas.
- No camping is allowed.
- No open fires or flames are allowed.

Justification

When determined compatible, hunting is one of the six priority public uses of the NWRS. National wildlife refuge hunting programs are designed to provide high-quality experiences. In general, hunting on national wildlife refuges should be superior to that available on other private or public lands, which may require special restrictions (Refuge Manual 8). Measures are often used to ensure quality, including limited hunt days and shell limits and using buffers for public use trails, eliminating the need for seasonal trail closures.

Providing a quality hunting program contributes to achieving one of the Monument's goals. The limited hunt program is proposed on the Monument to provide a quality hunting experience that meets Monument guidelines and policies. This program as described was determined to be compatible, in view of the potential impacts that hunting can have on the FWS's ability to achieve Monument purposes and goals.

It is anticipated that an adequate amount of quality, non-hunted and closed habitat would be available to both hunted and non-hunted wildlife because: 1) some high wildlife use areas will remain closed; and 2) some high wildlife use areas open to hunting will be hunted infrequently or not at all due to the walking distance required. A program will be implemented to monitor wildlife populations numbers and habitats in both open and closed areas.

It is anticipated that wildlife populations will find sufficient food resources and resting places such that their abundance and use of the Monument will not be measurably lessened from hunting activities. The relatively limited number of individuals expected to be removed from wildlife populations due to hunting will not cause wildlife populations to materially decline, the physiological condition and production of hunted species will not be impaired, their behavior and normal activity patterns will not be altered dramatically, and their overall welfare will not be negatively impacted.

Mandatory 10- or 15-year Re-evaluation Date

Provide month and year for "allowed" uses only.

_____ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses).

_X_ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses).

NEPA Compliance for Refuge Use Decision

_____ Categorical Exclusion without Environmental Action Statement.

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Signatures

Monument Project Leader: _____
(Signature and Date)

Refuge Supervisor: _____
(Signature and Date)

Regional Chief: _____
(Signature and Date)

Compatibility Determination – Research & Management Studies

Use

Research and Management Studies

Refuge Name

Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument)

Establishing and Acquisition Authorities

The Saddle Mountain National Wildlife Refuge (24,000 acres) was established on November 30, 1971, through a permit with the Department of Energy and under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754).

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Refuge Purposes

National wildlife refuges are established ". . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . ." (16 U.S.C. §742f(a)(4)) and also ". . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . ." (16 U.S.C. §42f(b)(1); Fish and Wildlife Act of 1956, 16 U.S.C. §742(a)-754, as amended).

The Monument was established ". . . for the purpose of protecting the objects identified above [riparian, aquatic and upland shrub-steppe habitats; native plant and animal species; free-flowing, non-tidal stretch of the Columbia River; shrub-steppe ecosystems; breeding populations of birds; habitat for migratory birds; mammals; insect populations; geological and paleontological objects; Archaeological and historic information] . . ." (Monument Proclamation 7319, dated June 9, 2000).

National Wildlife Refuge System Mission

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

Description of Use

Two provisions of the National Wildlife Refuge Improvement Act are to "maintain biological integrity, diversity and environmental health" and to conduct "inventory and monitoring." Refuge plans and actions based on research and monitoring provide an informed approach to habitat, wildlife, and public use programs. Research on fish, wildlife, habitat and visitor use is an existing use on the Monument and is conducted by independent researchers and partnering agencies. Some research is used to address basic wildlife conservation questions, such as survival of federally listed endangered and threatened juvenile salmon stocks in the Columbia River System. Other research is more specific to Monument management and resources and is used in an adaptive way to refine habitat, wildlife and public use management programs.

The U.S. Fish and Wildlife Service (FWS) receives several proposals each year to conduct research on the Monument. Research applicants are required to submit a proposal that outlines:

1) The objectives of the study;

2) A justification for the study;

3) A detailed methodology and schedule;

4) The potential impacts on wildlife or its habitat, including disturbance (short- and long-term), injury, or mortality (including a description of measures the researcher will take to reduce disturbance or impacts);

5) The research personnel required;

6) Costs to the FWS, if any; and

7) A time line for submitting progress reports and final products (i.e., reports, theses, dissertations, publications).

Research proposals are reviewed by Monument staff. If the proposal is approved, a Special Use Permit(s) is/are issued by the Project Leader. Evaluation criteria and specific provisions for approval of studies includes, but is not limited to, the following list. Future research proposals will also be

subject to these criteria and provisions. This would also apply to any properties acquired in the future within the approved boundary of the Monument.

- Research that contributes to specific Monument management issues is given a higher priority over other research requests.
- Research that conflicts with other ongoing research, monitoring, or management programs will not be granted.
- Research projects that can be accomplished off the Monument are less likely to be approved.
- Research which causes undue disturbance or is intrusive is not likely to be granted.
- The level and type of disturbance will be carefully evaluated when considering a request. Strategies to minimize disturbance through study design, including location, timing, scope, number of permittees, study methods, number of study sites, etc, will be encouraged.
- If staffing or logistics make it impossible for the Monument to monitor the researcher, the permit is likely to be denied.
- If the activity is in a sensitive area, the research request may be denied, depending on the specific circumstances.
- The length of the project will be considered and agreed upon before approval.
- Projects will be reviewed annually.

Special Use Permits would be issued for monitoring and investigations which contribute to the enhancement, protection, preservation, management of native plant and wildlife populations and their habitats, public use, and other important resources, especially as they relate to Monument lands and management activities. Other proposals (e.g., physics research) would be subject to even stricter considerations of the potential impacts to wildlife and its habitats, geological resources, cultural resources, aesthetics and visitor use and enjoyment.

Availability of Resources

The following funding would be required to administer and manage research activities as described above. No special equipment, facilities, or improvements are anticipated. Current budget allocations are sufficient to administer and manage this use.

Activity or Project	*One Time Expense*	*Recurring Expense*
Administration (Evaluation of Applications, Management of Permits, Oversight)		$3,000
Monitoring		$5,000
Totals		**$8,000**

Anticipated Impacts of the Use

Use of the Monument to conduct research will generally benefit public use, plant populations, fish, wildlife and habitat and contribute to the recovery of listed threatened and endangered species. Research investigations would be used to assist in managing Monument habitats to aid in recovery efforts and long-term habitat viability. Specific restoration and habitat management questions would be addressed through research investigations, such as the burrowing owl and pygmy rabbit studies currently being conducted. Additionally, research investigations would address public use impacts on natural resources or conflicts among public uses.

An expected short-term effect of monitoring and research investigations is that Monument management activities would be modified to improve public use and habitat and wildlife populations as a result of new information. Expected long-term and cumulative effects include a growing body of science-based data and knowledge as new/continued monitoring and new/continued research compliments and expands upon previous investigations. This body of data and information would contribute towards the best Monument management possible.

Direct damage or alteration to the habitat from researchers would be minor due to the research proposal evaluation process, Monument monitoring, and stipulations imposed through the Special Use Permit. However, some increase in invasive plants is possible from ground disturbance and/or transportation of source seed on research equipment and personnel. Likewise, there would be the localized and temporary effects resulting in direct impacts of vegetation trampling, collecting of soil and plant samples, or trapping and handling of wildlife. Other potential, but localized and temporary, effects would include wildlife disturbance, which is expected with some research activities, especially where researchers are entering sanctuaries or sensitive islands with colonial nesting birds. Researcher disturbance could result in altering wildlife behavior. However, most effects would be short-term. Only the minimum of samples (e.g., water, soils, vegetative litter, plants, macroinvertebrates) required for identification and/or experimentation and statistical analysis would be permitted. Captured animals would be handled, marked and released in a humane manner with full consideration to animal welfare.

Few long-term and/or secondary effects should be encountered as the evaluation of research proposals would ensure only those with adequate safeguards to avoid/minimize impacts are allowed. Those research activities with potential impacts would be mitigated/minimized through the implementation

of sufficient restrictions on the Special Use Permit, study design, and researcher activities. Monitoring by Monument staff should also avoid or alleviate impacts. There likely will be no cumulative effects associated with other on-going research and management studies.

Public Review and Comment

This Compatibility Determination was prepared concurrent with the Monument's CCP/EIS. Open houses were held and written comments were solicited from the public during the scoping period for the Monument's CCP/EIS. Public review and comment were solicited during the draft CCP/EIS comment period.

Determination

_____ The use is not compatible.

__X__ The use is compatible with the following stipulations.

Stipulations Necessary to Ensure Compatibility

If proposed research methods are evaluated and determined to have potential adverse impacts on wildlife or habitat, then the manager will determine the utility and need of such research to conservation and management of wildlife and habitat. If the need is demonstrated by the research permittee, and accepted by the refuge, then measures to minimize potential impacts (e.g., reduce the numbers of researchers entering an area, restrict research in specified areas) will be developed and included as part of the study design and included on the special use permit. Other stipulations and provisions include:

- The criteria for evaluating a research proposal, outlined in the Description of Use section above, will be used when determining whether a proposed study will be approved on the Monument.

- Special use permits will contain specific terms and conditions that the researcher(s) must follow relative to activity, location, duration, seasonality, etc., to ensure continued compatibility. All refuge rules and regulations (CFR 50) must be followed, unless otherwise exempted in writing by Monument management.

- Sensitive wildlife habitat areas will be avoided unless sufficient protection from research activities (i.e., disturbance, collection, capture and handling) is implemented to limit the area and/or wildlife potentially impacted by the proposed research.

- When and where needed, some areas may be temporarily/seasonally closed to researchers; research can be permitted to resume when impacts to wildlife and habitat are no longer a concern.

- Research activities will be modified to avoid harm to sensitive wildlife and habitat when unforeseen impacts arise, such as a wildfire altering landscape conditions or large declines in a population.

- At any time, Monument staff may accompany the researchers to determine potential impacts.

- Removal of all research equipment is required at the end of the study. Failure to remove research "paraphernalia" will result in a principal investigator not being permitted to conduct future scientific studies on refuge/monument lands.

- The FWS receives a copy of the raw data after the study is completed based upon a final report or published paper.

- For long-term ecological study, status reports at regular reporting intervals are required that present preliminary findings and any issues associated with project implementation. The schedule for interim reports also should be presented in the study proposal.

- Sampling equipment will be cleaned before use on the refuges as well as when transported between study sites to eliminate or reduce the spread of invasive species.

Monument staff will monitor researcher activities for compliance with conditions outlined on the Special Use Permit. A Monument manager may determine that previously approved research and Special Use Permits be terminated:

1) If the researcher is out of compliance with permit conditions;

2) To ensure wildlife and habitat protection; and/or

3) To protect visitor and public safety.

Justification

The Monument was created under the provisions of the Antiquities Act of 1906. Under the Antiquities Act, national monuments can be created for one of two reasons: 1) to protect 'antiquities,' as the title implies; or 2) to provide opportunities for research. The Monument was created under the latter provision. As such, there is an expectation that the Monument provide for research. This is in keeping with the long-standing use of the Hanford Nuclear Site (including the Monument) for research. Under Department of Energy (DOE) management, the Fitzner-Eberhardt Arid Lands Ecology Area (ALE)

was/is designated a Research Natural Area (in 1971 via an agreement between the Departments of Energy and Interior) and a National Environmental Research Park (in 1977 by the U.S. Energy Research and Development Administration, a precursor to the DOE). Over the years and under DOE permit, researchers from prestigious institutions like Battelle and the Pacific Northwest National Laboratory and universities like California-Irvine, California Institute of Technology, Idaho, Massachusetts Institute of Technology, Oregon State, Washington, Washington State, and many others have used what are now Monument lands to advance science.

Monitoring and research investigations are also an important component of adaptive management. Standardized monitoring would be used to ensure data compatibility for comparisons from across the landscape.

Natural resource inventories, monitoring and research are not only provisions of the National Wildlife Refuge Improvement Act, but they are necessary tools to maintain biological integrity, diversity and environmental health, which are also key provisions of the act. Inventories, monitoring and research are intended to improve habitat, wildlife populations, biological integrity, diversity and environmental health, and to monitor public use impacts. Monitoring and research will directly benefit and support Monument goals, objectives and management plans and activities, as well as contribute to recovery of endangered/threatened species.

Wildlife-dependent public uses (wildlife viewing and photography, environmental education and interpretation, fishing and hunting) would also benefit as a result of increased biodiversity, wildlife and native plant populations. Monument staff would ensure research projects contribute to the enhancement, protection, preservation and management of wildlife populations and their habitats, thereby helping the Monument fulfill the purposes for which it was established, the mission of the NWRS, and the need to maintain ecological integrity.

Mandatory 10- or 15-year Re-evaluation Date

Provide month and year for "allowed" uses only.

_____ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses).

_X_ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses).

NEPA Compliance for Refuge Use Decision

_____ Categorical Exclusion without Environmental Action Statement.

_____ Categorical Exclusion and Environmental Action Statement.

_____ Environmental Assessment and Finding of No Significant Impact.

__X__ Environmental Impact Statement and Record of Decision.

Signatures

Monument Project Leader: _____
(Signature and Date)

Refuge Supervisor: _____
(Signature and Date)

Regional Chief: _____
(Signature and Date)

Compatibility Determination – Interpretation, Environmental Education, Wildlife Observation & Photography

Use

Interpretation, Environmental Education, Wildlife Observation, and Photography[235]

Refuge Name

Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument)

Establishing and Acquisition Authorities

The Saddle Mountain National Wildlife Refuge (24,000 acres) was established on November 30, 1971, through a permit with the Department of Energy and under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754).

The Hanford Reach National Monument (195,000 acres), which includes the Saddle Mountain National Wildlife Refuge, was established on June 9, 2000, through Presidential Proclamation 7319 under the authority of the Antiquities Act of 1906.

Refuge Purposes

National wildlife refuges are established ". . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . ." (16 U.S.C. §742f(a)(4)) and also ". . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . ." (16 U.S.C. §42f(b)(1); Fish and Wildlife Act of 1956, 16 U.S.C. §742(a)-754, as amended).

The Monument was established ". . . for the purpose of protecting the objects identified above [riparian, aquatic and upland shrub-steppe habitats; native plant and animal species; free-flowing, non-tidal stretch of the Columbia River; shrub-steppe ecosystems; breeding populations of birds; habitat for migratory birds; mammals; insect populations; geological and paleontological objects; Archaeological and historic information] . . ." (Monument Proclamation 7319, dated June 9, 2000).

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[235] This includes the means of access, such as hiking, horseback riding on trails, bicycling on existing roads open to the public, canoeing, etc.

National Wildlife Refuge System Mission

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

Description of Use

In the NWRS Improvement Act, the United States Congress declared wildlife observation and photography, and environmental education and interpretation as four of six wildlife-dependent public uses of the NWRS. If determined compatible, these four uses would become priority public uses for the Monument. Currently, none of these programs are officially established, but over 20,000 (estimated) people per year participate in these activities on the Monument.

Under the preferred alternative, up to fifteen interpretive sites, four interpretive trails, and eight wildlife observation sites are proposed. Some sites and trails may only be open seasonally to both protect sensitive resources and to take advantage of specific interpretive, viewing, and photographic opportunities (e.g., elk on the Rattlesnake Unit). Other sites and trails will be open year-round but monitored to address any negative impacts. Interpretive points, trails, observation sites, signs, kiosks, etc., will focus on Monument wildlife and habitats, historic features, cultural resources and traditions, restoration, management, geologic resources, and the other special values of the Monument. Since there are currently very limited facilities to support these uses on the Monument, we expect wildlife observation and photography and interpretation to increase over the next fifteen years as facilities are developed.

In support of these activities, cross-country hiking will be allowed in the Ringold, Saddle Mountain, and Wahluke Units. Parking areas will be available that will also serve a trail system to be created.[236] Interpretive panels/informational signs will be installed where needed and appropriate. Interpretive and educational opportunities could be self-guided or lead by Monument staff or docent.

Currently, there is a minimal environmental education program at the Monument. However, existing staff have been able to serve approximately 1,000 students per year through classroom talks and tours or field days on the Monument. With a full-time environmental education staff, more than 5,000 students a year could participate in the Monument's environmental education program. The proposed environmental education program is designed to provide effective resources, tools and training for teaching multi-disciplinary topics related to the Monument such as science, natural and cultural history, conservation, writing and others. Educators would attend a teacher orientation and then

[236] Trails could be created fresh, or they could be established on existing administrative roads.

design, schedule and run their own field trips on the Monument. Monument staff would provide teacher training, site-specific curricula, materials and activities, and field trip assistance where possible to enhance learning in an outdoor setting. Students and teachers could participate in restoration and monitoring activities through one-time activities or more long-term monitoring studies. Staff would work with students and educators to foster an understanding of, and appreciation for, resource management and the human impacts on wildlife and habitats. Active participation in resource protection would be encouraged.

Availability of Resources

The following funding/annual costs would be required to administer and manage wildlife observation, photography, interpretation and environmental education activities as described above.

Activity or Project	*One Time Expense*	*Recurring Expense*
Develop Trails	$25-50,000	
Signs/Interpretive Panels	$15,000	
Maintenance of Trails, Parking Areas, Other		$75,000
Law Enforcement		$45,000
Monitoring & Administration		$30,000
Totals	**$40-65,000**	**$150,000**

Anticipated Impacts of the Use

The maintenance of trails and parking areas will impact soils, vegetation and, in some instances, hydrology around the site. This could include an increased potential for erosion, soil compaction (Liddle 1975), reduced seed emergence (Cole and Landres 1995), alteration of vegetative structure and composition, and sediment loading (Cole and Marion 1988). However, where possible, existing administrative roads (many maintained seasonally as firebreaks) and facilities will be used. In addition, most parking lots and access trails will be relatively small in size. These factors are coupled with best management practices, to minimize impacts to natural and cultural resources.[237] In areas where new trails or access points are established, best management practices (e.g., seasonal closures during sensitive life cycles, routing of trails away from sensitive areas) would negate or minimize impacts.

[237] Best management practices are described in detail in Chapter 4 of the *Hanford Reach National Monument Comprehensive Conservation Plan and Environmental Impact Statement*.

Human activities on trails and at other access points, as well as cross-country hiking, can result in direct effects on wildlife through harassment, a form of disturbance that can cause physiological effects, behavioral modifications, or death (Smith and Hunt 1995). Numerous studies have confirmed that people on foot can cause a variety of disturbance reactions in wildlife, including flushing or displacement (Erwin 1989, Fraser et al 1985, Freddy 1986), heart rate increases (MacArthur et al 1982), altered foraging patterns (Burger and Gochfeld 1991), and even, in some cases, diminished reproductive success (Boyle and Samson 1985).[238] These studies and others have shown that the severity of the effects depends upon the distance to the disturbance and its duration, frequency, predictability and visibility to wildlife (Knight and Cole 1991).

On the Monument, birds are especially vulnerable and can be impacted from human activities when they are disturbed and flushed from feeding, resting, or nesting areas. Flushing, especially repetitive flushing, can strongly impact habitat use patterns of many birds species. Flushing from an area can cause birds to expend more energy, be deterred from using desirable habitat, affect resting or feeding patterns, increase exposure to predation, or cause abandonment of sites (Smith and Hunt 1995). Migratory birds are observed to be more sensitive than resident species to disturbance (Klein 1989). Herons and shorebirds were observed to be the most easily disturbed (when compared to gulls, terns and ducks) by human activity and flush to distant areas away from people (Burger 1981). A reduced number of shorebirds were found near people who were walking or jogging, and about 50% of flushed birds flew elsewhere (Burger 1981). In addition, the foraging time of sanderlings decreased, and avoidance (e.g., running, flushing) increased as the number of humans within 300 feet increased at a coastal bay refuge on the Atlantic (Burger and Gochfeld 1991).

Nest predation for songbirds (Miller et al. 1998), raptors (Glinski 1976), colonial nesting species (Buckley and Buckley 1978), and waterfowl (Boyle and Samson 1985) tends to increase in areas more frequently visited by people. In addition, for many passerine species, primary song occurrence and consistency can be impacted by a single visitor (Gutzwiller et al. 1994). This could potentially limit the number of breeding pairs of certain passerine species, thus limiting production within Monument riparian habitats (Reijnen and Foppen 1994).

Of the wildlife observation techniques proposed, wildlife photographers tend to have the largest disturbance impacts (Klein 1993, Morton 1995, Dobb 1998). While wildlife observers frequently stop to view species, wildlife photographers are more likely to approach wildlife (Klein 1993). Even slow approach by wildlife photographers tends to have behavioral consequences to wildlife species (Klein 1993). Other compounding factors include the potential for photographers to remain close to wildlife for extended periods of time in an attempt to habituate the wildlife subject to their presence (Dobb 1998) and the tendency of casual photographers, with low-power lenses, to get much closer to their subjects than other activities would require (Morton 1995), including wandering off trails. This usually results in increased disturbance to wildlife and habitat, including trampling of plants. Visitor

[238] Based on this information, it is likely that horseback riding and bicycling would have similar impacts.

education programs, monitoring, and law enforcement, coupled with best management practices for facility design would minimize impacts.

The environmental education program would use many existing public facilities, or ones created for other purposes (e.g., parking areas for anglers), including parking areas, trails, interpretive sites, and wildlife observation accommodations. This would help to minimize impacts. Additionally, this activity is considered to be of minor impact due to the stipulations imposed below and through best management practices.

Public Review and Comment

This Compatibility Determination was prepared concurrent with the Monument's CCP/EIS. Open houses were held and written comments were solicited from the public during the scoping period for the Monument's CCP/EIS. Public review and comment were solicited during the draft CCP/EIS comment period.

Determination

_____ The use is not compatible.

__X__ The use is compatible with the following stipulations.

Stipulations Necessary to Ensure Compatibility

- Monitoring will be conducted to insure that high-quality habitat for wildlife feeding, resting, breeding is maintained
- A system to monitor the level of use and vegetation damage and impact along roadsides, designated parking areas, and trails would need to be established.
- Any of these activities could be reduced or closed with the finding of significant negative impacts to Monument facilities or natural and cultural resources.
- Limits will be established for the total number of environmental education groups permitted per day.
- Participants will be restricted to designated trails, sites or facilities as determined by Monument staff. Times and periods of use will also be provided.

- Education groups must provide a sufficient number of adults to supervise the group, as determined by Monument staff.

- Students involved in restoration and monitoring projects must receive some form of training (activity and project-specific) prior to commencement of the activity. This is to ensure their safety while out in the field and to minimize wildlife and habitat disturbance.

- Collection of samples for study (i.e., plants, soils) will be restricted to study areas, and samples must be used on site. Collection will be of materials needed to enhance hands-on learning and investigation and will be designed as part of structured activities and lessons, guided by teachers, and monitored by Monument staff. These activities are an integral part of the education program design and philosophy and their impacts are considered minimal.

Justification

When determined compatible, wildlife observation, photography and environmental education and interpretation become priority public uses of the Monument. Providing opportunities for these activities would contribute toward fulfilling provisions of the National Wildlife Refuge System Administration Act, as amended in 1997, and one of the goals of the Monument. Wildlife observation, photography and interpretation would provide an excellent forum for allowing public access and increasing understanding of Monument resources. The educational possibilities provided by these opportunities would outweigh any anticipated negative impacts associated with implementation of the program. The stipulations outlined above, as well as the best management practices identified, would minimize potential impacts relative to wildlife/ human interactions.

To assist in interpretation and environmental education, the Monument's environmental education program would provide a diversity of environmental education opportunities to students and teachers. These include: 1) facilities, materials and training; 2) access to a variety of Monument habitats; and 3) the ability to observe wildlife and conduct hands-on exploration. The program is intended to foster a better understanding of Monument ecosystems and wildlife resources, and in turn build a public that is more knowledgeable about, and involved in, resource stewardship.

Mandatory 10- or 15-year Re-evaluation Date

Provide month and year for "allowed" uses only.

__X__ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses).

_____ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses).

NEPA Compliance for Refuge Use Decision

_____ Categorical Exclusion without Environmental Action Statement.

_____ Categorical Exclusion and Environmental Action Statement.

_____ Environmental Assessment and Finding of No Significant Impact.

__X__ Environmental Impact Statement and Record of Decision.

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Signatures

Monument Project Leader: _____

(Signature and Date)

Refuge Supervisor: _____

(Signature and Date)

Regional Chief: _____

(Signature and Date)

Appendix J – Common and Scientific Names Of Plants and Animals Identified in the Hanford Reach National Monument Comprehensive Conservation Plan

Plants

Common Name	*Scientific Name*
Ammannia, Scarlet	*Ammannia robusta*
Baby's Breath	*Gypsophila paniculata*
Balsamroot, Arrowleaf	*Balsamorhiza sagittata*
Balsamroot, Carey's	*Balsamorhiza careyana*
Balsamroot, Rosy	*Balsamorhiza rosea*
Bindweed, Field	*Convolvulus arvensis*
Biscuitroot, Canby's (aka Canby's Desert Parsley)	*Lomatium canbyi*
Biscuitroot, Cous (aka Cous Desert Parsley)	*Lomatium cous*
Biscuitroot, Geyer's (aka Geyer's Desert Parsley)	*Lomatium geyeri*
Biscuitroot, Gray's (aka Gray's Desert Parsley)	*Lomatium grayi*
Bitterbrush, Antelope	*Purshia tridentata*
Bitterroot, Oregon	*Lewisia rediviva*
Bladderpod, White Bluffs	*Physaria tuplashensis*
Bluegrass, Bulbous	*Poa bulbosa*
Bluegrass, Cusick's	*Poa cusickii*
Bluegrass, Sandberg's	*Poa secunda*
Brome, Downy	*Bromus tectorum*
Buckwheat, Douglas'	*Eriogonum douglasii*
Buckwheat, Rock	*Eriogonum sphaerocephalum*
Buckwheat, Snow	*Eriogonum niveum*
Buckwheat, Thymeleaf	*Eriogonum thymoides*
Buckwheat, Umtanum Desert	*Eriogonum codium*
Bulrush, Alkali (aka Seacoast Bulrush)	*Scirpus maritimus*
Bulrush, Hardstem (aka Tule)	*Scirpus acutus*
Bulrush, Softstem (aka Tule, aka California Bulrush)	*Scirpus validus*
Chervil, Bur	*Anthriscus scandicina*
Bush, Indigo (aka False Indigo)	*Amorpha fruticosa*
Cactus, Hedgehog	*Pediocactus nigrispinus*
Calyptridium, Rosy	*Calyptridium roseum*
Camelthorn	*Alhagi maurorum*

Canarygrass, Reed. . . . . *Phalaris arundinacea*
Cattail, Broadleaf (aka Common Cattail). . . . . *Typha latifolia*
Cattail, Common (aka Broadleaf Cattail). . . . . *Typha latifolia*
Celery, Indian. . . . . *Lomatium nudicaule*
Chaffweed. . . . . *Centunculus minimus*
Cheatgrass. . . . . *Bromus tectorum*
Chokecherry, Common (aka Western Chokecherry). . . . . *Prunus virginiana*
Cliffbrake, Smooth. . . . . *Pellaea glabella simplex*
Combseed, Bristly. . . . . *Pectocarya setosa*
Combseed, Winged. . . . . *Pectocarya penicillata*
Cottonwood, Black. . . . . *Populus trichocarpa*
Cottonwood, Plains. . . . . *Populus deltoides*
Crazyweed, Wanapum. . . . . *Oxytropis campestris*
Cryptantha, Desert (aka Miner's Candle). . . . . *Cryptantha scoparia*
Cryptantha, Gray. . . . . *Cryptantha leucophaea*
Cryptantha, Snake River. . . . . *Cryptantha spiculifera* (*C. interrupta*)
Currant, Golden. . . . . *Ribes aureum*
Daisy, Piper's. . . . . *Erigeron piperianus*
Dock, Sand (aka Winged Dock). . . . . *Rumex venosus*
Dodder, Desert. . . . . *Cuscuta denticulata*
Dropseed, Sand. . . . . *Sporobolus cryptandrus*
Duckweed. . . . . *Lemna minor*
Eatonella, White. . . . . *Eatonella nivea*
Elderberry, Blue. . . . . *Sambucus cerulea*
Elm, Siberian. . . . . *Ulmus pumila*
Evening-primrose, Desert. . . . . *Oenothera caespitosa* ssp. *caespitosa*
Evening-primrose, Dwarf. . . . . *Camissonia* (*Oenothera*) *pygmaea*
Evening-primrose, Small-flowered. . . . . *Camissonia* (*Oenothera*) *minor*
Fescue, Idaho. . . . . *Festuca idahoensis*
Flatsedge, Shining (aka Slender Flatsedge). . . . . *Cyperus bipartitus (rivularis)*
Flatsedge, Slender (aka Shining Flatsedge). . . . . *Cyperus bipartitus (rivularis)*
Gilia, Great Basin. . . . . *Gilia leptomeria*
Goldentop, Western. . . . . *Euthamia occidentalis*
Grasses (See also Bluegrass, Saltgrass, Johnsongrass, Canarygrass)
Grass, Large Barnyard. . . . . *Echinochloa crus-galli*
Grass, Horsetail (aka Field Horsetail, Common Horsetail). . . . . *Equisetum arvense*
Grass, Needle-and-thread. . . . . *Hesperostipa comata*
Greasewood, Black. . . . . *Sarcobatus vermiculatus*
Gumweed, Curlycup. . . . . *Grindelia squarrosa*
Helleborine, Giant. . . . . *Epipactis gigantea*
Hemicarpha, Small-flowered. . . . . *Lipocarpha* (*Hemicarpha*) *aristulata*
Hemp, Indian. . . . . *Apocynum cannabinum*
Hopsage, Spiny. . . . . *Grayia spinosa*

Horsetail, Field (aka Horsetail Grass, Common Horsetail). . . . . *Equisetum arvense*
Huckleberry, Red.. . . . . *Vaccinium parvifolium*
Johnsongrass. . . . . *Sorghum halepense*
Junegrass, Prairie.. . . . . *Koeleria cristata*
Knapweed, Diffuse. . . . . *Centaurea diffusa*
Knapweed, Russian. . . . . *Centaurea repens*
Knapweed, Spotted. . . . . *Centaurea biebersteinii*
Kochia, Forage. . . . . *Bassia prostrata*
Lilaeopsis, Western. . . . . *Lilaeopsis occidentalis*
Locust, Black. . . . . *Robinia psuedo-acacia*
Loeflingia. . . . . *Loeflingia squarrosa* var. *squarrosa*
Loosestrife, Purple.. . . . . *Lythrum salicaria*
Lupine, Low. . . . . *Lupinus pusillus*
Lupine, Prairie.. . . . . *Lupinus lepidus*
Lupine, Rock.. . . . . *Lupinus saxosus*
Lupine, Silky.. . . . . *Lupinus sericeus*
Lupine, Spurred.. . . . . *Lupinus laxiflorus*
Lupine, Sulphur.. . . . . *Lupinus sulphureus*
Lupine, Velvet.. . . . . *Lupinus leucophyllus*
Milfoil, Eurasian. . . . . *Myriophyllum spicatum*
Milkvetch, Basalt (aka Rattlesnake Mountain Milkvetch).. . . *Astragalus conjunctus* var. *rickardii*
Milkvetch, Columbia.. . . . . *Astragalus columbianus*
Milkvetch, Crouching. . . . . *Astragalus succumbens*
Milkvetch, Geyer's. . . . . *Astragalus geyeri*
Milkvetch, Medic. . . . . *Astragalus speirocarpus*
Milkvetch, Rattlesnake Mountain (aka Basalt Milkvetch).. . . *Astragalus conjunctus* var. *rickardii*
Milkvetch, Stalked-pod. . . . . *Astragalus sclerocarpus*
Milkvetch, Yakima. . . . . *Astragalus reventiformis*
Monkeyflower, Suksdorf's.. . . . . *Mimulus suksdorfii*
Mousetail. . . . . *Myosurus clavicaulis*
Mudwort, Owyhee (aka Southern Mudwort). . . . . *Limosella acaulis*
Mudwort, Southern (aka Owyhee Mudwort). . . . . *Limosella acaulis*
Mugwort, Columbia River.. . . . . *Artemesia lindleyana*
Mulberry, White. . . . . *Morus alba*
Mullein, Common. . . . . *Verbascum thapsus*
Nama, Small-flowered.. . . . . *Nama densum* var. *parviflorum*
Nutsedge, Yellow (aka Yellow Flatsedge). . . . . *Cyperus esculentus*
Olive, Russian.. . . . . *Elaeagnus angustifolia*
Onion, Robinson's.. . . . . *Allium robinsonii*
Onion, Scilla (aka Squill Onion). . . . . *Allium scilloides*
Paintbrush, Annual. . . . . *Castilleja exilis*
Parrotfeather (aka Parrot Feather Water Milfoil).. . . . . *Myriophyllum aquaticum*
Parsley, Canby's Desert.. . . . . *Lomatium canbyi*

Parsley, Cous Desert. . . . . *Lomatium cous*
Parsley, Geyer's Desert. . . . . *Lomatium geyeri*
Parsley, Gorman's Desert. . . . . *Lomatium gormanii*
Parsley, Gray's Desert. . . . . *Lomatium grayi*
Parsley, Hoover's Desert. . . . . *Lomatium tuberosum*
Pectocarya, Bristly. . . . . *Pectocarya setosa*
Pepperweed, Perennial (aka Broadleaf Pepperweed). . . . . *Lepidium latifolium*
Penstemon, Fuzzytongue. . . . . *Penstemon eriantherus whitedii*
Phragmites (See Reed, Common). . . . . *Phragmites australis*
Pimpernel, False. . . . . *Lindernia dubia anagallidea*
Poplar, Common (aka White Poplar, Silver Poplar). . . . . *Populus alba*
Rabbitbrush, Green. . . . . *Chrysothamnus viscidiflorus*
Rabbitbrush, Grey. . . . . *Ericameria nauseosus*
Ragweed, Bur. . . . . *Ambrosia acanthicarpa*
Reed, Common. . . . . *Phragmites australis*
Ricegrass, Indian. . . . . *Achnatherum hymenoides*
Rye, Winter. . . . . *Secale cereale*
Sage, Grayball. . . . . *Salvia dorrii*
Sagebrush, Big. . . . . *Artemisia tridentata* var. *wyomingensis*
Sagebrush, Pacific (aka Sagewort). . . . . *Artemisia campestris*
Sagebrush, Stiff. . . . . *Artemisia rigida*
Sagebrush, Three-tip. . . . . *Artemisia tripartita*
Sagewort (aka Pacific Sagebrush). . . . . *Artemisia campestris*
Salt Cedar (aka Tamarisk). . . . . *Tamarix parviflora*
Saltgrass, Alkali. . . . . *Distichlis stricta*
Saltsage. . . . . *Atriplex nuttallii* var. *falcata*
Sandbur. . . . . *Cenchrus longispinus*
Sandwort, Annual. . . . . *Minuartia pusilla* var. *pusilla*
Sandwort, Thompson's. . . . . *Eremogone franklinii* var. *thompsonii*
Scurfpea, Dune. . . . . *Psoralea lanceolata*
Sedge, Awned halfchaff. . . . . *Lipocarpha aristulata*
Sedge, Porcupine. . . . . *Carex hystericina*
Serviceberry. . . . . *Amelanchier alnifolia*
Skeletonweed, Rush. . . . . *Chondrilla juncea*
Smartweed (aka Water Pepper). . . . . *Polygonum hydropiper*
Soapberry. . . . . *Shepherdia canadensis*
Sowthistle, Perennial. . . . . *Sonchus arvensis*
Spikerush, Beaked (aka Needle Spikerush). . . . . *Eleocharis rostellata*
Spikerush, Common. . . . . *Eleocharis palustis*
Spikerush, Needle (aka Beaked Spikerush). . . . . *Eleocharis rostellata*
Spurge, Leafy. . . . . *Euphorbia esula*
Starthistle, Yellow. . . . . *Centaurea solstitialis*
Swainsonpea, Alkali. . . . . *Sphaerophysa salsula*

Sycamore, American. . . . . *Platanus occidentalis*
Tamarisk (aka Salt Cedar). . . . . *Tamarix parviflora*
Thimbleberry.. . . . . *Rubus parviflorus*
Thistle, Bull.. . . . . *Cirsium vulgare*
Thistle, Canada. . . . . *Cirsium arvense*
Thistle, Musk. . . . . *Carduus nutans*
Thistle, Russian. . . . . *Salsola kali*
Thistle, Scotch.. . . . . *Onopordum acanthium*
Toadflax, Dalmatian. . . . . *Linaria dalmatica*
Tobacco, Coyote. . . . . *Nicotiana attenuata*
Toothcup, Lowland. . . . . *Rotala ramosior*
Tule (See Hardstem and Softstem Bulrush). . . . . *Scirpus acutus*, *Scirpus validus*
Velvetleaf. . . . . *Abutilon theophrasti*
Vine, Puncture.. . . . . *Tribulus terrestris*
Waterweed, Canadian. . . . . *Elodea canadensis*
Wheatgrass, Bluebunch. . . . . *Pseudoroegnaria spicata*
Wheatgrass, Crested. . . . . *Agropyron cristatum*
Wheatgrass, Thickspike. . . . . *Agropyron dasytachyum*
Whitetop. . . . . *Cardaria draba*
Wildrye, Giant.. . . . . *Elymus cinereus*
Wildrye, Medusahead. . . . . *Taeniatherum caputmedusa*
Willow, Narrowleaf (aka Coyote Willow). . . . . *Salix exigua*
Willow, Peachleaf. . . . . *Salix amygdaloides*
Willow-herb, Hairy. . . . . *Epilobium hirsutum*
Winterfat.. . . . . *Eurotia lanata*
Wort, Canadian St. John's . . . . . *Hypericum majus*
Yarrow. . . . . *Achillea millefolium*
Yellow-bell (aka Yellow Fritillary). . . . . *Fritillaria pudica*
Yellowcress, Columbia (aka Persistentsepal Yellowcress). . . . . *Rorippa columbiae*
Yellowcress, Persistentsepal (aka Columbia Yellowcress). . . . . *Rorippa columbiae*

Animals

Common Name. . . . . *Scientific Name*

Antelope, Pronghorn. . . . . *Antilocapra americana*
Badger, American. . . . . *Taxidea taxus*
Bass, Largemouth. . . . . *Micropterus salmoides*
Bass, Smallmouth. . . . . *Micropterus dolomieui*
Bat, Silver-haired.. . . . . *Lasionycteris noctivagans*
Bat, Pallid. . . . . *Antrozous pallida*
Beaver, American. . . . . *Castor canadensis*

Beetle, Columbia River Tiger. . . . . *Cicindela columbica*
Beetle, Darkling. . . . . *Eleodes hispilabris*
Blackbird, Red-winged. . . . . *Ageliaus phoeniceus*
Blackbird, Yellow-headed. . . . . *Xanthocephalus xanthocephalus*
Bobcat. . . . . *Lynx rufus*
Bullfrog. . . . . *Rana catesbeiana*
Bullhead, Brown. . . . . *Ictalurus nebulosus*
Bunting, Lazuli. . . . . *Passerina amoena*
Carp, Common. . . . . *Cyprinus carpio*
Catfish, Blue. . . . . *Ictalurus furcatus*
Catfish, Channel. . . . . *Ictalurus punctatus*
Chat, Yellow-breasted. . . . . *Icteria virens*
Chukar. . . . . *Alectoris chukar*
Coot, American. . . . . *Fulica americana*
Cormorant, Double-crested. . . . . *Phalacrocorax auritus*
Cougar. . . . . *Felis concolor*
Coyote. . . . . *Canis latrans*
Crane, Sandhill. . . . . *Grus canadensis*
Crappie, Black. . . . . *Pomoxis nigromaculatus*
Crow, American. . . . . *Corvus brachyrhynchos*
Curlew, Long-billed. . . . . *Numenius americanus*
Dace, Leopard. . . . . *Rhinichthys flacatus*
Deer, Mule. . . . . *Odocoileus hemionus*
Deer, White-tailed. . . . . *Odocoileus virginianus*
Dove, Mourning. . . . . *Zenaida macroura*
Duck, American Merganser. . . . . *Mergus serrator*
Duck, Bufflehead. . . . . *Bucephala albeola*
Duck, Canvasback. . . . . *Aythya valisineria*
Duck, Gadwall. . . . . *Anas strepera*
Duck, Common Goldeneye. . . . . *Bucephala clangula*
Duck, Green-winged Teal. . . . . *Anas crecca*
Duck, Mallard. . . . . *Anas platyrhynchos*
Duck, Northern Pintail. . . . . *Anas acuta*
Eagle, Bald. . . . . *Haliaeetus leucocephalus*
Eagle, Golden. . . . . *Aquila chrysaetos*
Earworm, Corn. . . . . *Helicoverpa* (=*Heliothis*) *zea*
Egret, Great. . . . . *Ardea alba*
Elk, Rocky Mountain. . . . . *Cervus elaphus*
Falcon, Peregrine. . . . . *Falco peregrinus*
Falcon, Prairie. . . . . *Falco mexicanus*
Flicker, Northern. . . . . *Colaptes auratus*
Fox, Red. . . . . *Vulpes vulpes*
Frog, Pacific Tree. . . . . *Hyla regilla*

Goose, Canada. . . . . *Branta canadensis*
Goshawk, Northern. . . . . *Accipter gentilis*
Grebe, Western. . . . . *Aechmorus occidentalis*
Ground squirrel, Townsend's. . . . . *Spermophilus townsendii*
Ground squirrel, Washington. . . . . *Spermophilus (Citellus) washingtoni*
Grouse, Western Sage. . . . . *Centrocercus urophasianus phaios*
Gull, California. . . . . *Larus californicus*
Gull, Ring-billed. . . . . *Larus delawarensis*
Hairstreak, Sheridan's Green. . . . . *Callophyrys sheridanii neoperplexa*
Harrier, Northern. . . . . *Circus cyaneus*
Hawk, Ferruginous. . . . . *Buteo regalis*
Hawk, Red-tailed. . . . . *Buteo jamaicensis*
Hawk, Rough-legged. . . . . *Buteo lagopus*
Hawk, Sharp-shinned. . . . . *Accipiter striatus*
Hawk, Swainson's. . . . . *Buteo swainsoni*
Heron, Black-crowned Night. . . . . *Nycticorax nycticorax*
Heron, Great blue. . . . . *Ardea herodias*
Jackrabbit, Black-tailed. . . . . *Lepus californicus*
Jackrabbit, White-tailed. . . . . *Lepus townsendii*
Junco, Dark-eyed. . . . . *Junco hyemalis*
Kestrel, American. . . . . *Falco sparverius*
Killdeer. . . . . Charadrius vociferus
Kingbird, Eastern. . . . . *Tyrannus tyrannus*
Kingbird, Western. . . . . *Tyrannus verticalis*
Kinglet, Golden-crowned. . . . . *Regulus satrapa*
Kinglet, Ruby-crowned. . . . . *Regulus calendula*
Lamprey, Pacific. . . . . *Entosphenus tridentatus*
Lamprey, River. . . . . *Lampetra ayresi*
Lark, Horned. . . . . *Eremophila alpestris*
Lark, Meadow . . . . . *Sturnella neglecta*
Limpet, Giant Columbia River (aka Shortface lanx). . . . . *Fisherola* (*Lanx*) *nuttalli*
Lizard, Northern Sagebrush. . . . . *Sceloporus graciosus*
Lizard, Short-horned. . . . . *Phrynosoma douglassii*
Lizard, Side-blotched. . . . . *Uta stansburiana*
Loon, Common. . . . . *Gavia immer*
Looper, Alfalfa. . . . . *Autographa californica*
Looper, Celery. . . . . *Syngrapha falcifera*
Magpie, Black-billed. . . . . *Pica hudsonia*
Merlin. . . . . *Falco columbarius*
Mink. . . . . *Mustela vison*
Minnow, Northern Pike. . . . . *Ptychocheilus oregonensis*
Mouse, Deer. . . . . *Peromyscus maniculatus*
Mouse, Great Basin Pocket. . . . . *Perognathus parvus*

Mouse, Western Harvest. . . . . *Riethrodontonomys megalotis*
Muskie, Tiger. . . . . *Esox lucius* X *Esox masquinongy*
Muskrat. . . . . *Ondatra zibethica*
Myotis, California. . . . . *Myotis californicus*
Myotis, Western small-footed. . . . . *Myotis leibii*
Night-heron, Black-crowned. . . . . *Nycticorax nycticorax*
Oriole, Bullock's. . . . . *Icterus bullockii*
Oriole, Northern. . . . . *Icterus galbula*
Otter, River. . . . . *Lutra canadensis*
Owl, Barn. . . . . *Tyto alba*
Owl, Burrowing. . . . . *Athene cunicularia*
Owl, Flammulated. . . . . *Otus flammeolus*
Owl, Great-horned. . . . . *Bubo virginianus*
Owl, Long-eared. . . . . *Asio otus*
Owl, Short-eared. . . . . *Asio flammeus*
Partridge, Gray (aka Hungarian Partridge). . . . . *Perdix perdix*
Peewee, Western wood. . . . . *Contopus sordidulus*
Pelican, White. . . . . *Pelecanus erythrorhynchos*
Perch, Yellow. . . . . *Perca flavescens*
Pheasant, Ring-necked. . . . . *Phasianus colchicus*
Phoebe, Say's. . . . . *Sayornis saya*
Pipistrelle, Western. . . . . *Pipistrellus hesperus*
Porcupine, Common. . . . . *Erithizon dorsatum*
Quail, California. . . . . *Callipepla californica*
Rabbit, Mountain Cottontail. . . . . *Sylvilagus nutalli*
Rabbit, Pygmy. . . . . *Brachylagus (Sylvilagus) idahoensis*
Raccoon. . . . . *Procyon lotor*
Racer, Western Yellow-bellied. . . . . *Coluber constrictor*
Rat, Norway. . . . . *Rattus norvegicus*
Rat, Ord's Kangaroo. . . . . *Dipodomys ordii*
Rattlesnake, Pacific. . . . . *Crotalus viridis*
Robin, American. . . . . *Turdus migratorius*
Salmon, Chinook. . . . . *Oncorhynchus tshawytscha*
Salmon, Sockeye. . . . . *Oncorhynchus nerka*
Salamander, Tiger. . . . . *Ambystoma tigrinum*
Sandroller. . . . . *Percopsis transmontana*
Sculpin, Prickly. . . . . *Cottus asper*
Sheep, Rocky Mountain Bighorn. . . . . *Ovis canadensis canadensis*
Shiner, Redside. . . . . *Richardsonius balteatus*
Shrew, Merriam's. . . . . *Sorex merriami*
Shrike, Loggerhead. . . . . *Lanius ludovicianus*
Skunk, Striped. . . . . *Mephitis mephitis*
Snail, Columbia Pebble. . . . . *Fluminicola fuscus*

Snail, Giant Columbia River Spire. . . . . *Fluminicola* (*Lithoglyphus*) *columbiana*
Snake, Great Basin Gopher. . . . . *Pituophis melanoleucus* (= *catenifer*)
Snake, Night. . . . . *Hypsiglena torquata*
Snake, Striped Whip. . . . . *Masticophis taeniatus*
Solitaire, Townsend's. . . . . *Myadestes townsendi*
Sparrow, Brewer's . . . . . *Spizella breweri*
Sparrow, Grasshopper. . . . . *Ammodramus savannarum*
Sparrow, Sage. . . . . *Amphispiza belli*
Sparrow, Song. . . . . *Melospiza melodia*
Sparrow, White-crowned. . . . . *Zonotrichia leucophrys*
Sparrow, Vesper. . . . . *Pooecetes gramineus*
Starling, European. . . . . *Sturnus vulgaris*
Steelhead. . . . . *Oncorhynchus mykiss*
Sturgeon, White. . . . . *Acipenser transmontanus*
Sucker, Largescale. . . . . *Catostomus macrocheilus*
Sucker, Mountain. . . . . *Catastomus platyrhynchus*
Swallow, Bank. . . . . *Riparia riparia*
Swallow, Cliff. . . . . *Petrochelidon pyrrhonota*
Swallow, Rough-winged. . . . . *Stelgidopteryx serripennis*
Tern, Forster's. . . . . *Sterna forsteri*
Thrasher, Sage. . . . . *Oreoscoptes montanus*
Toad, Great Basin Spadefoot. . . . . *Scaphiopus intermontanus*
Toad, Woodhouse's. . . . . *Bufo woodhousei*
Trout, Bull. . . . . *Salvelinus confluentus*
Vireo, Warbling. . . . . *Vireo gilvus*
Vole, Sagebrush. . . . . *Lagurus (Lemmiscus) curtatus*
Walleye. . . . . *Stizostedion vitreum*
Warbler, MacGillivray's. . . . . *Oporornis tolmiei*
Warbler, Orange-crowned. . . . . *Vermivora celata*
Warbler, Wilson's. . . . . *Wilsonia pusilla*
Warbler, Yellow. . . . . *Dendroica petechia*
Warbler, Yellow-rumped. . . . . *Dendroica coronata*
Weasel, Long-tailed. . . . . *Mustela frenata*
Whipsnake, Striped. . . . . *Masticophis taeniatus*
Whitefish, Mountain. . . . . *Prosopium williamsoni*
Woodpecker, Downy. . . . . *Picoides pubescens*
Woodpecker, Lewis'. . . . . *Melanerpes lewisii*

Appendix K – Common Vascular Plants On the Monument[239]

A. Shrub-Steppe Species	Scientific Name
Shrubs	
Big sagebrush	*Artemisia tridentata* var. *wyomingensis*
Bitterbrush	*Purshia tridentate*
Gray rabbitbrush	*Ericameria nauseosus*
Green rabbitbrush	*Chrysothamnus viscidiflorus*
Snow buckwheat	*Eriogonum niveum*
Spiny hopsage	*Grayia (Atriplex) spinosa*
Threetip sagebrush	*Artemisia tripartita*
Perennial Grasses	
Bluebunch wheatgrass	*Pseudoroegneria spicata*
Bottlebrush squirreltail	*Sitanion hystrix*
Crested wheatgrass	*Agropyron desertorum (cristatum)*[(a)]
Indian ricegrass	*Achnatherum hymenoides*
Needle-and-thread grass	*Hesperostipa comata*
Prairie junegrass	*Koeleria cristata*
Sand dropseed	*Sporobolus cryptandrus*
Sandberg's bluegrass	*Poa secunda*
Thickspike wheatgrass	*Agropyron dasytachyum*
Biennial/Perennial Forbs	
Bastard toad flax	*Comandra umbellata*
Buckwheat milkvetch	*Astragalus caricinus*
Carey's balsamroot	*Balsamorhiza careyana*
Cusick's sunflower	*Helianthus cusickii*
Cutleaf ladysfoot mustard	*Thelypodium laciniatum*
Douglas' clusterlily	*Brodiaea douglasii*
Dune scurfpea	*Psoralea lanceolata*
Franklin's sandwort	*Arenaria franklinii*
Gray's desert parsley	*Lomatium grayi*
Hoary aster	*Machaeranthera canescens*
Hoary false yarrow	*Chaenactis douglasii*
Longleaf phlox	*Phlox longifolia*
Munro's globemallow	*Sphaeralcea munroana*

[239] Taxonomy follows Hitchcock and Cronquist 1973. See Sackschewsky and Downs (2001) for a complete listing of Hanford Site vascular plants.

Pale evening primrose	*Oenothera pallida*
Rough wallflower	*Erysimum asperum*
Sand beardtongue	*Penstemon acuminatus*
Slender hawksbeard	*Crepis atrabarba*
Stalked-pod milkvetch	*Astragalus sclerocarpus*
Threadleaf fleabane	*Erigeron filifolius*
Turpentine spring parsley	*Cymopteris terebinthinus*
Winged dock	*Rumex venosus*
Yarrow	*Achillea millefolium*
Yellow bell	*Fritillaria pudica*
Yellow salsify	*Tragopogon dubius*[(a)]

Annual Forbs

Annual Jacob's ladder	*Polemonium micranthum*
Blue mustard	*Chorispora tenella*[(a)]
Bur ragweed	*Ambrosia acanthicarpa*
Clasping pepperweed	*Lepidium perfoliatum*
Indian wheat	*Plantago patagonica*
Jagged chickweed	*Holosteum umbellatum*[(a)]
Jim Hill's tumblemustard	*Sisymbrium altissimum*[(a)]
Matted cryptantha	*Cryptantha circumscissa*
Pink microsteris	*Microsteris gracilis*
Prickly lettuce	*Lactuca serriola*[(a)]
Russian thistle (tumbleweed)	*Salsola kali*[(a)]
Spring whitlowgrass	*Draba verna*[(a)]
Storksbill	*Erodium cicutarium*[(a)]
Tall willowherb	*Epilobium paniculatum*
Tarweed fiddleneck	*Amsinckia lycopsoides*
Threadleaf scorpion weed	*Phacelia linearis*
Western tansymustard	*Descurainia pinnata*
White cupseed	*Plectritis macrocera*
Whitestem stickleaf	*Mentzelia albicaulis*
Winged cryptantha	*Cryptantha pterocarya*

Annual Grasses

Cheatgrass	*Bromus tectorum*[(a)]
Slender sixweeks	*Festuca octoflora*
Small sixweeks	*Festuca microstachys*

B. Riparian Species

Trees and Shrubs

Black cottonwood	*Populus trichocarpa*
Black locust	*Robinia pseudo-acacia*[(a)]
Coyote willow	*Salix exigua*

Peach, apricot, cherry	*Prunus* spp.
Peachleaf willow	*Salix amygdaloides*[(a)]
Willow	*Salix* spp.
White mulberry	*Morus alba*[(a)]

Perennial Grasses and Forbs

Bentgrass	*Agrostis* spp.[(b)]
Blanket flower	*Gaillardia aristata*
Bulrushes	*Scirpus* spp.[(b)]
Cattail	*Typha latifolia*[(b)]
Columbia River gumweed	*Grindelia columbiana*
Dogbane	*Apocynum cannabinum*
Hairy golden aster	*Heterotheca villosa*
Heartweed	*Polygonum persicaria*
Horsetails	*Equisetum* spp.
Horseweed tickseed	*Coreopsis atkinsoniana*
Lovegrass	*Eragrostis* spp.[(b)]
Lupine	*Lupinus* spp.
Meadow foxtail	*Alopecurus aequalis*[(b)]
Pacific sage	*Artemisia campestris*
Prairie sagebrush	*Artemisia ludoviciana*
Reed canary grass	*Phalaris arundinacea*[(a,b)]
Rushes	*Juncus* spp.
Russian knapweed	*Centaurea repens*[(a)]
Sedge	*Carex* spp.[(b)]
Water speedwell	*Veronica anagallis-aquatica*
Western goldenrod	*Solidago occidentalis*
Wild onion	*Allium* spp.
Wiregrass spikerush	*Eleocharis* spp.[(b)]

C. Aquatic Vascular Species

Canadian waterweed	*Elodea canadensis*
Duckweed	*Lemna minor*
Pondweed	*Potamogeton* spp.
Spiked water milfoil	*Myriophyllum spicatum*
Watercress	*Rorippa nasturtium-aquaticum*

Notes:
(a) Introduced
(b) Perennial grasses and graminoids

Appendix L – Summary of Plant Communities

Vegetation Group	Vegetation Community	Acres
Bitterbrush Communities		
Bitterbrush / Native Bunchgrass	Bitterbrush / Bunchgrass Mosaic	1.00
Bitterbrush / Native Bunchgrass	Bitterbrush / Indian Ricegrass	4,817.40
Bitterbrush / Native Bunchgrass	Bitterbrush / Needle-and-Thread Grass	476.77
Bitterbrush / Sandberg's Bluegrass and/or Exotic Grass	Bitterbrush / Sandberg's Bluegrass - Cheatgrass	3,023.08
	Total	8,318.25
Black Greasewood / Native Bunchgrass	Black Greasewood / Alkali Saltgrass	298.80
Bunchgrass Communities		
Disturbed	Disturbed	667.64
Native Bunchgrass	Bluebunch Wheatgrass	31,249.73
Native Bunchgrass	Bluebunch Wheatgrass - Needle-and-Thread Grass	129.57
Native Bunchgrass	Bunchgrass - Cheatgrass	3,232.26
Native Bunchgrass	Bunchgrass Mosaic	3,290.06
Native Bunchgrass	Indian Ricegrass	814.05
Native Bunchgrass	Needle-and-Thread Grass	7,277.54
Native Bunchgrass	Sand Dropseed	599.84
	Total	47,260.68
Non Shrub-Steppe	Non Shrub-Steppe	4,842.98
Old Agricultural Fields	Old Agricultural Fields	1,897.49
Purple Sage / Sandberg's Bluegrass and/or Exotic Grass	Purple Sage / Sandberg's Bluegrass - Cheatgrass	167.51
Rabbitbrush Communities		
Rabbitbrush / Native Bunchgrass	Rabbitbrush / Bunchgrass	97.73
Rabbitbrush / Native Bunchgrass	Rabbitbrush / Needle-and-Thread Grass	241.59
Rabbitbrush / Native Bunchgrass	Rabbitbrush / Sand Dropseed	7.72
Rabbitbrush / Sandberg's Bluegrass and/or Exotic Grass	Rabbitbrush / Cheatgrass	123.72
Rabbitbrush / Sandberg's Bluegrass and/or Exotic Grass	Rabbitbrush / Sandberg's Bluegrass	664.70
Rabbitbrush - Snowy Buckwheat / Native Bunchgrass	Rabbitbrush - Snow Buckwheat / Bunchgrass Mosaic	410.82
Rabbitbrush / Native Bunchgrass	Rabbitbrush / Bunchgrass	189.45
Rabbitbrush / Native Bunchgrass	Rabbitbrush / Indian Rice Grass	2,602.03
Rabbitbrush / Sandberg's Bluegrass and/or Exotic Grass	Rabbitbrush / Sandberg's Bluegrass	3,434.14
	Total	7771.90

Riparian	Riparian	1,145.78
Riverine	Riverine Wetlands and Associated Deepwater Habitats	131.09
Rock Buckwheat / Native Bunchgrass	Rock Buckwheat / Bunchgrass Mosaic	2.90
Sandberg's Bluegrass Communities		
Sandberg's Bluegrass and/or Exotic Grass	Crested Wheatgrass	2,506.27
Sandberg's Bluegrass and/or Exotic Grass	Sandberg's Bluegrass - Cheatgrass	45,432.41
	Total	47,938.68
Snowy Buckwheat Communities		
Snowy Buckwheat - Bitterbush / Native Bunchgrass	Snow Buckwheat - Bitterbrush / Bunchgrass Mosaic	21.87
Snowy Buckwheat / Native Bunchgrass	Snow Buckwheat / Indian Ricegrass	1,366.35
	Total	1,388.22
Spiny Hopsage Communities		
Spiny Hopsage / Sandberg's Bluegrass and/or Exotic Grass	Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass	1,955.72
Spiny Hopsage / Sandberg's Bluegrass and/or Exotic Grass	Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass	12.94
	Total	1,968.66
Stiff Sagebrush Communities		
Stiff Sagebrush / Native Bunchgrass	Stiff Sagebrush / Bluebunch Wheatgrass	496.94
Stiff Sagebrush / Sandberg's Bluegrass	Stiff Sagebrush / Sandberg's Bluegrass	436.20
	Total	933.14
Threetip Sagebrush / Native Bunchgrass	Threetip Sagebrush / Bunchgrass Mosaic	10,488.59
Thymeleaf Buckwheat / Sandberg's Bluegrass	Thymeleaf Buckwheat / Sandberg's Bluegrass	230.54
Winter Fat Communities		
Winterfat / Native Bunchgrass	Winterfat / Bluebunch Wheatgrass	7.03
Winterfat / Native Bunchgrass	Winterfat / Bunchgrass Mosaic	1,105.02
Winterfat / Native Bunchgrass	Winterfat / Needle-and-Thread Grass	256.66
Winterfat / Sandberg's Bluegrass and/or Exotic Grass	Winterfat / Sandberg's Bluegrass - Cheatgrass	996.55
	Total	2,365.26
Wyoming Big Sagebrush Communities		
Wyoming Big Sagebrush / Sandberg's Bluegrass and/or Exotic Grass	Big Sagebrush / Sandberg's Bluegrass - Cheatgrass	26,972.87
Wyoming Big Sagebrush - Bitterbrush / Native Bunchgrass	Big Sagebrush - Bitterbrush / Bunchgrass Mosaic	1,765.34
Wyoming Big Sagebrush - Spiny Hopsage / Native Bunchgrass	Big Sagebrush - Spiny Hopsage / Bunchgrass Mosaic	2.51
Wyoming Big Sagebrush - Spiny Hopsage / Sandberg's Bluegrass, Exotic Grass	Big Sagebrush - Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass	310.61
Wyoming Big Sagebrush / Native Bunchgrass	Big Sagebrush / Alkali Saltgrass	12.99

Wyoming Big Sagebrush / Native Bunchgrass	Big Sagebrush / Bluebunch Wheatgrass	603.62
Wyoming Big Sagebrush / Native Bunchgrass	Big Sagebrush / Giant Wildrye	3.71
Wyoming Big Sagebrush / Native Bunchgrass	Big Sagebrush / Indian Ricegrass	1,573.22
Wyoming Big Sagebrush / Native Bunchgrass	Big Sagebrush / Needle-and-Thread Grass	1,288.32
Wyoming Big Sagebrush / Native Bunchgrass	Big Sagebrush / Bluebunch Wheatgrass	39.24
Wyoming Big Sagebrush / Native Bunchgrass	Big Sagebrush / Bunchgrass Mosaic	703.04
Wyoming Big Sagebrush / Native Bunchgrass	Big Sagebrush / Needle-and-Thread Grass	54.62
Wyoming Big Sagebrush / Native Bunchgrass	Big Sagebrush / Sand Dropseed	62.12
Wyoming Big Sagebrush / Sandberg's Bluegrass and/or Exotic Grass	Big Sagebrush / Crested Wheatgrass	13.69
Wyoming Big Sagebrush / Sandberg's Bluegrass and/or Exotic Grass	Big Sagebrush / Sandberg's Bluegrass - Cheatgrass	6,657.44
Wyoming Big Sagebrush - Spiny Hopsage / Sandberg's Bluegrass, Exotic Grass	Big Sagebrush - Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass	5,766.24
	Total	45,829.57

Appendix M – Plant Communities By Management Unit

Rattlesnake Unit Plant Communities

Big Sagebrush / Bluebunch Wheatgrass		196.03
Big Sagebrush / Needle-and-Thread Grass		12.14
Big Sagebrush - Spiny Hopsage / Bunchgrass Mosaic		2.51
Big Sagebrush - Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass		914.29
Big Sagebrush / Bluebunch Wheatgrass		39.24
Big Sagebrush / Bunchgrass Mosaic		483.50
Big Sagebrush / Crested Wheatgrass		13.69
Big Sagebrush / Needle-and-Thread Grass		8.51
Big Sagebrush / Sandberg's Bluegrass - Cheatgrass		5,918.01
Bitterbrush / Bunchgrass Mosaic		0.00
Black Greasewood / Alkali Saltgrass		298.80
Bluebunch Wheatgrass		30,258.55
Bluebunch Wheatgrass - Needle-and-Thread Grass		129.57
Bunchgrass - Cheatgrass		3,223.17
Bunchgrass Mosaic		3,290.06
Disturbed		39.54
Needle-and-Thread Grass		644.09
Non Shrub-Steppe		80.76
Old Agricultural Fields		939.71
Rabbitbrush / Bunchgrass		0.79
Riparian		44.04
Rock Buckwheat / Bunchgrass Mosaic		2.90
Sandberg's Bluegrass - Cheatgrass		22,081.72
Stiff Sagebrush / Bluebunch Wheatgrass		137.82
Stiff Sagebrush / Sandberg's Bluegrass		119.69
Threetip Sagebrush / Bunchgrass Mosaic		10,488.59
Thymeleaf Buckwheat / Sandberg's Bluegrass		230.54
Winterfat / Bluebunch Wheatgrass		7.03
Winterfat / Bunchgrass Mosaic		1,105.02
Winterfat / Needle-and-Thread Grass		256.66
	Total	80,966.95

Saddle Mountain Plant Communities

Big Sagebrush / Bluebunch Wheatgrass	332.45
Big Sagebrush / Needle-and-Thread Grass	12.03
Big Sagebrush - Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass	1,823.81
Big Sagebrush / Sandberg's Bluegrass - Cheatgrass	8,242.52
Bluebunch Wheatgrass	752.78
Crested Wheatgrass	2,433.38
Needle-and-Thread Grass	6.79
Non Shrub-Steppe	558.16
Rabbitbrush / Sandberg's Bluegrass	156.32
Sandberg's Bluegrass - Cheatgrass	8,538.95
Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass	322.66

Stiff Sagebrush / Bluebunch Wheatgrass		359.12
Stiff Sagebrush / Sandberg's Bluegrass		316.51
Winterfat / Sandberg's Bluegrass - Cheatgrass		179.90
	Total	24,035.37

Columbia River Corridor Plant Communities

Big Sagebrush / Alkali Saltgrass	12.99
Big Sagebrush / Bluebunch Wheatgrass	28.12
Big Sagebrush / Giant Wildrye	3.71
Big Sagebrush / Indian Ricegrass	68.99
Big Sagebrush - Bitterbrush / Bunchgrass Mosaic	1,765.34
Big Sagebrush - Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass	141.21
Big Sagebrush / Bunchgrass Mosaic	219.54
Big Sagebrush / Needle-and-Thread Grass	46.10
Big Sagebrush / Sand Dropseed	62.12
Big Sagebrush / Sandberg's Bluegrass - Cheatgrass	1,124.24
Bitterbrush / Indian Ricegrass	3,303.88
Bitterbrush / Needle-and-Thread Grass	232.43
Bitterbrush / Sandberg's Bluegrass - Cheatgrass	29.94
Bluebunch Wheatgrass	13.47
Bunchgrass - Cheatgrass	9.09
Crested Wheatgrass	7.41
Disturbed	628.09
Indian Ricegrass	136.03
Needle-and-Thread Grass	333.43
Non Shrub-steppe	649.80
Old Agricultural Fields	957.79
Purple Sage / Sandberg's bluegrass - cheatgrass	20.31
Rabbitbrush - Snow Buckwheat / Bunchgrass Mosaic	410.82
Rabbitbrush / Bunchgrass	286.39
Rabbitbrush / Cheatgrass	123.72
Rabbitbrush / Indian Rice Grass	711.54
Rabbitbrush / Needle-and-Thread Grass	241.59
Rabbitbrush / Sand Dropseed	7.72
Rabbitbrush / Sandberg's Bluegrass	1,114.93
Riparian	886.18
Riverine Wetlands and Associated Deepwater Habitats	131.09
Sand Dropseed	396.36
Sandberg's Bluegrass - Cheatgrass	2,863.27
Snow Buckwheat - Bitterbrush / Bunchgrass Mosaic	21.87
Snow Buckwheat / Indian Ricegrass	194.98
Spiny hopsage / Sandberg's Bluegrass - Cheatgrass	167.00
Winterfat / Sandberg's Bluegrass - Cheatgrass	72.16
Total	17,423.65

Ringold Unit Plant Communities

Big Sagebrush / Bluebunch Wheatgrass	0.04
Big Sagebrush - Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass	5.42
Big Sagebrush / Sandberg's Bluegrass - Cheatgrass	2.62
Bluebunch Wheatgrass	0.87
Crested Wheatgrass	63.50
Indian Ricegrass	12.80

Needle-and-Thread Grass		787.86
Non Shrub-steppe		148.02
Purple Sage / Sandberg's Bluegrass - Cheatgrass		0.05
Rabbitbrush / Indian Rice Grass		17.76
Rabbitbrush / Sandberg's Bluegrass		95.08
Riparian		72.72
Sand Dropseed		198.08
Sandberg's Bluegrass - Cheatgrass		1,441.60
Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass		19.48
Winterfat / Sandberg's Bluegrass - Cheatgrass		11.69
	Total	2,877.58

Wahluke Unit Plant Communities

Big Sagebrush / Bluebunch Wheatgrass		46.98
Big Sagebrush / Indian Ricegrass		1,504.23
Big Sagebrush / Needle-and-Thread Grass		1,264.16
Big Sagebrush - Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass		3,192.13
Big Sagebrush / Sandberg's Bluegrass - Cheatgrass		18,342.93
Bitterbrush / Indian Ricegrass		1,513.53
Bitterbrush / Needle-and-Thread Grass		244.34
Bitterbrush / Sandberg's Bluegrass - Cheatgrass		2,993.14
Bluebunch Wheatgrass		224.05
Crested Wheatgrass		1.99
Indian Ricegrass		665.22
Needle-and-Thread Grass		5,505.36
Non Shrub-Steppe		3,406.83
Purple Sage / Sandberg's Bluegrass - Cheatgrass		147.16
Rabbitbrush / Indian Rice Grass		1,872.72
Rabbitbrush / Sandberg's Bluegrass		2,732.52
Riparian		142.85
Sand Dropseed		5.40
Sandberg's Bluegrass - Cheatgrass		10,506.86
Snow Buckwheat / Indian Ricegrass		1,171.37
Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass		1,459.52
Winterfat / Sandberg's Bluegrass - Cheatgrass		732.81
	Total	57,676.10

Appendix N – Reptiles and Amphibians On the Monument

Common Name	Scientific Name
Reptiles	
Common garter snake	*Thamnophis sirtalis*
Great Basin gopher snake	*Pituophis melanoleucus* (= *catenifer*)
Night snake[(c)]	*Hypsiglena torquata*
Northern sagebrush lizard[(a)]	*Sceloporus graciosus*
Painted turtle	*Chrysemys picta*
Short-horned lizard	*Phrynosoma douglassii*
Side-blotched lizard	*Uta stansburiana*
Striped whipsnake[(b)]	*Masticophis taeniatus*
Rocky Mountain rubber boa	*Charina bottae*
Western rattlesnake	*Crotalus viridis*
Western terrestrial garter snake	*Thamnophis elegans*
Western yellow-bellied racer	*Coluber constrictor*
Amphibians	
Bullfrog	*Rana catesbeiana*
Great Basin spadefoot	*Scaphiopus intermontanus*
Pacific treefrog	*Hyla regilla*
Tiger salamander[(c)]	*Ambystoma tigrinum*
Woodhouse's toad[(c)]	*Bufo woodhousei*

(a) Federal Species of Concern.
(b) State Candidate species.
(c) State monitor species.

Appendix O – Fish in Monument Waters

Common Name	Scientific Name
American shad	*Alosa sapidissima*
Black bullhead	*Ameiurus melas*
Black crappie	*Pomoxis nigromaculatus*
Blue catfish	*Ictalurus furcatus*
Bluegill	*Lepomis macrochirus*
Bridgelip sucker	*Catostomus columbianus*
Brown bullhead	*Ictalurus nebulosus*
Burbot	*Lota lota*
Carp	*Cyprinus carpio*
Channel catfish	*Ictalurus punctatus*
Chinook salmon	*Oncorhynchus tshawytscha*
Chiselmouth	*Acrocheilus alutaceus*
Coho salmon	*Oncorhynchus kisutch*
Cutthroat trout	*Oncorhynchus clarki*
Dolly Varden	*Salvelinus malma*
Lake whitefish	*Coregonus clupeaformis*
Largemouth bass	*Micropterus salmoides*
Largescale sucker	*Catostomus macrocheilus*
Leopard dace	*Rhinichthys falcatus*
Longnose dace	*Rhinichthys cataractae*
Mottled sculpin	*Cottus bairdi*
Mountain sucker	*Catostomus platyrhynchus*
Mountain whitefish	*Prosopium williamsoni*
Northern pikeminnow (aka squawfish)	*Ptychocheilus oregonensis*
Pacific lamprey	*Entosphenus tridentatus*
Peamouth	*Mylocheilus caurinus*
Paiute sculpin	*Cottus beldingi*
Prickly sculpin	*Cottus asper*
Pumpkinseed	*Lepomis gibbosus*
Rainbow trout (steelhead)	*Oncorhynchus mykiss*
Redside shiner	*Richardsonius balteatus*
Reticulate sculpin	*Cottus perplexus*
River lamprey	*Lampetra ayresi*
Sandroller	*Percopsis transmontana*
Smallmouth bass	*Micropterus dolomieui*
Sockeye salmon	*Oncorhynchus nerka*
Speckled dace	*Rhinichthys osculus*
Tench	*Tinca tinca*
Threespine stickleback	*Gasterosteus aculeatus*
Torrent sculpin	*Cottus rotheus*
Walleye	*Stizostedion vitreum*
White crappie	*Pomoxis annularis*
White sturgeon	*Acipenser transmontanus*
Yellow perch	*Perca flavescens*
Yellow bullhead	*Ameiuruss natalis*

Appendix P – Birds on the Monument

Hawks	*Sp*	*S*	*F*	*W*	*Habitat*
Cooper's hawk	U		U	U	Mt, Rip
Ferruginous hawk*	U	U	R		Ca, Pp
Northern goshawk			Ca	Ca	Rip
Northern harrier*	Fc	Fc	Fc	Fc	Gr, M, Shb
Red-tailed hawk*	Fc	Fc	Fc	Fc	Pp, Rip
Rough-legged hawk	Fc		Fc	Fc	Gr, Mt, Pp
Sharp-shinned hawk	Fc		Fc	U	Mt, Rip
Swainson's hawk*	Fc	Fc			Mt, Rip

Falcons	*Sp*	*S*	*F*	*W*	*Habitat*
American kestrel*	Fc	Fc	Fc	U	Pp, Rip
Gyrfalcon			R	R	Fly
Merlin	U		U	U	Mt, Rip
Peregrine falcon	U	R	U	U	L, Riv
Prairie falcon*	U	U	U	U	L, Riv

Ospreys, Kites, & Eagles	*Sp*	*S*	*F*	*W*	*Habitat*
Bald eagle**	U		Fc	Fc	Riv
Golden eagle	U	Ca	U	U	Ca, Mt, Pp
Osprey*	U	U	U		Riv

Vultures	*Sp*	*S*	*F*	*W*	*Habitat*
Turkey vulture	Ca	Ca	Ca		Fly

Owls	*Sp*	*S*	*F*	*W*	*Habitat*
Barn owl*	U	U	U	U	Rip
Burrowing owl*	U	U	Ca		Gr, Shb
Great horned owl*	U	U	U	U	Ca, Rip
Long-eared owl*	U	U	U	U	Rip
Northern saw-whet owl				R	Rip
Short-eared owl*	U	U	U	U	Gr, Shb

Geese & Swans	*Sp*	*S*	*F*	*W*	*Habitat*
Tundra swan	Ca		U	Ca	L, Riv
Canada goose*	A	C	A	A	L, Riv
Greater white-fronted goose	Ca		Ca	Ca	L, Riv
Snow goose	Ca		Ca	Ca	L, Riv

Ducks	*Sp*	*S*	*F*	*W*	*Habitat*
American wigeon*	A	U	A	A	L, Riv
Barrow's goldeneye			U	U	Riv
Blue-winged teal*	Fc	Fc			L
Bufflehead			C	C	L, Riv
Canvasback*	U		U	U	L, Riv
Cinnamon teal*	Fc	Fc			L
Common goldeneye			C	C	L, Riv

Common merganser	C	Fc	A	A	L, Riv
Eurasian wigeon	Ca		Ca	Ca	L, Riv
Gadwall*	Fc	Ca	Fc	Fc	L, Riv
Greater scaup	Fc		Fc	U	Riv
Green-winged teal*	C	U	C	C	L, Riv
Harlequin duck				R	Riv
Hooded merganser			U	U	L
Lesser scaup*	Fc		Fc	U	L, Riv
Long-tailed duck			R	R	Riv
Mallard*	A	C	A	A	L, Riv
Northern pintail*	C	Fc	C	Fc	L, Riv
Northern shoveler*	C	U	C	Fc	L, Riv
Red-breasted merganser	R		Ca	Ca	Riv
Redhead*	Fc	Fc	Fc	Fc	L, Riv
Ring-necked duck	Fc		Fc	Fc	L, Riv
Ruddy duck*	Fc	U	Fc	U	L, Riv
Surf scoter			R		Riv
White-winged scoter			R		Riv
Wood duck	U	U	U	U	L

Loons	*Sp*	*S*	*F*	*W*	*Habitat*
Common loon	Fc	R	Fc	Fc	Riv
Pacific loon			U	U	Riv
Red-throated loon			R	R	Riv

Grebes	*Sp*	*S*	*F*	*W*	*Habitat*
Clark's grebe	U	U	U		L, Riv
Eared grebe*	Ca		Ca	Ca	L, Riv
Horned grebe	Fc		Fc	Fc	Riv
Pied-billed grebe*	Fc	Fc	Fc	Fc	L, Riv
Red-necked grebe	U		U	U	Riv
Western grebe*	Fc	U	Fc	U	Riv

Gulls	*Sp*	*S*	*F*	*W*	*Habitat*
Bonaparte's gull			Fc		Riv
California gull*	C	C	C	C	L, Riv
Franklin's gull			Ca		Riv
Glaucous-winged gull	Fc		Fc	Fc	Riv
Herring gull	Fc		Fc	Fc	L, Riv
Mew gull				R	Riv
Ring-billed gull	C	C	C	C	L, Riv
Thayer's Gull				R	Riv

Jaegers	*Sp*	*S*	*F*	*W*	*Habitat*
Long-tailed jaeger	R		R		Riv
Parasitic jaeger	R		R		Riv

Terns	*Sp*	*S*	*F*	*W*	*Habitat*
Black tern*	Ca		U		L, Riv
Caspian tern	Fc	Fc			Riv
Forster's tern*	Fc	Fc			Riv

Plovers	*Sp*	*S*	*F*	*W*	*Habitat*
American golden plover			R		Riv
Black-bellied plover			U		Riv
Killdeer*	Fc	Fc	C	U	L, Riv
Lesser golden plover			R		Riv
Semi-palmated plover	U		U		L, Riv

Shorebirds	*Sp*	*S*	*F*	*W*	*Habitat*
Baird's sandpiper			U		Riv
Dunlin	Fc		Fc	U	L, Riv
Greater yellowlegs	Fc		Fc		L, Riv
Least sandpiper	U		U		L, Riv
Lesser yellowlegs	U		Fc		L, Riv
Long-billed curlew*	Fc	Fc			Gr, M
Long-billed dowitcher	Fc		Fc		L, Riv
Marbled godwit			R		Riv
Pectoral sandpiper	R	R	R		Riv
Semi-palmated sandpiper			U		Riv
Short-billed dowitcher	R		R		L
Solitary sandpiper	Ca		U		L
Spotted sandpiper*	C	C			L, Riv
Stilt sandpiper		R	R		Riv
Western sandpiper	U		Fc		L, Riv

Stilts & Avocets	*Sp*	*S*	*F*	*W*	*Habitat*
American avocet*	U				L, Riv
Black-necked stilt*	Ca				L

Phalaropes	*Sp*	*S*	*F*	*W*	*Habitat*
Red-necked phalarope	U		U		L
Wilson's phalarope	U		U		L

Snipes	*Sp*	*S*	*F*	*W*	*Habitat*
Common snipe*	Fc	U	Fc	U	L, M, Riv

Pelicans & Cormorants	*Sp*	*S*	*F*	*W*	*Habitat*
American white pelican	C	Fc	C	Fc	Riv
Double-crested cormorant*	C	C	C	C	L, Riv

Cranes	*Sp*	*S*	*F*	*W*	*Habitat*
Sandhill crane	A		A		Fly

Bitterns, Herons & Egrets	*Sp*	*S*	*F*	*W*	*Habitat*
American bittern*	R				M
Black-crowned night heron*	C	C	C	Fc	L
Great blue heron*	Fc	Fc	Fc	Fc	L, Riv
Great egret*	U	U	U		L, Riv

Rails	*Sp*	*S*	*F*	*W*	*Habitat*
American coot*	A	A	A	A	L
Sora*	Ca		Ca		M
Virginia rail*	Fc	Fc	Fc	Fc	M

Gallinaceous Birds	*Sp*	*S*	*F*	*W*	*Habitat*
California quail*	Fc	Fc	Fc	Fc	Shb, Rip
Chukar*	C	C	C	C	Ca, Gr
Gray partridge*	Fc	Fc	Fc	Fc	Gr, Shb
Ring-necked pheasant*	Fc	Fc	Fc	Fc	Shb

Doves	*Sp*	*S*	*F*	*W*	*Habitat*
Mourning dove*	Fc	Fc	Fc	U	Rip, Shb
Rock dove*	Fc	Fc	Fc	Fc	Rip, Shb

Goatsuckers	*Sp*	*S*	*F*	*W*	*Habitat*
Common nighthawk*		Co			Gr, Rip, Shb
Common poorwill*	Fc	Fc			Ca

Kingfishers	*Sp*	*S*	*F*	*W*	*Habitat*
Belted kingfisher*	Fc	Fc	Fc	U	L, Riv

Woodpeckers	*Sp*	*S*	*F*	*W*	*Habitat*
Downy woodpecker	U	U	U	U	Rip
Hairy woodpecker				R	Rip
Lewis' woodpecker	U	R	U		Mt, Rip
Northern flicker*	Fc	Fc	Fc	Fc	Rip
Red-naped sapsucker	Ca		Ca		Rip

Hummingbirds	*Sp*	*S*	*F*	*W*	*Habitat*
Black-chinned hummingbird			R		Rip
Calliope hummingbird	U		U		Rip
Rufous hummingbird	U		U		Rip

Swifts	*Sp*	*S*	*F*		
Vaux's swift	Ca		Ca		Fly, Mt
White-throated swift	U	U			Ca, Fly

Swallows	*Sp*	*S*	*F*	*W*	*Habitat*
Bank swallow*	A	A			Ca, Rip, Riv
Barn swallow*	A	A	A		Fa, Mt, Rip
Cliff swallow*	A	A			Ca, Fa
Northern rough-winged swallow*	U	U			M, Riv
Tree swallow	Fc		U		Riv
Violet-green swallow*	Fc	Fc			Ca

Flycatchers	*Sp*	*S*	*F*	*W*	*Habitat*
Dusky flycatcher	Fc	R	Ca		Rip
Eastern kingbird*	Fc	Fc			Rip
Gray flycatcher	Ca		Ca		Rip
Hammond's flycatcher	Fc		Fc		Rip
Olive-sided flycatcher	Ca		Ca		Rip
Pacific-slope flycatcher	Fc		Fc		Rip
Say's phoebe*	Fc	Fc		R	Ca, Rip
Western kingbird*	C	C			Rip
Western wood pewee*	Fc	Fc			Rip
Willow flycatcher	U		U		Rip

Larks	*Sp*	*S*	*F*	*W*	*Habitat*
Horned lark*	A	A	A	A	Gr, Mt

Jays, Magpies & Crows	*Sp*	*S*	*F*	*W*	*Habitat*
American crow	C	C	C	C	Rip, Riv
Black-billed magpie*	C	C	C	C	Rip, Shb
Common raven*	Fc	Fc	Fc	Fc	Mt, Rip, Shb

Chickadees & Titmice	*Sp*	*S*	*F*	*W*	*Habitat*
Black-capped chickadee	R	R			Rip

Nuthatches	*Sp*	*S*	*F*	*W*	*Habitat*
Red-breasted nuthatch	Ca		Ca		Mt, Rip

Creepers	*Sp*	*S*	*F*	*W*	*Habitat*
Brown creeper	Ca		Ca		Rip

Waxwings	*Sp*	*S*	*F*	*W*	*Habitat*
Bohemian waxwing				U	Rip
Cedar waxwing	U	U	U		Rip

Wrens	*Sp*	*S*	*F*	*W*	*Habitat*
Bewick's wren*	U	U	U	U	Rip
Canyon wren*	R		Ca	Ca	Ca, Mt, Rip
House wren*	Fc	Fc			Rip
Marsh wren*	C	C	U	U	M
Rock wren*	Fc	Fc	Ca		Ca, Mt
Winter wren	U		U	U	Rip

Kinglets, Bluebirds, Thrushes	*Sp*	*S*	*F*	*W*	*Habitat*
American robin*	A	C	A	A	Rip
Golden-crowned kinglet	C		A		Mt, Rip
Hermit thrush	Fc		Fc		Rip
Mountain bluebird	Fc		Fc		Mt
Ruby-crowned kinglet	A		A		Rip
Swainson's thrush	R		R		Rip
Townsend's solitaire	Fc		Fc		Mt, Rip
Varied thrush	U		Fc	U	Mt, Rip
Western bluebird	R		Ca		Mt, Shb

Mockingbirds & Thrashers	*Sp*	*S*	*F*	*W*	*Habitat*
Gray catbird	Ca		Ca		Rip
Sage thrasher*	U	U	Ca		Shb

Wagtails & Pipits	*Sp*	*S*	*F*	*W*	*Habitat*
American pipit	Fc		A		Fly, Mt, Riv

Shrikes	*Sp*	*S*	*F*	*W*	*Habitat*
Loggerhead shrike*	Fc	Fc	U	Ca	Rip, Shb
Northern shrike			Fc	Fc	Rip, Shb

Starlings & Mynas	*Sp*	*S*	*F*	*W*	*Habitat*
European starling*	A	A	A	A	Ca, Fa, Rip

Vireos	*Sp*	*S*	*F*	*W*	*Habitat*
Cassin's vireo	Fc		U		Rip
Warbling vireo	Fc		C		Rip

Warblers	*Sp*	*S*	*F*	*W*	*Habitat*
Common yellowthroat*	U		U		M
MacGillivray's warbler	U		U		Rip
Nashville warbler	Fc		Fc		Rip
Orange-crowned warbler	Fc		Fc		Rip
Townsend's warbler	C		U		Rip
Yellow warbler*	Fc		Fc		Rip
Yellow-breasted chat*	U	U			Rip
Yellow-rumped warbler	C	Ca	A	Fc	Rip
Wilson's warbler*	A		Fc		Rip

Tanagers	*Sp*	*S*	*F*	*W*	*Habitat*
Western tanager	U		U		Rip

Meadowlarks & Orioles	*Sp*	*S*	*F*	*W*	*Habitat*
Bullock's oriole*	C	C			Rip
Western meadowlark*	A	A	Fc	Fc	Gr, Shb

Blackbirds	*Sp*	*S*	*F*	*W*	*Habitat*
Brewer's blackbird*	C	C			Fa, Rip
Brown-headed cowbird*	Fc	Fc			Rip, Shb
Red-winged blackbird*	A	A	C	A	M, Rip
Yellow-headed blackbird*	C	C			M

Towhees, Sparrows & Buntings	*Sp*	*S*	*F*	*W*	*Habitat*
American tree sparrow			Fc	Fc	Rip
Black-throated sparrow			R		Shb
Brewer's sparrow*	A	A			Shb
Chipping sparrow	U		U		Mt, Rip, Shb
Dark-eyed junco	A		A	A	Mt, Rip
Fox sparrow	U		U		Rip
Grasshopper sparrow*	A	A			Gr
Golden-crowned sparrow	Fc		Fc		Rip
Harris sparrow				R	M, Rip, Shb
Lapland longspur			R	R	Gr, Mt
Lark sparrow*	Fc	Fc			Rip, Shb
Lazuli bunting*	Fc	Fc			Rip
Lincoln's sparrow	U		U		Rip
Sage sparrow*	A	A			Shb
Savannah sparrow*	A		A		Gr, Shb
Snow bunting			U	U	Mt
Song sparrow*	C	C	C	C	M, Rip
Spotted towhee	Fc	Ca	Fc		Rip
Vesper sparrow*	A	A			Gr
White-crowned sparrow	A		A	A	M, Rip, Shb

Finches	*Sp*	*S*	*F*	*W*	*Habitat*
American goldfinch*	A	Fc	A	A	M, Rip, Shb
Black-headed grosbeak*	U	U			Rip
Cassin's finch	Ca			Ca	Rip
Common redpoll				R	Shb
Evening grosbeak	R				Rip
Gray-crowned rosy-finch	U		U	U	Ca, Mt
House finch	Fc	Ca	C	C	Rip
Pine siskin	Ca	Ca	Ca	R	Rip
Red crossbill	R			R	Mt, Rip

Old World Sparrows	*Sp*	*S*	*F*	*W*	*Habitat*
House sparrow*	C	C	C	C	Fa

Season Symbols
- Sp - Spring, March through May
- S - Summer, June through August
- F - Fall, September through November
- W - Winter, December through February

Habitat Symbols
- Ca - canyons, rock outcroppings, talus slopes
- Fa - facilities
- Fly - flyover
- Gr - grasslands
- L - lakes
- M - marshes
- Mt - mountains
- Pp - power poles
- Rip - riparian
- Riv - rivers & streams
- Shb - shrubs

Abundance Symbols
- A - abundant, seen in abundance in the appropriate season and habitat
- C - common, seen in moderate numbers in the appropriate season and habitat
- Ca - casual, not recorded every year
- Fc - fairly common, observed daily but in small numbers
- U - uncommon, see annually but not daily
- R - rare, known to be present but not every year, less than 10 observations
- * - birds known to nest locally
- ** - indicates a threatened or endangered species

Accidentals

American redstart	Blackpoll warbler	Purple finch
Anna's hummingbird	Brant	Red-eyed vireo
Arctic tern	Cattle egret	Sage grouse
Ash-throated flycatcher	Chestnut-sided warbler	Snowy owl
Band-tailed pigeon	Hutton's vireo	Tennessee warbler
Black-and-white warbler	Least flycatcher	Trumpeter swan
Black-legged kittiwake	Mountain chickadee	White-faced ibis
Black phoebe	Northern mockingbird	

Appendix Q – Mammals on the Monument

Common Name	Scientific Name
Bats	
Big brown bat	*Eptesicus fuscus*
Hoary bat	*Lasiurus cinereus*
Little brown myotis	*Myotis lucifugus*
Long-legged myotis	*Myotis volans*
Pallid bat	*Antrozous pallidus*
Silver-haired bat	*Lasionycteris noctivagans*
Western pipistrelle	*Pipistrellus hesperus*
Western small-footed myotis	*Myotis ciliolabrum*
Yuma myotis	*Myotis yumanensis*
Beavers	
American beaver	*Castor canadensis*
Canids	
Coyote	*Canis latrans*
Cats	
Bobcat	*Lynx rufus*
Mountain lion (cougar)	*Felis concolor*
Deer & Elk (Cervids)	
Mule deer	*Odocoileus hemionus*
Rocky Mountain elk	*Cervus elaphus*
White-tailed deer	*Odocoileus virginianus*
Hares & Rabbits	
Black-tailed jackrabbit	*Lepus californicus*
Mountain cottontail	*Sylvilagus nutalli*
Pygmy rabbit[(a)]	*Brachylagus idahoensis*
White-tailed jackrabbit	*Lepus townsendii*
Mice & Rats – New World (Cricetids)	
Bushy-tailed woodrat	*Neotoma cinerea*
Deer mouse	*Peromyscus maniculatus*
Montane vole	*Microtus montanus*
Muskrat	*Ondatra zibethica*
Northern grasshopper mouse	*Onychomys leucogaster*
Sagebrush vole	*Lemmiscus curtatus*
Western harvest mouse	*Riethrodontonomys megalotis*
Mice & Rats – Old World (Murids)	
House mouse[(b)]	*Mus musculus*
Norway rat[(b)]	*Rattus norvegicus*

Pocket Gophers	
Northern pocket gopher	*Thomomys talpoides*
Pocket Mice & Relatives (Heteromyids)	
Great Basin pocket mouse	*Perognathus parvus*
Porcupines	
Porcupine	*Erithizon dorsatum*
Racoons (Procyonids)	
Raccoon	*Procyon lotor*
Shrews	
Merriam's shrew	*Sorex merriami*
Vagrant shrew	*Sorex vagrans*
Squirrels	
Least chipmunk	*Eutamius minimus*
Townsend's ground squirrel	*Spermophilus townsendii*
Washington ground squirrel	*Spermophilus washingtoni*
Yellow-bellied marmot	*Marmota flaviventris*
Weasels & Relatives (Mustelids)	
American badger	*Taxidea taxus*
Long-tailed weasel	*Mustela frenata*
Mink	*Mustela vison*
River otter	*Lutra canadensis*
Striped skunk	*Mephitis mephitis*

(a) Probably extirpated.
(b) Introduced.

Appendix R – National Wildlife Refuge System Strategic Goals and the Monument RONS and MMS Project Lists

The Refuge Operating Needs System (RONS) is a nation-wide computerized database designed to optimize the management of staffing and operation needs. It uses standardized procedures to document and prioritize needs and to report accomplishments. RONS projects are separated into two tiers, Tier 1 and Tier 2. Tier 1 projects are regionally ranked and are: 1) for essential staffing; 2) mission critical; and 3) new or significantly expanded refuges. Tier 1 projects have been locked since 2001 and cannot be modified; no new projects can be added, but they can be reprioritized. Tier 2 projects encompass all other projects and are not regionally ranked. Tier 2 projects can be modified and new projects can be added. Accomplishment reports are required when any RONS project is completed.

The Maintenance Management System (MMS) is a computerized database designed to optimize the management of deferred maintenance and capital improvement activities throughout the FWS. It uses standardized procedures to document and prioritize field facility and equipment needs and to report accomplishments. It is a management tool for planning and budgeting deferred maintenance, capital improvement, equipment repair and replacement, and construction projects. The MMS documentation begins at the ground level with identification of deferred maintenance, capital improvements, construction needs, and equipment replacement and repair needs by field station managers. The database allows generation of reports that summarize data in a variety of ways, such as by maintenance codes, facility and equipment category, project cost estimates, priorities and project expenditures. The FWS must document all deferred maintenance and construction appropriation projects in the MMS database before they are eligible for funding. The MMS documents deferred maintenance, construction, capital improvement, and equipment needs to aid management in planning and budgeting for field activities. As such, it is managed to provide timely and accurate information to the DOI, Office of Management and Budget, Congress, and other organizations.

Activities and projects listed under the 12 NWRS Strategic Goals below will be implemented as funds become available.

1. Conserve, manage, and where appropriate, restore fish, wildlife and plant resources and their habitats to fulfill refuge purposes, trust resource responsibilities, and biological diversity/ integrity.

Project Description	RONS/MMS (M) No.	Estimated Cost (Thousands)
Control invasive plant species	00013/01012/03004/03006M	128/34/66/52
Management plan for elk	00016	138
Expand habitat and wildlife monitoring	00002	138
Restore and maintain habitats	00014/00025/03002/ 03003/03005	190/163/170/ 171/156
Manage and monitor islands and shorelines	00027/01010M	38/26
Black-tailed jack rabbit inventory	01030	58
Washington and Townsend's ground squirrel studies	01027	49
Ecology of rare plants	00033	70
Western burrowing owl nesting study	01028	50
Support Ecological Services for Hanford Site issues	01036	464
BPA transmission line easement vegetation control and road maintenance	01022	151
Comprehensive vegetation survey	03008	111
Reintroduce Columbia Basin pygmy rabbits	03011	32
Wildlife and Habitat Management Plan	Proposed	150
	TOTAL	2,605

2. Provide quality environments with adequate water.

Project Description	RONS/MMS (M) No.	Estimated Cost (Thousands)
In-river contaminants	01023	501
WB-10 ponds contaminant investigation	01029	59
Wetland restoration	03007	75
	TOTAL	635

3. Ensure that unique values of wilderness, other special designation areas, and cultural resources are protected.

Project Description	RONS/MMS (M) No.	Estimated Cost (Thousands)
Manage water flows through relicensing	01021	207
Wild and scenic river suitability: Interim protection	01019	84
Native American trust responsibilities	01034/01013/01035/03001	167/151/167/26
Columbia River Salmon Agreement	01020	138
Cultural resources surveys	03009/03012/03013	86/29/80
Pre-Manhattan Project history	03014	28
Cultural Resource Management Plan	03015	170
Cultural Resource MOU with tribes	03016	55
Cultural Resource repository, curation and lab	03018	23
Mitigation due to White Bluffs sloughing	03021	22
	TOTAL	1,433

4. Welcome and orient visitors.

Project Description	RONS/MMS (M) No.	Estimated Cost (Thousands)
Entrance signs	00014M	73
Entrance gates	00018M/03001M	32/32
	TOTAL	528

5. Provide quality wildlife-dependent recreation and education opportunities.

Project Description	RONS/MMS (M) No.	Estimated Cost (Thousands)
Outreach program	01032/00023	151/167
Interpretation and Education program	00008	138
Provide on-site interpretation	00031	75
Maintain public roads	00011	183
Interpretive kiosks	00009M	117
Remove cattle guards and watering troughs	01020M	42
Interpretive pullouts	00012M	104
Replace road grader	03003M	140
Replace boundary signs	01004M/00013M	31/55
Hanford Reach overlook on the Wahluke Unit	00024M	110
Unsafe parking lot removal	01017M	42
Jet boat and trailer	01011M	26
Parking area at north Wahluke entrance	05002M	100
Public use plan	Proposed	150
Hunting plan	Proposed	100
	TOTAL	1,786

6. Volunteers, friends, and conservation partners actively contribute to the NWRS mission.

Project Description	RONS/MMS (M) No.	Estimated Cost (Thousands)
Partnership for Arid Lands Stewardship	00017	138
White Bluffs erosion and sedimentation	01024	310
Coordinate volunteers	03010	138
Survey fossils in Ringold Formation	03019	138
Geology and tectonic/cataclysmic flood events	03020/03022	27/25
	TOTAL	776

7. Protect resources and visitors through law enforcement.

Project Description	RONS/MMS (M) No.	Estimated Cost (Thousands)
LE vehicle	01008	90
Manage recreational uses	01037	151
Jet boat and trailer	00019M	55
	TOTAL	296

8. Provide infrastructure and equipment adequate to support NWRS mission, maintained in good condition.

Project Description	RONS/MMS (M) No.	Estimated Cost (Thousands)
Maintain equipment and facilities	00015	128
Adequate shop tools and equipment	01011/01025	34/29
Bulldozer	01003	95
Low ground pressure equipment for restoration	01004	47
Front end loader	01019M	61
Challenger	03004M	180
Disc	03010M	8
Disc	03013M	11
Tractor	03005M	52
Tractor	01014M	58
Mower	03002M	16
Backhoe	03014	55
Front-end loader	01019M	61
	TOTAL	835

9. Quality and useful Comprehensive Conservation Plans are completed on schedule and with the full engagement of partners.

10. Strategically grow the NWRS.

Project Description	RONS/MMS (M) No.	Estimated Cost (Thousands)
Land acquisition and transfer	01038	167
	TOTAL	167

11. Reduce wildfire risks and improve habitats.

Project Description	RONS/MMS (M) No.	Estimated Cost (Thousands)
Fire history study	00019	120
Firefighting equipment	01002	48
Water truck	01007	57
Fire effects / fire rehabilitation monitoring	03006	27
Type 6 fire engine	01007M	105
Fire bunkhouse	05001M	250
	TOTAL	607

12. Organizational excellence.

Project Description	RONS/MMS (M) No.	Estimated Cost (Thousands)
Administration	00028/00004	127/117
Operations	00007/00030	151/151
	TOTAL	546

Appendix S – Monument Staffing Needs

Position	P/T*	Grade	Alt A		Alt B, B-1		Alt C, C-1		Alt D		Alt E		Alt F	
			Fill	Year	Fill	Year	Fill	Year	Fill	Year	Fill	Year	Fill	Year
Project Leader	P	GS-14	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Deputy Project Leader	P	GS-13	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Refuge Operations Specialist	P	GS-9	✓	0	✓	1	✓	1	✓	2	✓	2	✓	1
Supervisory Biologist	P	GS-12	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Wildlife Biologist	P	GS-11	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Wildlife Biologist	P	GS-11			✓	3	✓	3	✓	2	✓	3	✓	3
Wildlife Biologist	P	GS-9	✓	0	✓	5	✓	5					✓	5
Fisheries Biologist	P	GS-11			✓	5	✓	5			✓	5	✓	5
Biological Technician	T	GS-5	✓	0	✓	3	✓	3	✓	2	✓	3	✓	3
Biological Technician	T	GS-5			✓	5	✓	5			✓	5	✓	5
Archeologist**	P	GS-12	✓	4	✓	0	✓	0	✓	0	✓	0	✓	0
Historian	P	GS-9			✓	4	✓	0	✓	0	✓	0	✓	4
Geologist	P	GS-9			✓	7	✓	7			✓	7	✓	7
Tribal Coordinator	P	GS-11			✓	3							✓	3
Cultural Resources Technician	P	GS-9	✓	5	✓	0	✓	0	✓	0	✓	0	✓	0
Cultural Resources Technician	T	GS-7			✓	1							✓	1
Supervisory Outdoor Planner	P	GS-12	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0

Position	P/T*	Grade	Alt A		Alt B, B-1		Alt C, C-1		Alt D		Alt E		Alt F	
			Fill	Year	Fill	Year	Fill	Year	Fill	Year	Fill	Year	Fill	Year
Outdoor Recreation Planner	P	GS-11	✓	1	✓	1	✓	1	✓	1	✓	1	✓	1
Outdoor Recreation Planner	P	GS-9					✓	3	✓	3	✓	3		
Outdoor Recreation Planner	T	GS-9							✓	6				
Education Specialist	P	GS-12			✓	2	✓	2	✓	0	✓	2	✓	2
Interpreter	P	GS-9					✓	2	✓	2	✓	2		
Interpreter	T	GS-7							✓	4				
Supervisory Maintenance	P	WG-10	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Maintenance Worker	P	WG-9			✓	0	✓	0	✓	0	✓	0	✓	0
Maintenance Worker	T	WG-7	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Maintenance Worker	T	WG-5	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Maintenance Worker	T	WG-5							✓	0				
Administrative Officer	P	GS-11	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Automation Clerk	P	GS-9			✓	0	✓	0	✓	0	✓	0	✓	0
Automation Clerk	P	GS-5	✓	0	✓	2	✓	2	✓	2	✓	2	✓	2
Automation Clerk	T	GS-5	✓	0	✓	4	✓	4	✓	4	✓	4	✓	4
Purchasing Agent	P	GS-9			✓	0	✓	0	✓	0	✓	0	✓	0
Law Enforcement Officer	P	GS-11			✓	0	✓	0	✓	0	✓	0	✓	0
Law Enforcement Officer	P	GS-9	✓	0	✓	1	✓	1	✓	1	✓	1	✓	1
Law Enforcement Officer	P	GS-9							✓	3	✓	3	✓	3

Position	P/T*	Grade	Alt A		Alt B, B-1		Alt C, C-1		Alt D		Alt E		Alt F	
			Fill	Year	Fill	Year	Fill	Year	Fill	Year	Fill	Year	Fill	Year
Fire Management Officer	P	GS-12	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Asst. Fire Mgt. Officer	P	GS-11			✓	1	✓	1	✓	1	✓	1	✓	1
Supervisory Range Technician	P	GS-8	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Supervisory Range Technician	P	GS-8			✓	1	✓	1	✓	1	✓	1	✓	1
Crew Leader	P	GS-8	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Crew Leader	P	GS-7			✓	0	✓	0	✓	0	✓	0	✓	0
Range Technician	T	GS-5	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Range Technician	T	GS-5	✓	0	✓	1	✓	1	✓	1	✓	1	✓	1
Range Technician	T	GS-5			✓	1	✓	1	✓	1	✓	1	✓	1
Range Technician	T	GS-5			✓	1	✓	1	✓	1	✓	1	✓	1
Contaminants Specialist	P	GS-12	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Volunteer Coordinator	P	GS-9			✓	2	✓	2	✓	2	✓	2	✓	2
Research & Demo. Specialist	P	GS-13	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Planner	P	GS-12	✓	0	✓	0	✓	0	✓	0	✓	0		
GIS Specialist	P	GS-11			✓	1	✓	1	✓	1	✓	1	✓	1
Total Positions			**26**		**45**		**45**		**45**		**45**		**45**	

* Permanent or Temporary position.

** These positions are currently vacant, and it is not known when they will be refilled.

Appendix T – Literature Cited

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Appendix U – Distribution List

Following distribution of the draft CCP, the FWS mailed a letter to everyone on its mailing list to determine if they would like to remain on the list and continue to receive documents, including this final CCP. This was done to reduce costs and the use of natural resources. In order to remain on the Monument's mailing list, respondents were asked to return a pre-addressed postcard expressing their interest in continuing to receive Monument mailing. Numerous people opted out of the mailing list by not returning the postcard, so the following distribution list is considerably smaller than that used to distribute the draft CCP.

Anyone wanting to be added back to the mailing list can do so by calling (509) 371-1801 or emailing daniel_haas@fws.gov.

Tribal Leaders

Acting Executive Director, Confederated Tribes of the Colville Reservation
Rex Buck, Spiritual Leader, Wanapum
Antone Minthorn, Board of Trustees Chair, Confederated Tribes of the Umatilla Indian Reservation
Samuel Penney, Chair, Nez Perce Tribe
Ralph Sampson, Jr., Chair, Confederated Tribes and Bands of the Yakama Indian Nation

United States Senate – Oregon

The Honorable Gordon H. Smith
The Honorable Ron Wyden

United States Senate – Washington

The Honorable Maria Cantwell
The Honorable Patty Murray

United States House of Representatives – Oregon

The Honorable Earl Blumenauer
The Honorable Peter DeFazio
The Honorable Darlene Hooley
The Honorable Greg Walden
The Honorable David Wu

United States House of Representatives – Washington

The Honorable Brian Baird
The Honorable Norman Dicks
The Honorable Doc Hastings
The Honorable Jay Inslee
The Honorable Rick Larsen
The Honorable Jim McDermott
The Honorable Cathy McMorris
The Honorable Adam Smith
The Honorable David Reichert

Office of the Governor – Oregon

The Honorable Ted Kulongoski

Office of the Governor – Washington

The Honorable Christine Gregoire

Washington State Elected Officials

Washington State Senate

The Honorable Jerome Delvin
The Honorable Mike Hewitt
The Honorable Jim Honeyford
The Honorable Janéa Holmquist
The Honorable Curtis King
The Honorable Mark Schoesler

Washington State House of Representatives

The Honorable Bruce Chandler
The Honorable William Grant
The Honorable Steve Hailey
The Honorable Larry Haler
The Honorable Shirley Hankins
The Honorable William Hinkle
The Honorable Dan Newhouse
The Honorable Charles Ross
The Honorable Joe Schmick
The Honorable Mary Skinner
The Honorable Maureen Walsh
The Honorable Judith Warnick

County Commissioners

Adams County Commissioners

Roger Hartwig
Rudy Plager
Jeffery Stevens

Benton County Commissioners

Max Benitz, Jr.
Leo Bowman
Claude Oliver

Franklin County Commissioners

Neva Corkrum
Bob Koch
Rick Miller

Grant County Commissioners

LeRoy Allison
Cindy Carter
Richard Stevens

Kittitas County Commissioners

David Bowen
Alan Crankovich
Mark McClain

Walla Walla County Commissioners

David Carey
Greg Loney
Greg Tompkins

Yakima County Commissioners

Rand Elliot
Ronald Gamache
Mike Leita

Mayors

Patti Bailie (Mesa)
James Beaver (Kennewick)
Norm Childress (Grandview)
Gary Clark (Zillah)
Ronald Covey (Moses Lake)
Dave Edler (Yakima)
Judy Esser (Mattawa)
Ramona Fonseca (Granger)
John Fox (Richland)
Paul Garcia (Sunnyside)
Dale Jackson (West Richland)
Justin Jenks (Royal City)
Jim Lemon (Union Gap)
Shannon McKay (Othello)
Joyce Olson (Pasco)
Bryan Robinson (Benton City)
Paul Warden (Prosser)

Federal Agencies/Organizations

Bonneville Power Administration
Bureau of Indian Affairs
Bureau of Land Management
Bureau of Reclamation
Columbia River Inter-Tribal Fish Commission
Federal Energy Regulatory Commission
Federal Highway Administration
Lawrence Berkeley National Laboratory
Little Pend Oreille NWR
National Oceanic Atmospheric Administration
National Park Service
Natural Resources Conservation Service
Pacific Northwest National Laboratory
Puget Sound Naval Shipyard
Ridgefield NWR Complex
Stillwater NWR
Toppenish NWR
Turnbull NWR
United States Army
United States Army Corps of Engineers
United States Department of Energy
United States Environmental Protection Agency
United States Forest Service
United States Geological Survey
United States Department of Transportation

State Agencies/Organizations

Ringold Fish Hatchery
Washington Department of Agriculture
Washington Department of Ecology
Washington Department of Fish and Wildlife
Washington Department of Natural Resources
Washington Department of Transportation
Washington Fish and Wildlife Commission
Washington Interagency Committee for Outdoor Recreation
Washington State Historic Preservation Office

Local Agencies/Organizations

Benton Conservation District
Benton County Parks & Recreation Board
Benton-Franklin Public Health Department
Grant County Planning Department
Kennewick Community Education
Mattawa Fire Station
Port of Benton
Port of Mattawa
Richland Public Facilities District

Hanford Reach National Monument Federal Advisory Committee

Royace Aikin, Pacific Northwest National Laboratory (Education)
Leo Bowman, Benton County (Commissioner)
Frank Brock, Franklin County (Commissioner)
Rex Buck, Wanapum (Native American)
Nancy Craig, Grant County PUD
Dennis Dauble, Pacific Northwest National Laboratory (Science)
David Geist, Pacific Northwest National Laboratory (Science)
Eric Gerber (History)
Michele Gerber (History)
Harold Heacock, Tri-Cities Industrial Development Council (Economic Development)
Rick Leaumont, Lower Columbia Basin Audubon Society (Conservation)
Mike Lilga, Lower Columbia Basin Audubon Society (Conservation)
Gene Schreckhise, Washington State University (Science)
Ron Skinnarland, Washington Department of Ecology (State)
Rich Steele, Northwest Conservation League (Outdoor Recreation)
Jeff Tayer, Washington Department of Fish and Wildlife (State)
Bob Thompson, City of Richland (City)
Valoria Loveland (Public-At-Large)
Kris Watkins (Public-At-Large)
Jim Watts (Chair), Tri-Cities Industrial Development Council (Economic Development)
Karen Wieda, Pacific Northwest National Laboratory (Education)
Mike Wiemers, Northwest Conservation League (Outdoor Recreation)

Interest Groups

Alliance for the Advancement of Science Through Astronomy
American Rivers
Animal Protection Institute
B Reactor Museum Association
Backcountry Horsemen of Washington
Black Hills Audubon Society
Blue Mountain Audubon Society
Boy Scouts of America
Columbia River Conservation League
Columbia River Exhibition of History & Science
Columbia River United
Columbia Riverkeeper
Conservation Breeding Specialist Group
Conservation Force
Eastern Washington Steelhead Foundation
Enviro Issues
Franklin County Historical Society
Friends for Parks and Public Lands
Friends of Arizona Rivers
Friends of the Mid Columbia Refuges
Fund For Animals
Grays Harbor Audubon Society
Hanford Atomic Metal Trades Council
Heart of America Northwest
Institute for Energy & Environmental Research
Inter-Mountain Alpine Club
Kettle Range Conservation Group
Kitsap Audubon Society
Kittitas Audubon Society
Lower Columbia Basin Audubon Society
National Audubon Society
National Trappers Association
Native Plant Society
North-Central Washington Audubon Society
Northwest Environmental Defense Center
Northwest Ecosystem Alliance
Olympic Peninsula Audubon Society
Partnership for Arid Lands Stewardship
Pilchuck Audubon Society
Pioneer Trail Rider Association
Rainier Audubon Society
Richland Rod & Gun Club
Rocky Mountain Elk Foundation
Sagebrush Free Trappers
Seattle Audubon Society
Sierra Club
Skagit Audubon Society
Tawma Audubon Society
The Backpacking Club
The Columbia Basin Bass Club
The Lands Council
The Nature Conservancy
The Wilderness Society
Trout Unlimited
Vancouver Audubon Society
Wahluke Farmers Association
Washington Water Trails
Washington League of Voters
Washington Outfitters & Guides Association
Washington Waterfowl Association
Washington Kayak Club
White Bluffs - Hanford Heritage Association
Wildlife Management Institute
Willapa Hills Audubon Society
Yakima Valley Audubon Society

Economic Development/Tourism Organizations

Benton City Chamber of Commerce
Grant County Tourism Commission
Greater Pasco Area Chamber of Commerce
Prosser Chamber of Commerce
Richland Chamber of Commerce
Tri-Cities Industrial Development Council
Tri-Cities Visitor & Convention Bureau
Tri-City Area Chamber of Commerce
Walla Walla Valley Chamber of Commerce
West Richland Chamber of Commerce
Yakima Chamber of Commerce

Other Organizations

Diocese of Yakima
Hanford Advisory Board

Private/Public Companies

Anderson Brothers
Baker & Giles
Battelle
Bechtel Hanford
Canoe & Kayak Magazine
Cold Creek Vineyard
Columbia River Journeys
Confluence Kayak Tours
Eastern Oregon Stewardship Services
EDAW
Fluor Hanford
Four Feathers Fruit Company
Fredericks Family Limited Partnership
High Valley Ranch
JB's Guide Service
Key Bank
Norton-Arnold & Company
Plath Orchard Company
Three Rivers Family Medicine
Triangle Associates
U.S. Bank
Washington Closure - Hanford
White Bluffs Guide Service
White Shield

Utilities

Benton County PUD
Energy Northwest
Franklin County PUD
Grant County PUD
South Columbia Basin Irrigation District

Education

Central Washington University
City University
Columbia Basin College
Connell School District
Gonzaga University
Heritage College
Iowa State University
Northwestern University
University of California-Irvine
University of Washington
Wahluke School District #73
Washington State University

Media

Associated Press – Yakima
Columbia Basin Herald – Moses Lake (Newspaper)
Daily Sun News – Sunnyside (Newspaper)
East Oregonian – Pendleton (Newspaper)
El Mundo – Wenatchee (Newspaper)
Hermiston Herald – Hermiston (Newspaper)
KBWU – Kennewick (Television)
KEPR – Pasco (Television)
KFAE – Pullman (Radio)
KNDU – Kennewick (Television)
KNLT – Kennewick (Radio)
KONA – Pasco (Radio)
KORD – Pasco (Radio)
KTCR – Kennewick (Radio)
KVEW – Kennewick (Television)
Mattawa Area News – Mattawa (Newspaper)
Oregonian – Portland (Newspaper)
Outlook – Othello (Newspaper)
Prosser Record Bulletin – Prosser (Newspaper)
Seattle Post-Intelligencer – Seattle (Newspaper)
Seattle Times – Seattle (Newspaper)
Spokesman Review – Spokane (Newspaper)
Tri-Cities Area Journal of Business – Kennewick (Newspaper)
Tri-City Herald – Kennewick, Pasco, Richland, West Richland (Newspaper)
Walla Walla Union Bulletin – Walla Walla (Newspaper)
Wenatchee World – Wenatchee (Newspaper)
Yakima Herald Republic – Yakima (Newspaper)

Reading Rooms/Libraries

Gonzaga University, Foley Center
Library of Congress
Mid-Columbia Public Library, Benton City Branch
Mid-Columbia Public Library, Kennewick Branches
Mid-Columbia Public Library, West Richland Branch
Pasco Public Library
Prosser Public Library
Richland Public Library
United States Department of Energy Public Reading Room - Tri-Cities

Individuals

Michelle Ackermann
Mary Ann Allemann
David Ambrose
Jim Amundson
Leslie Amundson
Jeffrey Anderson
Marshall Anderson
Rick Anderson
Shannon Arntzen
Vanessa Bailey
Del Ballard
Nate Ballou
Kristie Baptiste
Tim Bardell
William Barnett
Brian Barry
Roxanne Bash
Julia Bent
Debbie Berkowitz
Tony Berven
Llorene Bezanson
Bruce Bjornstad
Kathy Blasdel
Rod Block
Arlyn Boatsman
Gerard Bohlke
Steve Brady
Jack Briggs
Madeleine Brown
Pam Brown Larsen
Ralph Broz
Steve Buckingham
Leland Burger
Gary Busselman
Burt Butler
Onnie Byers
Lynn Call
Sean Carrell
Annette Cary
Leslie Catherwood
Nick Ceto
Sue Chickman
Tom Chikalla
Paula Clark
Alene Clarke
Curtis Cleveland
Courtney Conklin
Rene Connatser
Harold Copeland
Don Crawford
Janet Crawford
Ron Crouse
Pat Daly
Everyll Davison
John Decker
Doug DeFord
Richard Ding
Shannon Dininny
Keith Dunbar
Bonnie Dunham
Joyce Edie
Paul Emler
Ralph Engle
John Engstrom
Connie Estep
Mike Estes
Jim Eychaner
Dennis Faulk
Doug Fenske
Henry Field
Bob Fields
Ron Filkowski
Melvin Finkbeiner
Elwin Fisk
Lisa Fitzner
Richard Fleming
Timothy Flood
Patricia Fredricks
Rick French
Paul Friesema
Adam Fyall
Larry Gadbois
Ken Gano
Howard Gardner
Jenna Gaston
Fred George
Roy Gephart
Richard Gies
Ed Gire
Dave Goeke
Jessie Gordon
Ray Gordon
Keith Greager
Robert Gretzinger
Walt Grisham
Eric Gustafson
Tom Halecki
Don Hall
Lynn Hall
Thomas Hall
Don Hand
Barbara Harper
Stuart Harris
David Hartwig
Perry Harvester
David Harvey
Bill Hays
Dick Hemore
Gayle Hennings
Henry Henrikson
James Hines
Patti Howard
Alisa Huckaby
Darryl Hudson
Roy Hull
William Hutton
Jeannette Hyatt
Harley Hylbak
David Jackson
Mike Jansky

Eric Jensen
Russell Jim
Robert Johnston
Dana Jones
Kayla Kelser
Aimee Kinney
Paul Kison
Jim Kline
Kathy Knutson
Chris Kovalchick
Don Kraege
Louis LaDouceur
Bill LaFramboise
Nancy LaFramboise
Thomas Lally
William Lambert
Dennis Larson
Al Laws
Gwen Leth
Michelle LeVar
Alma Lewandowski
Jeff Light
Michael Linde
Steven Link
Bruce Loranger
Jon Lucas
Mike Luzzo
Mary Lynn Arter
Bill Madison
Carl Mansperger
Eddie Manthos
Carol Martinez
Nick Martinez
Jay McConnaughey
Jay McCue
Charlie McKinney
Sam Meacham
Carl Merkle
Hugo Mertens
Ben Meyer
Klaus Meyn
Jay Michel
Phil Michel
Bonnie Miller
David Miller
Norman Miller
Gaylord Mink
Armand Minthorn
C.J. Mitchell
Dan Montgomery
Ronald Moore
Heather Moorman
Mike Mudd
Linda Munson
John Musser
Dave Myers
Todd Nelson
Robert Nielson
Linda North
Khris Olsen
Andrew Page
Thomas Page
Jim Paglieri
Sheryl Paglieri
Olney Patt
Bert Pence
Lynn Peterson
Glenda Phillips
Rick Plath
Gerald Pollett
Patricia Port
Fred Porter
Robert Potter
Neal Puter, Jr.
Eric Quaempts
Fred Raab
Waldemar Raemmler
Glen Rasmussen
Joe Reder
Mike Reimer
Kathy Rhoads
David Rice
William Rickard
Bobbie Rittmann
Paul Rittmann
Victor Robert
Mac Roberts
Francis Roddy
Annabelle Rodriguez
Ryan Rodruck
Gordon Rogers
Joel Rogers
Richard Romanelli
Don Rose
Moriya Rufer
Karen Schell
D.J. Schubert
Ken Schwartz
Daniel Sevcik
Richard Sharp
Naomi Sherer
William Shorr
Bob Showalter
John Silko
Kim Simmons
Preston Sleeger
Connie Smith
Dave Smith
Jeffrey Smith
Bill Smithers
Patrick Sobotta
Vera Sonneck
Gary Splattstoesser
Darby Stapp
Gretchen Starke
Rich Steele
Bob Stenner
Jim Stephenson
John Strand
Matt Strong
Ken Swanson
Rob Swedo
Max Swenson
Gary Tennison
Michael Thompson
Bob Thompson
Jean Thompson
B.J. Thorniley
Hector Torres
Glenn Trachen
Fred Tull
Tony Umek
Eugene Van Liew
Ben Volk
Reed Waite
Dana Ward
Arlen Washines
Dick Watts
Regan Weeks
Dwayne Werner
John White
Mark Whitesell
Debra Wilcox
John Wilde
Mike Wingfield
Kenneth Wise
Gene Woodruff
Berta Youtie
Rick Zangar