Appendices

Appendix A – 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.

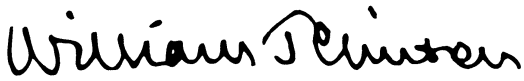
The establishment of this monument is subject to valid existing rights.

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.



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[137]

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.

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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

[137] 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.

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.

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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 B – 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 C – Applicable Laws, Executive Orders and Policies

C.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.

C.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.

C.1.2 International Treaties of the United States

C.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.

C.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.

C.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.

C.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.

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

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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."

C.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.

C.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.

C.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.

C.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."

C.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.

C.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.

C.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."

C.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.

C.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).

C.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.

C.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.

C.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.

C.3 Executive Orders

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

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.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.[138] 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

[138] 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.

C.6 International Agreements

C.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.

C.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 D – Permit To Operate A National Wildlife Refuge

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;

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 D – Refuge Permit, Attachment 1, Maps

Omitted, see Map Section for Monument maps.

Appendix D – 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 D – 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 Berkley Lab.	Electronic Access to Rattlesnake Observatory	Roy Gephardt
University of Washington University of California	Basic Research	Roy Gephardt
BHI/CERCLA	Vegatation 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. Schschewsky
PNNL	Seismic Monitoring	Alan Rohay
PNNL	Climatological and Meteorlogical Research	D. Knight

Appendix D – 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 D – 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 E – Hanford Reach National Monument Federal Advisory Committee

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 F – Common Vascular Plants On the Monument[139]

A. Shrub-Steppe Species	Scientific Name
Shrubs	
Big sagebrush	*Artemisia tridentata* var. *wyomingensis*
Bitterbrush	*Purshia tridentate*
Gray rabbitbrush	*Chrysothamnus nauseosus*
Green rabbitbrush	*Chrysothamnus viscidiflorus*
Snow buckwheat	*Eriogonum niveum*
Spiny hopsage	*Grayia (Atriplex) spinosa*
Threetip sagebrush	*Artemisia tripartita*
Perennial Grasses	
Bluebunch wheatgrass	*Agropyron spicatum*
Bottlebrush squirreltail	*Sitanion hystrix*
Crested wheatgrass	*Agropyron desertorum (cristatum)*[(a)]
Indian ricegrass	*Oryzopsis hymenoides*
Needle-and-thread grass	*Stipa comata*
Prairie junegrass	*Koeleria cristata*
Sand dropseed	*Sporobolus cryptandrus*
Sandberg's bluegrass	*Poa sandbergii (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 desertparsley	*Lomatium grayi*
Hoary aster	*Machaeranthera canescens*
Hoary falseyarrow	*Chaenactis douglasii*
Longleaf phlox	*Phlox longifolia*
Munro's globemallow	*Sphaeralcea munroana*

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

Pale eveningprimrose	*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 G – 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 Sagebruch / 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 Sagebush - Spiny Hopsage / Sandberg's Bluegrass, Exotic Grass	Big Sagebrush - Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass	5,766.24
	Total	45,829.57

Appendix H – 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 bluegras - 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 I – 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 J – Fish Species in the Hanford Reach and 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 K – 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
Virgina 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*
Amercian 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 L – 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 M – 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 a compatible use 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.[140] 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, six compatibility determinations are completed for the Monument. Others will be completed as need dictates.

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[140] 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.

DRAFT 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.[141] 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.[142] Additional user-created trails follow the shoreline in some areas.[143]

Fish caught by Monument visitors include Chinook and chum salmon (seasonally), sturgeon, and resident gamefish, 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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[141] 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.

[142] 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.

[143] 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 will be 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)

DRAFT 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 (Seney and Wilson 1991), 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.[144] 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

[144] 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).

suggested hiking trail distances of 250 feet (Miller et al. 1998) and boat buffers ranging from 250 to 900 feet (depending on type of 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 will be 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 refuge 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.

- 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)

DRAFT Compatibility Determination - Hunting

Use

Hunting (Big Game, Waterfowl, and Other Migratory 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 [145]

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[146]

- 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

[145] 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.

[146] 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.[147] 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 EIS, Section 3.21.2, for a description of the elk herd).[148] The potential regulated elk hunt would be part of a three-tiered approach to elk management.[149]

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

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[147] 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.

[148] The Rattlesnake Hills Elk Herd population objective is equal to or less than 350 elk (WDFW 2002). The current population estimate is approximately 538 elk, based on 2006 surveys.

[149] 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.

remained 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.

We anticipate that approximately 65% of the funding required will be needed to manage the potential population control elk hunt on the Rattlesnake Unit (pending selection of a Preferred Alternative).

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	0.47	$35,500
Law Enforcement (GS-09)	Coordination with WDFW Law Enforcement; Field Monitoring of Hunters	0.44	$31,000
Recreation Planner (GS-11)	Outreach; Briefings	0.27	$19,600
Total Annual FTEs and Cost		***1.23***	***$95,000***

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 expected hunter numbers to increase over the next fifteen years. Impacts will be monitored, and, if necessary, measures would be considered in coordination with WDFW to protect Monument resources.

Ringold, Saddle Mountain and Wahluke Units

There will be a total of 56,000-67,000 acres combined (dependent on the final Preferred Alternative selected) available for hunting in these units. 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 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.[150] 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.

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 will be solicited during the draft CCP/EIS comment period.

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[150] 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.

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:

- Maintenance of the existing WDFW waterfowl sanctuary on the Columbia River (from the Vernita Bridge downstream to the wooden power lines, a locally known landscape feature);

- Maintaining a sanctuary from hunting on the Rattlesnake (except for the potential population control elk hunt) and western end of the Wahluke Units;

- Providing sufficient escape, feeding and resting habitat for wildlife in both open and closed areas;

- Conducting periodic biological and social monitoring and evaluation of hunting programs, including feedback from users, 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.[151]

[151] 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 Lakes, and irrigation return wasteways is administered by the Bureau of Reclamation.

- 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).

- 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. Providing a quality hunting program contributes to achieving one of the Monument's goals. 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. 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 8RM5). 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. The limited hunt program is proposed on the Monument to provide a quality hunting experience that meets Monument guidelines and policies.

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.

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.

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Signatures

Monument Project Leader: _____

(Signature and Date)

Refuge Supervisor: _____

(Signature and Date)

Regional Chief: _____

(Signature and Date)

DRAFT Compatibility Determination - Research And 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).

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

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) 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 refuge 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 will be 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.

Refuge 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)

DRAFT Compatibility Determination - Interpretation, Environmental Education, Wildlife Observation & Photography

Use

Interpretation, Environmental Education, Wildlife Observation, and Photography[152]

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

[152] This includes the means of access, such as hiking, horseback riding on trails, bicycling on existing roads open to the public, canoeing, etc.

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 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.

Depending on the alternative selected, ten to twenty interpretive sites, two to six interpretive trails, and six to twelve 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.[153] 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,

[153] Trails could be created fresh, or they could be established on existing administrative roads.

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 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.[154] 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.

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).[155] 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).

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[154] Best management practices are described in detail in Chapter 4 of the *Draft Hanford Reach National Monument Comprehensive Conservation Plan and Environmental Impact Statement*.

[155] Based on this information, it is likely that horseback riding and bicycling would have similar impacts.

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 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 will be 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 N – National Wildlife Refuge System Strategic Goals and the Hanford Reach National 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 cattleguards 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 O – Monument Staffing Needs

Position	P/T*	Grade	Alt A		Alt B		Alt C		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		Alt C		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		Alt C		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 P – Distribution List

Tribal

Martin Bohl, 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
Rebecca Miles, Chair, Nez Perce Tribe
Lavina Washines, 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 Alex Deccio
The Honorable Jerome Delvin
The Honorable Mike Hewitt
The Honorable Jim Honeyford
The Honorable Joyce Mulliken
The Honorable Mark Schoesler

Washington State House of Representatives

The Honorable David Buri
The Honorable Bruce Chandler
The Honorable Jim Clements
The Honorable Don Cox
The Honorable William Grant
The Honorable Larry Haler
The Honorable Shirley Hankins
The Honorable William Hinkle
The Honorable Janéa Holmquist
The Honorable Dan Newhouse
The Honorable Mary Skinner
The Honorable Maureen Walsh

County Commissioners

Adams County Commissioners

Roger Hartwig
Rudy Plager
Jeffrey Stevens

Benton County Commissioners

Max Benitz, Jr.
Leo Bowman
Claude Oliver

Franklin County Commissioners

Frank Brock
Neva Corkrum
Bob Koch

Grant County Commissioners

LeRoy Allison
Deborah Moore
Richard Stevens

Kittitas County Commissioners

David Bowen
Alan Crankovich
Perry Huston

Walla Walla County Commissioners

David Carey
Pam Ray
Greg Tompkins

Yakima County Commissioners

Ronald Gamache
Mike Leita
Jesse Palacios

Mayors

Patti Bailie (Mesa)
James Beaver (Kennewick)
Norm Childress (Grandview)
Gary Clark (Zillah)
Ronald Covey (Moses Lake)
Judy Esser (Mattawa)
Michael Garrison (Pasco)
Paul George (Yakima)
David Leach (Granger)
Phillip Leitz (Royal City)
Linda Lusk (Prosser)
Jerry Peltier (West Richland)
Ed Prilucik (Sunnyside)
Aubrey C. Reeves (Union Gap)
Bryan Robinson (Benton City)
Jeannie Sanders (Othello)
Rob Welch (Richland)

Federal Agencies/Organizations

Bonneville Power Administration
Bureau of Indian Affairs
Bureau of Land Management
Bureau of Reclamation
Columbia NWR Complex
Columbia River Inter-Tribal Fish Commission
Federal Energy Regulatory Commission
Federal Highway Administration
Lawrence Berkeley National Laboratory
Little Pend Oreille NWR
McNary NWR
Mid-Columbia River 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 City (City)
Benton Conservation District
Benton County Parks & Recreation Board
Benton-Franklin Public Health Department
Grandview (City)
Granger (City)
Grant County Planning Department
Kennewick (City)
Kennewick Community Education
Mattawa (City)
Mattawa Fire Station
Mesa (City)
Moses Lake (City)
Othello (City)
Pasco (City)
Port of Benton
Port of Mattawa
Prosser (City)
Richland (City)
Richland Public Facilities District
Royal City (City)
Sunnyside (City)
Union Gap (City)
West Richland (City)
Yakima (City)
Zillah (City)

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

Jane Abel
Charles Abendroth
James Acton
Christian Adamcik
Melvin Adams
Onneta Adams
Royace Aikin
Nancy Aldrich
Leah Aleck
Malcolm Aleck
Bryan Alford
Mary Ann Allemann
Dick Almen
David Ambrose
Douglas Ancona
Don Anderson
Juanita Anderson
Karen Anderson
Kerry Anderson
Kristin Anderson
Marshall Anderson
Sharon Anderson
Henry Anderson, Jr.
John Arbuckle
Stan Arlt
Shannon Arntzen
Timothy Arntzen
Ed Aromi
Steve Aslanian
Rein Attemann
Ann Autrey
Vera Backstrom
Tana Bader Inglima
T.J. Badger
Vanessa Bailey
Quincey Baird
Missy Baker
Gloria Baldi
Jeb Baldi
Delbert Ballard
Kristie Baptiste
Tim Bardell
Hazen Barnard
Randall Barnes
Brian Barry
Jane Beale
Martin Bensky
Julia Bent
Jan Berghout
Theresa Bergman
Tony Berven
John Betzsold
Matthew Bishop
Bruce Bjornstad
Bill Blair
Rance Block
Dave Blodgett
Diedre Bloom
John Bloom
Georgia Boatman
Arlyn Boatsman
G.F. Bohlke
Joyce Bonner
Anna Bopp
Robert Bowersock
Dan Boyd
Paul Boynton
L.W. Breckenridge
Jack Briggs
Carol Brock
Joe Brothers
Elayne Brower
Dave Brown
Madeleine Brown
Melinda Brown
Pam Brown
Ralph Broz
Clayton Buck
Ramona Buck
Lenora Buck Seelatsee
J.S. Buckingham
Janet Budzeck
Robert Burco
Lee Burger
Sherry Burke
Steve Burmeister
E. Russell Burtner, III
Gary Busselman
Burt Butler
Kevin Butterbaugh
Onnie Byers
Charles Cable
Sean Carrell
Gilbert Carrigan
Nina Carter
Leslie Catherwood
Nick Ceto
Bill Chamberlain
Jan Chamberlain
Dan Chappel
Sue Chickman
Tom Chikalla
Jeff Christensen
John Christenson
B.H. Clark
Paula Clark
Victoria Clark
Alene Clarke
Kevin Clarke
Tom Clarke
Ted Clausing
Rick Clawitter
Greg Cleveland
Ned Cokelet
Carol Coker
Douglas Coleman
Helen Coleman

Tim Coleman
Georgia Combs
Mike Conley
Doug Conner
L. Terry Conner
Seth Cool
Lorraine Cooper
Harold Copeland
Mary Cortinas
Laurence Cotton
John Cox
Daryl Cramer
Don Crawford
Edward Crawford
Janet Crawford
Rex Crawford
Alice Creighton
Rico Cruz
Tim Cullinan
Jim Curdy
Ralph Curran
Pat Daly
William Darke
Everyll Davison
John Decker
Ken Deery
Cherri DeFigh-Price
Dennis DeFord
Doug Deford
Traci Degerman
Hank DeHaven
Cheryl Dell
Lawrence Denton
Jon DeVaney
Steve Dick
Shannon Dininny
Roger Dirkes
Ken Dobbin
Anthony Dolphin
Bob Donnell
Joan Donnell
Janelle Downs
Christie Drew
Keith Dunbar
Brad Duncan
Roy Dunn
Brian Durkin
Helen Eagle
Kristin Eby
Marilyn Eby
Charles Eccleston
Joyce Edie
Doug Edwards
Ingrid Eisenman
Jerry Ellis
Katherine Ely
Paul Emler, Jr.
David Engel
Doug Engel
Mira Engler
John Engstrom
Chris Erikson
Connie Estep
Mike Estes
Jim Evans
Justin Ewers
Jim Eychaner
Michael Farrow
Dennis Faulk
Doug Fenske
Tom Ferns
Gary Fetterolf
Alex Fidis
Henry Field
Carl Fies
Eleanor Finkbeiner
Melvin Finkbeiner
Jim Fisher
Sanford Fisher
Elwin Fisk
Ken Fitch
Tom Fitzsimmons
Doug Flohr
Timothy Flood
James Foster
John Fox
Kathryn Fox
Robert Franco
Jim Franz
Patricia Fredericks
Adeline Fredin
Rick French
Stuart Fricke
Paul Friesema
Maureen Frix
John Fruchter
Adam Fyall
Cynthia Gabriel
Karl Gabriel
Larry Gadbois
Matthew Galbraith
Ron Gallagher
Jason Galloway
James Gamin
Ken Gano
Howard Gardner
Jenna Gaston
Richard Gay
Roy Gephart
Tyler Gilmore
Ed Gire
Dave Goeke
Jim Gordon
Jessie Gordon
Ray Gordon
Roy Graham
Al Grapel
Rick Graser
K.W. Greager
Jerry Greenfield
Greg Greger
Lang Gregory
Robert Gretzinger
Walt Grisham
LuVerne Grussing
Betty Gulley
Clarence Haas
LaVerne Haas
Tom Halecki
Thomas Hall
Richard Hallen
Lisa Hallock
Tom Hamann
Bud Hamilton
Everett Hamilton
Don Hand
Glenn Hannaman
Dave Hardy
Jewel Hardy
Dave Hargroves
Don Harkness
Bruce Harpham
Joe Harris
John Harris
Stuart Harris
Steve Harrison
Cliff Hart
Lisa Hart
Myrna Harting
Scott Hartman
David Hartwig
Harold Harty
David Harvey
Devin Hawley
Bill Hays
May Hays
Rick Heath
Joe Hedges
Mot Hedges
Neal Hedges
Kathleen Helm
Bill Henderson

Paul Hendrickson
Henry Henrikson
Annette Heriford
Bill Herington
Jim Herrmann
Ron Hicks
Robert Hindes
James Hines
Allen Hoffman
Alan Hogenauer
Carl Holder
Delmar Holland
Wanda Holloway
Kae Hopkins
Barbara Howard
Christopher Howard
Gary Howden
H. James Howe
Audie Huber
Althea Huesties-Wolf
Connie Hughes
Harvey Huisingh
Ron Hull
Roy Hull
John Hunter
Richard Hunter
Stephen Hunter
Denny Huntzinger
Don Huntzinger
Tiny Huntzinger
J.G. Hwang
Jeannette Hyatt
Harley Hylbak
Marve Hyman
Neal Ice
Wayne Ice
Woodrow Ice
David Jackson
John Jackson, III
Jake Jakabosky
George Jansen
Chris Jensen
Louis Jensen
Russell Jim
Jeff Johansen
Ben Johnson
Craig Johnson
Keith Johnson
Keith Johnson
Matthew Johnson
Merle Johnson
Tim Johnson
Shannon Johnston
Greg Jones
Diane Jordan
Charlie Justus
Reed Kaldor
Jeff Kaplan
Jane Kassuba
Joe Kassuba
Rob Kavanaugh
John Keating
Tom Keefe
Van Keele
Scott Keller
Bob Kenner
Anna King
Betty King
Aimee Kinney
Cathy Kious
Ruth Ann Kirk
Paul Kison
Eugene Kiver
Jim Kline
Paige Knight
John Knott
Jeff Knotts
Kathy Knutson
Richard Koch
Juanita Koelzer
Chuck Kohls
Glenn Korsgaard
Hank Kosmata
Susan Kreid
Max Kreiter
Steve Kruger
Aaron Kuntz
Eldon Ladd
Louis LaDouceur, Jr.
Leonard Lambert
William Lambert
Bill Lampson
Tami Lancaster
Dan Landeen
John Larson
Robert Larson
Kelsey Lawellin
Al Laws
Susan Leckband
Morris LeFever
Chuck Lennox
Arturo Leon
Sharie Lesniak
William Letting
Alma Lewandowski
Michael Linde
Fay Linger
Steven Link
Dale Litzenberger
James Livengod
Mike Livingston
Doug Ljungren
Thomas Logan
Gary Long
Julie Longenecker
Jon Lucas
Melvin Lucei
Dennis Lund
Michael Luzzo
Douglas MacDonald
Dave MacHugh
Tom Mackey
Stuart MacRobbie
Bill Madison
Deborah Madison
Jerri Main
Ben Majetich
Scott Manley
Carl Mansperger
Eddie Manthos
Robert Margulies
Michael Marsh
John Marshall
Arthur Martin
Bill Martin
Larry Martin
Todd Martin
Carol Martinez
Simon Martinez
Rob Masonis
Betty Mayfield
Rita Mazur
Linda Mazzu
Ryan McClaughry
Dave McClure
Jay McConnaughey
Mark McConnell
Jay McCue
Dee McCullough
Robert McCullough
William McCullough
Shannon McDaniel
Mary McGuire
Mel McInturf
Beverly McLaughlin
Thomas McMillin
Kent McMullen
C McShane
Don McWhorter
R.J. McWhorter
Sam Meacham
Shirle Meluk

Brian Merkle
Carl Merkle
Thomas Merkle
Phil Mesa
Louise Meyers
Jay Michel
Phil Michel
Dan Mildon
Aaron Miles
Bill Miller
Bonnie Miller
Gordon Miller
Lew Miller
Machelle Miller
Norman Miller
Shirley Miller
Tom Miller
William Miller
William Miller
Charleton Mills
William Millsop
Gaylord Mink
Armand Minthorn
Vicki Mitchell
Brian Monk
Mary Moore
Ronald Moore
Heather Moorman
Alex Morgan
Jeri Morrow
Lee Moyer
Dana Mueller
Debbie Muggli
Don Muggli
Wanda Munn
Leo Munson
Linda Munson
Shannon Murphy
John Musser
Mark Myer
Dave Myers
Ken Myers
Rich Nall
Robert Nein
Todd Nelson
Wayne Nelson
John Nesbitt
John Nevelus
Riley Newman
Leland Nitteberg
Lee Noga
Robert Noland
Donald Norman
Neil Norman
Linda North-Spaulding
Betty Norton
Mike Novahovich
David Oakley
Georganne O'Conner
Todd Ofsthun
Marlene Oliver
Khris Olsen
Joyce Olson
Michael O'Neill
Frank Osborne
Linda Osborne
Bill Osebold
Paul Page
Jim Paglieri
Joe Pakootas
Gerald Pallet
Doyle Palmer
Cleve Parker
Bob Parks
Dennis Parr
Jeff Parsons
Sonny Paz
Samuel Penney
Marilyn Perkins
Vicki Perry
Mark Peter
David Petersen
John Pfeiffer
Ann Philip
Donald Picatti
Richard Picatti
Burt Pierard
Kathryn Piland
Gina Piper
Maynard Plahuta
William Porath
Fred Porter
Donna Postma
Ted Poston
Robert Potter
Sally Ann Potter
Margaret Pounds
Max Power
Jack Price
Laurie Price
Randy Price
Steve Price
Joretta Pritchett
Tyler Pront
Anne Psencik
Neal Puter, Jr.
David Pyke
Gaylord Pyle
Harold Ranson
Glen Rasmussen
Gwen Rawlings
Joseph Reder
Charlotte Reep
Merilyn Reeves
Stephen Reidel
Ted Repasky
Scott Revell
Michele Reynolds
Ron Reynolds
Kathy Rhoads
Russell Rhoads
Jay Rhodes
David Rice
William Rickard
Bill Rickert
Richard Rife
Brett Rilenz
Dave Rimbey
Paul Rittman
Emile Robert, Jr.
Emile Robert, Sr.
Jean Robert
Michael Robert
Victor Robert
Carol Roberts
John Roberts
Mac Roberts
Gary Robertson
Bill Robinson
Annabelle Rodriguez
Beth Rogers
Gordon Rogers
Mary Rohrbacher
Roger Rohrbacher
Richard Romanelli
Ross Ronish
Michael Roper
Don Rose
Rocky Ross
Waldemar Ruemmler
Moriya Rufer
Byron Russell
Stephen Russell
Ed Rykiel, Jr.
Wayne Sahli
Susan Sande
Jim Sanders
Nandakumar Sankaran
Karen Savory
Mark Scheller
Buck Schmidli
Janey Schmidt

Howard Schneiderman
Carl Schock
Becky Schouviller
Terese Schrom
Dean Schwickerath
Tom Scribner
Donald Scully
Joan Seevers
Franklin Sergeant
Shivaji Seth
Warren Sevier
Carlos Sevilla, S.J.
James Shafer
Brad Shaffer
R.W. Shallman
Richard Shallman
Pete Shaw
Pressley Shaw, Sr.
Jim Shearer
Phil Sheely
Naomi Sherer
Virgil Shillam
Bob Showalter
Sid Showalter
Kim Simmons
Dan Sisk
Howard Skelton
Michael Slate
Rob Slegel
Reginald Smart
Harry Smiskin
Connie Smith
Dave Smith
Keith Smith
Linda Smith
Robert Smith
Bill Smithers
Darrell Snyder
Patrick Sobotta
Jon Soest
Jacque Sonderlund
Vera Sonneck
Shirley Sonnichsen
Jill Spargur
Margaret St. Clair
Jon St. Pierre
Nancy Stajduhar
John Stanfill
John Stang
Robin Stanton
Gretchen Starke
Stanley Wayne Stave
Alan Stellwagen
Bob Stenner
Roger Stephens
Jim Stephenson
Robert Stewart
Jim Stoffels
Jim Stoker
John Stoops
Dennis Streage
Leray Stream
Matt Strong
Doug Sutherland
Carol Swan
Ken Swanson
Rob Swedo
LaVor Swenson
Leon Swenson
Margery Swint
Elizabeth Tabbott
Tim Takaro
Liz Tanke
Matthew Taylor
Darci Teel
Bill Templeton
Gary Tennison
Peggy Terlson
Gaye Tesar
Mike Thiede
Alice Thompson
Bob Thompson
Jean Thompson
John Thompson
Paul Thomson
B.J. Thorniley
Jim Thornton
Edward Timofy
Jane Titland
John Titland
Dave Todd
Bob Toftdahl
Joan Tracy
Jim Trombold
Bob Tuck
Fred Tull
Mark Ulrich
Brian Upton
James Vache
Paul Valcich
Dick Van der Schaaf
Carl Van Hoff
Eugene Van Liew
Derek Van Marter
Sally Van Neil
Michael Vandehey
Susan Vanderhought
Dave VanLeuven
Howard VanLeuven
Jean Vanni
Jiri Vanourek
Val Varney
Jay Varvel
Ken Vines
Patricia Vinther
Paul Vinther
Bruce Wagner
Leslie Wahe
Reed Waite
Cassandra Wald
Penelope Walder
Dorothy Walker
Tammy Walker
William Walker
Dana Ward
Dianne Warrant
Bruce Warren
Arlen Washines
Kris Watkins
Dick Watts
Everett Weakley
Regan Weeks
Charles Weems
Leah Wegner
Mike Weimers
Gene Weisskopf
Kim Welsch
Judy Westall
John Wey
John White
Steve White
Robert Whitelatch
Arva Whitney
Ken Wiersema
Debra Wilcox
Bill Wilcoxson
John Wilde
Lyle Wilhelmi
Peggy Willcuts
Jack Willi
Jim Williams
Bob Wilson
Michael Wingfield
David Winkler
Kenneth Wise
Roberta Wise
Steve Wisness
Carolyn Wood
Scott Wood
Gene Woodruff
Patrick Woods
George Wooten

Al Wright
Les Wulff
Pat Wyena, Sr.
Wilferd Yallup
Jack Yorgesen
Clarence Young
Joan Young
Berta Youtie
Richard Zack
Paul Zalubil
Benjamin Zamora
Rick Zangar
Mark Ziminske

Appendix Q – Glossary & Abbreviations

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.

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.

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.

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.

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).

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)

EPA: (United States) Environmental Protection Agency.

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)

Equestrian: Relating to horses or horseback riding.

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)

ESA: Endangered Species Act.

ESU: Evolutionary Significant Unit.

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 shrub-steppe 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) Growth Management Act.

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)

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*)

HSS: Highways of Statewide Significance.

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

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.

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 weed management literature and professional experience, tailored to the characteristics of the particular species and site.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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 or **Monument Proclamation:** Hanford Reach National Monument Proclamation, Presidential Proclamation 7319.

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.

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 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.

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.

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