U.S. Fish & Wildlife Service

Hanford Reach National Monument

Comprehensive Conservation Plan

The Hanford Reach National Monument (Monument) covers an area of 196,000 acres on the Department of Energy's (DOE) Hanford Reservation in south-central Washington State. Of this, the U.S. Fish and Wildlife Service (FWS) manages approximately 165,000 acres through a DOE permit and other agreements with the DOE. The DOE directly manages approximately 29,000 acres, and the Washington Department of Fish and Wildlife currently manages the remainder (approximately 800 acres) under a DOE permit.

The Presidential Proclamation establishing the Monument (Presidential Proclamation 7319) directs that it be jointly managed by the DOE and FWS. However, the development of a comprehensive conservation plan (CCP) for management of the Monument (i.e., any lands managed as part of the National Wildlife Refuge System) is solely a requisite of the FWS under the National Wildlife Refuge System Improvement Act. As such, this CCP was written to guide the FWS in its management of the Monument, although the DOE may also adopt the CCP. As this is a FWS document and directs its management of the Monument, throughout the CCP references are made to "FWS management of the Monument" or other similar phrases. It should be understood that this is meant to mean 'FWS management of the Monument through permits or agreements with the DOE.' Further, whatever the context of any particular portion of the CCP, it should be kept firmly in mind that the FWS and DOE are joint managers of the Monument.

Although the DOE is a cooperating agency in the preparation of the environmental impact statement (EIS) associated with this CCP, this document is the FWS's, and as such, although the differences may not be expressly stated in the text, the document may not in all instances reflect the DOE's views.

Comprehensive Conservation Plans provide long-term guidance for management decisions and set forth goals, objectives and strategies needed to accomplish refuge purposes and identify the U.S. Fish and Wildlife Service's best estimate of future needs. These plans detail program planning levels that are sometimes substantially above current budget allocations and, as such, are primarily used for strategic planning and program prioritization purposes. The plans do not constitute a commitment for staffing increases, operational and maintenance increases, or funding for future land acquisition.

Hanford Reach National Monument
Vision Statement

The Hanford Reach National Monument is a biologically diverse landscape, embracing a remarkable natural and historic legacy. The Hanford Reach, the last free-flowing non-tidal stretch of the Columbia River, is the ribbon that weaves shrub-steppe and riverine communities together, defining an irreplaceable landscape—a place to discover the richness of life, to reflect upon history, and to experience nature in solitude.

The Monument's diversity of plants and wildlife are critical to the biological integrity of the Columbia Basin. The unique combination of an expansive and increasingly rare shrub-steppe ecosystem, the free-flowing river, and the last major salmon spawning grounds in the Columbia River create a diverse and precious mosaic of habitats. The Monument is a refuge for a multitude of species, many new to science.

The Monument is a natural gathering place to learn, to experience and celebrate cultures, where stories are protected and passed on. Its history of immigrant settlement and the dawning of the atomic era is acknowledged, as well as its continuing physical and spiritual sustenance of the Native Americans who have used the area and those who came later.

The Monument is a testimonial to the past and the sacrifices of our ancestors. The Monument is also a vision into the future where visitors, neighbors and partners are valued and respected; where natural and historic resources are protected; and where all may come to experience the Monument and its magnificent resources.

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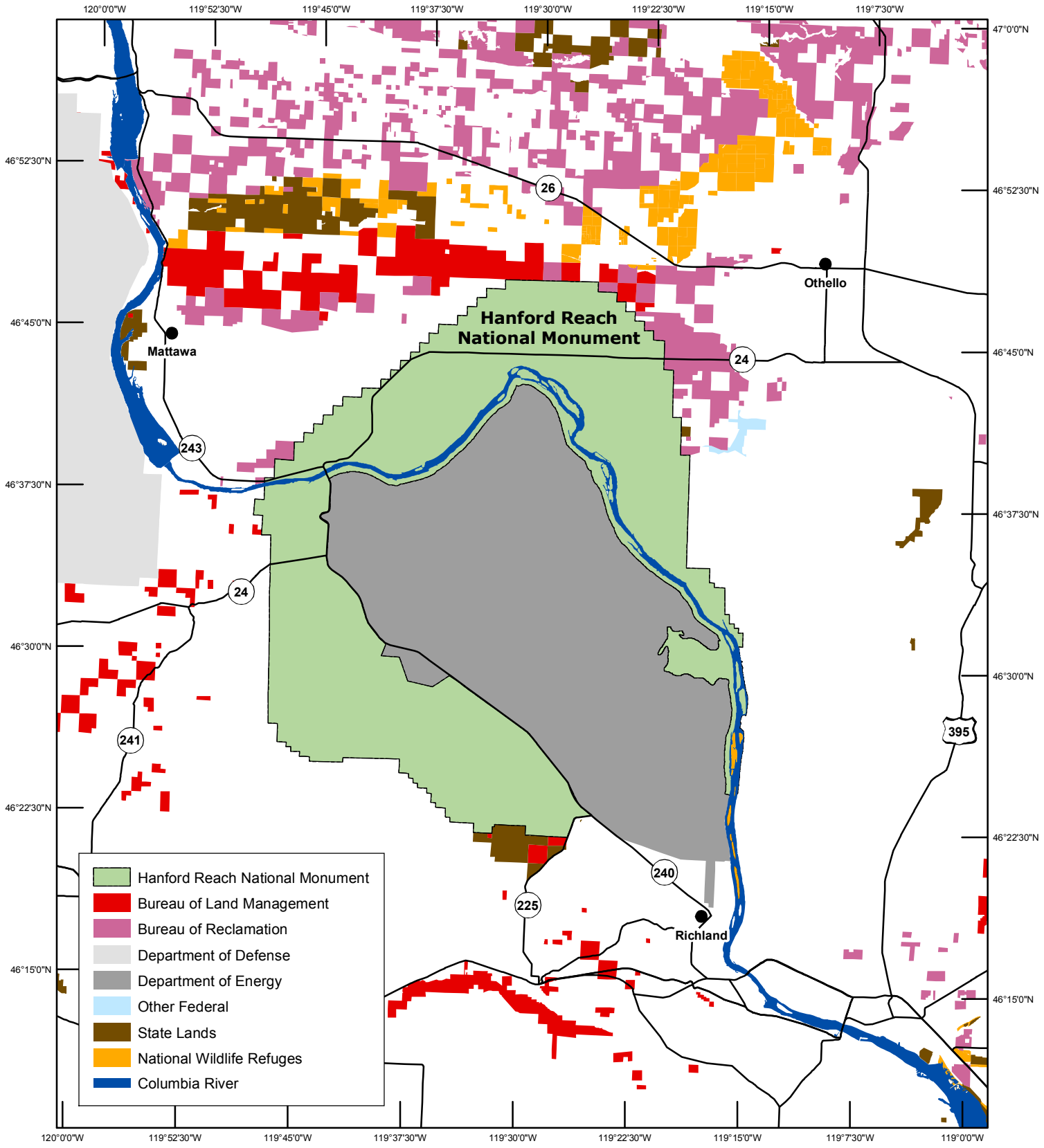
U.S. Fish & Wildlife Service

Hanford Reach National Monument

Adams, Benton, Franklin, and Grant Counties, Washington

Map 1 - Surrounding Land Ownership



Produced for the Hanford Reach National Monument
Saddle Mountain National Wildlife Refuge
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NAD 83

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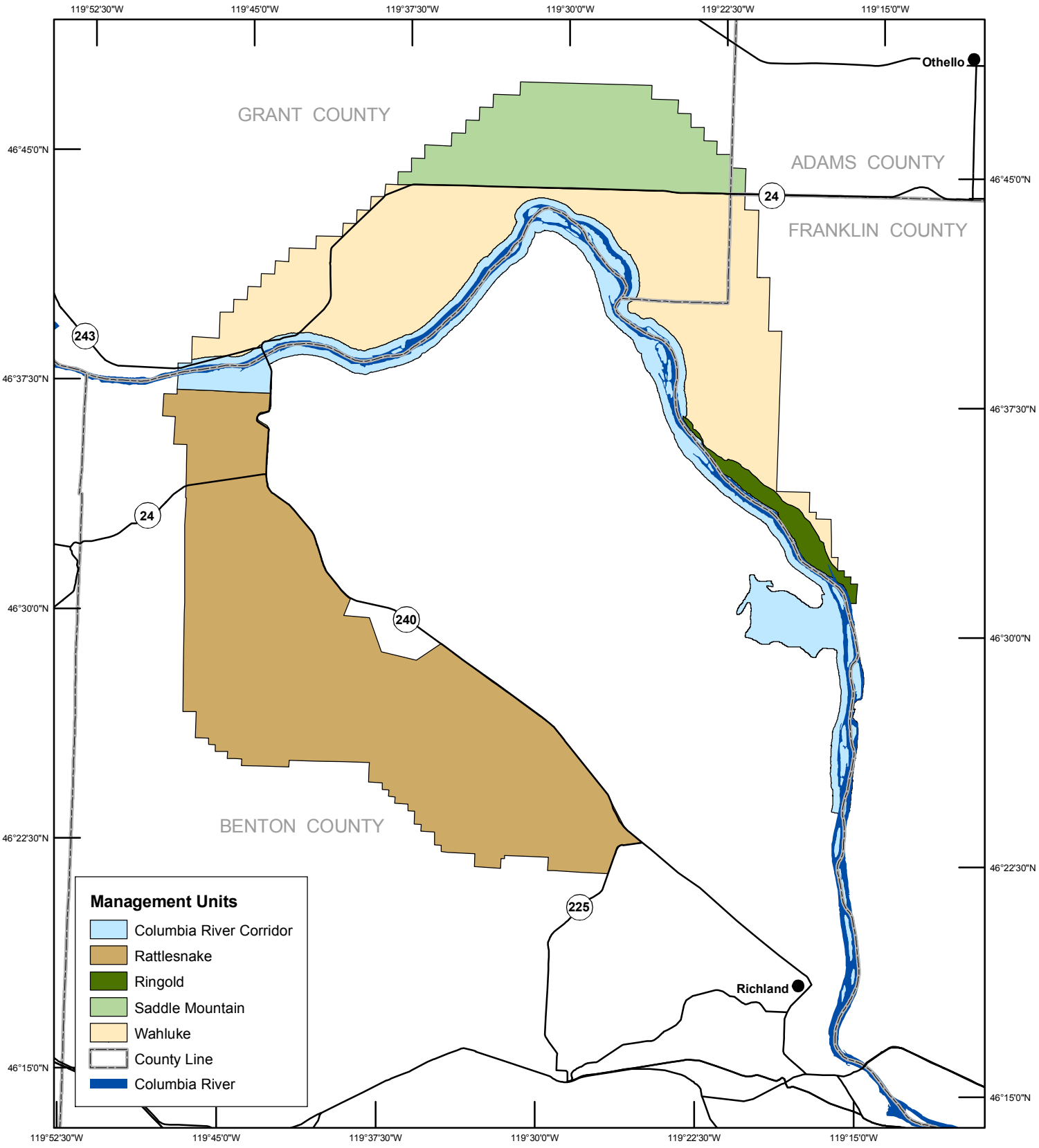
Map 2 - Management Units



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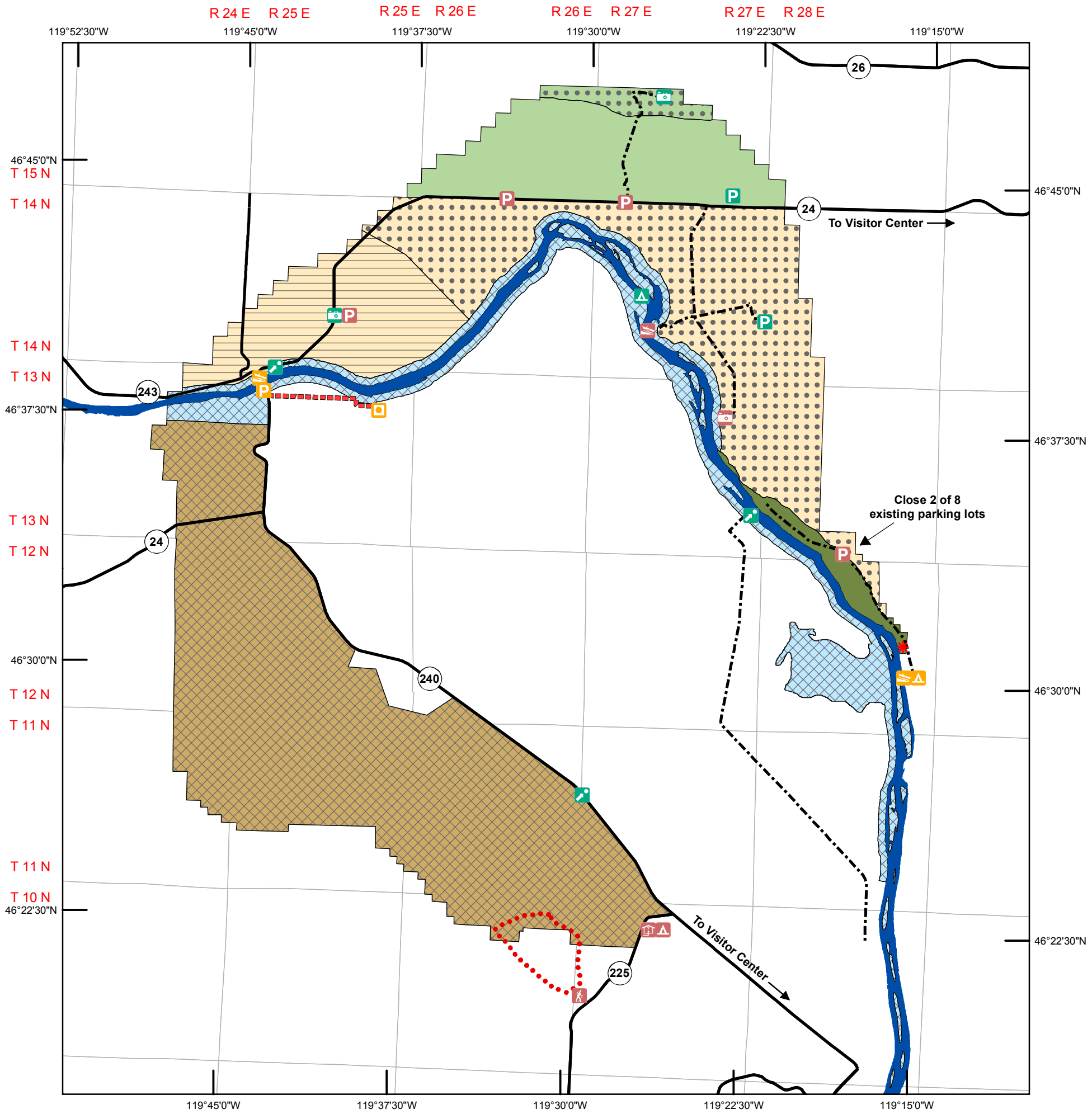
Map 3 - Selected Alternative (C1)



Administrative Unit
- Columbia River Corridor
- Rattlesnake
- Ringold
- Saddle Mountain
- Wahluke

Nodes of Activity*
- B Reactor
- Boat Launch
- Campground
- Contact Station
- Interpretation
- Overlook
- Parking
- Trailhead

Public Use
- Closed
- Open, controlled
- Open, controlled, hunting exclosure
- Open

Access Roads
- Primary
- Secondary
- Proposed
- Conceptual Trail Corridor
- Native Plant Nursery
- Columbia River

* Color represents the relative size of activity node
- Small
- Medium
- Large

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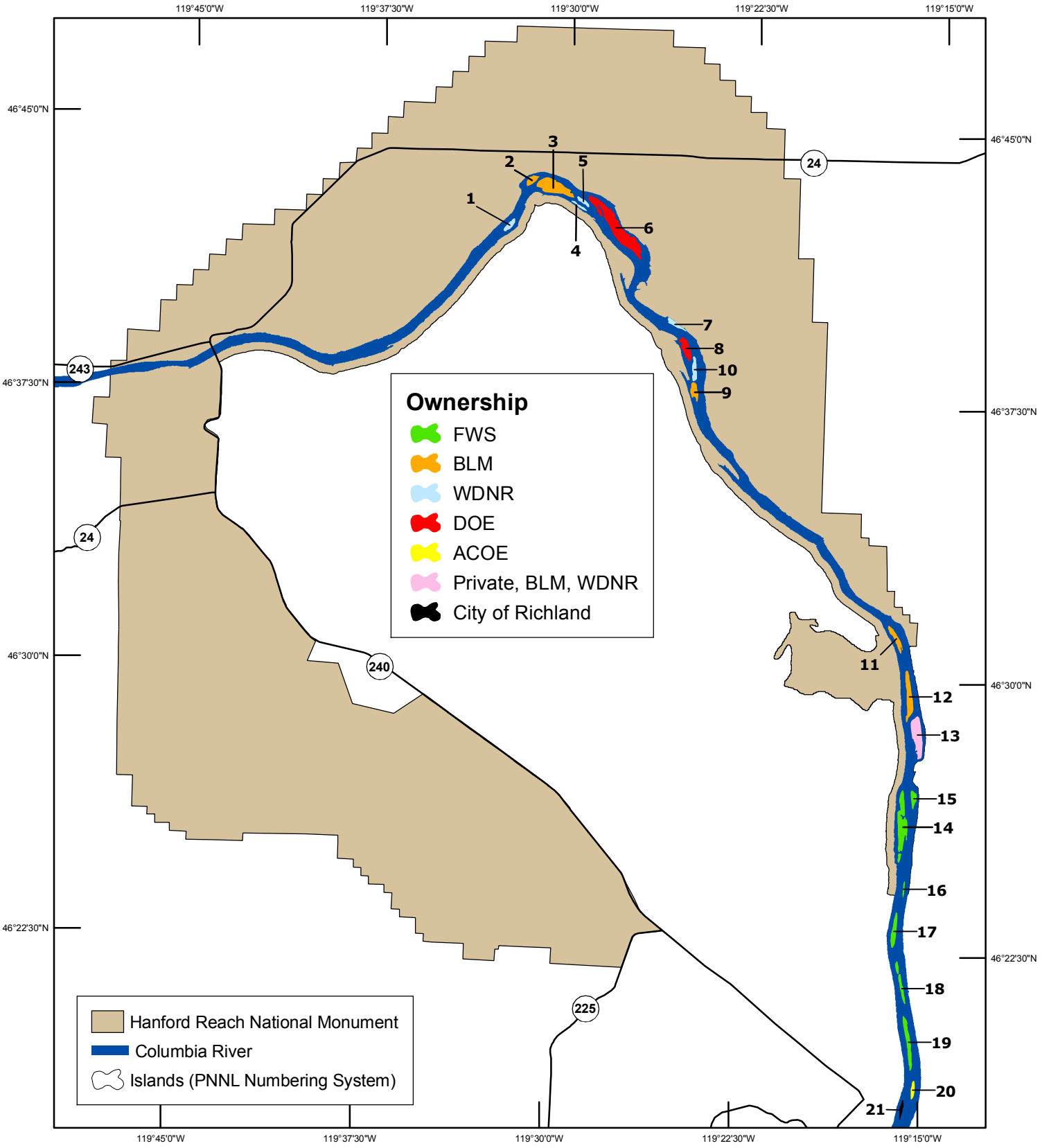
Map 4 - Islands within the Columbia River



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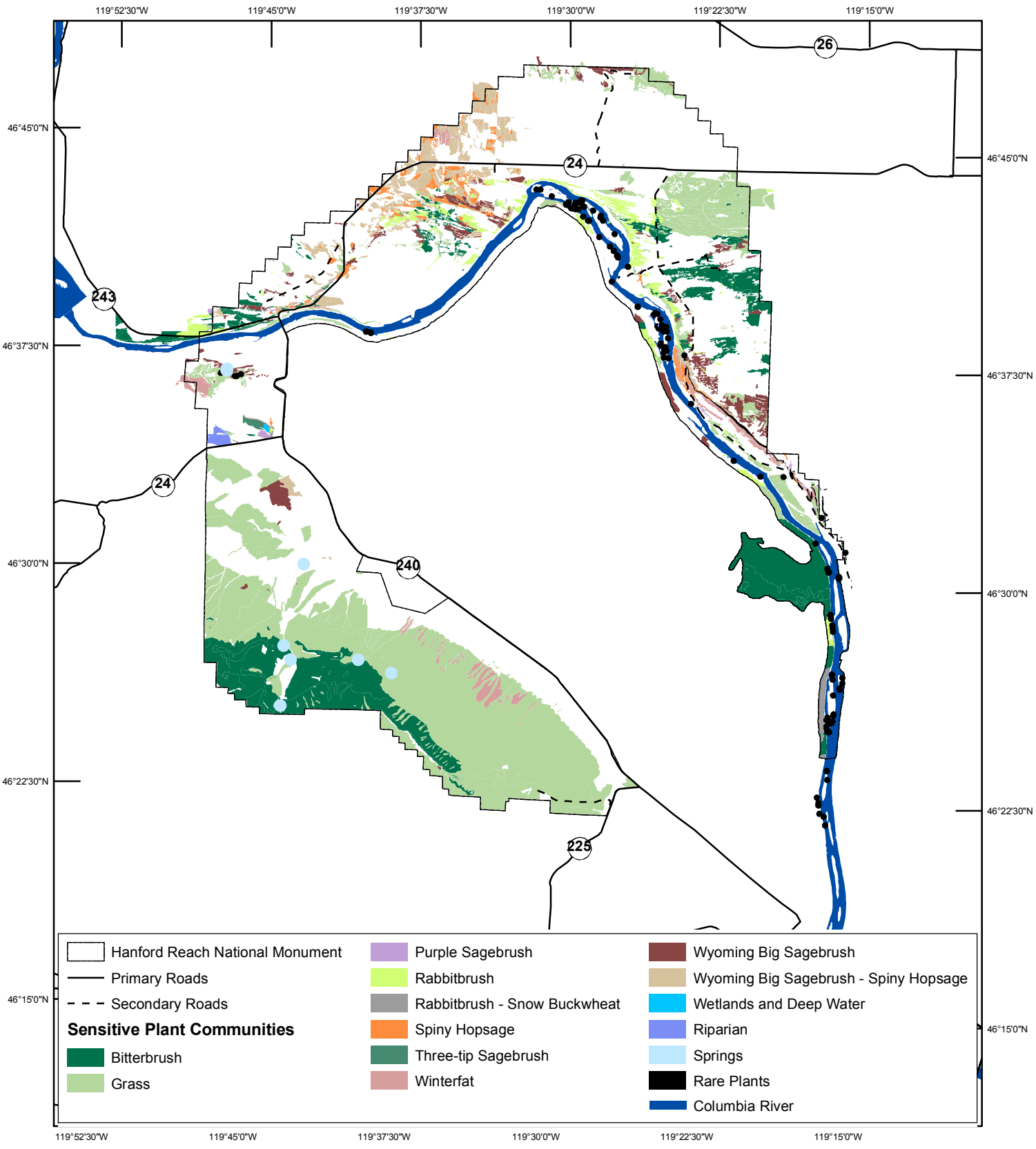
Map 5 - Sensitive Vegetation



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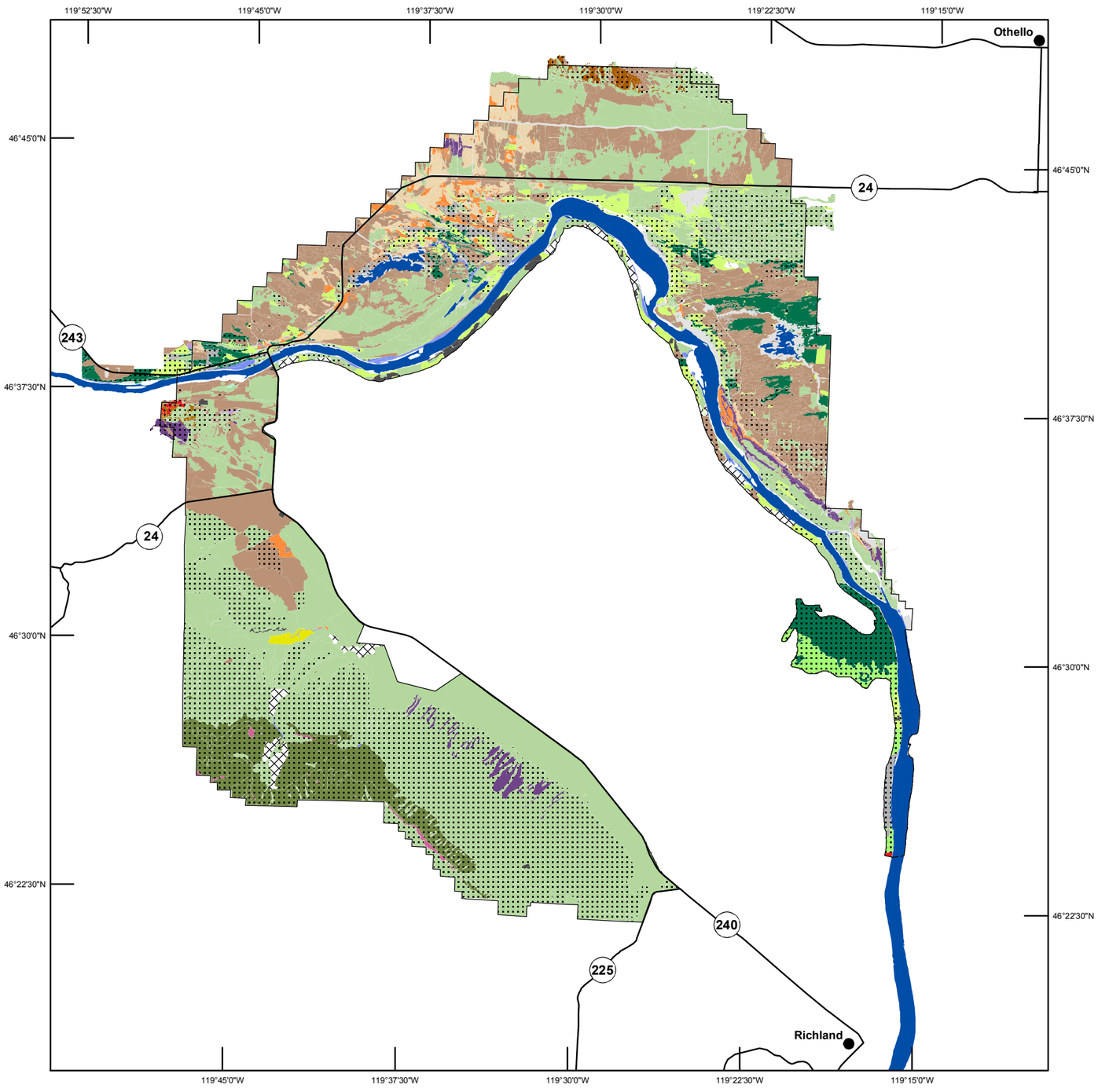
Map 6 - Vegetation Type



Hanford Reach National Monument

Overstory

- Abandoned Agricultural Fields
- Bitterbrush
- Black Greasewood
- Cheatgrass
- Crested Wheatgrass
- Disturbed
- Grass
- Non-shrub Steppe
- Purple Sagebrush
- Rabbitbrush
- Rabbitbrush - Snow Buckwheat
- Riparian
- Riverine Wetlands and Deep Water
- Rock Buckwheat
- Snow Buckwheat - Bitterbrush
- Spiny Hopsage
- Stiff Sagebrush
- Three-tip Sagebrush
- Thyme-leaf Buckwheat
- Winterfat
- Wyoming Big Sagebrush - Bitterbrush
- Wyoming Big Sagebrush - Spiny Hopsage
- Wyoming Big Sagebrush

Understory

- Native Bunchgrass

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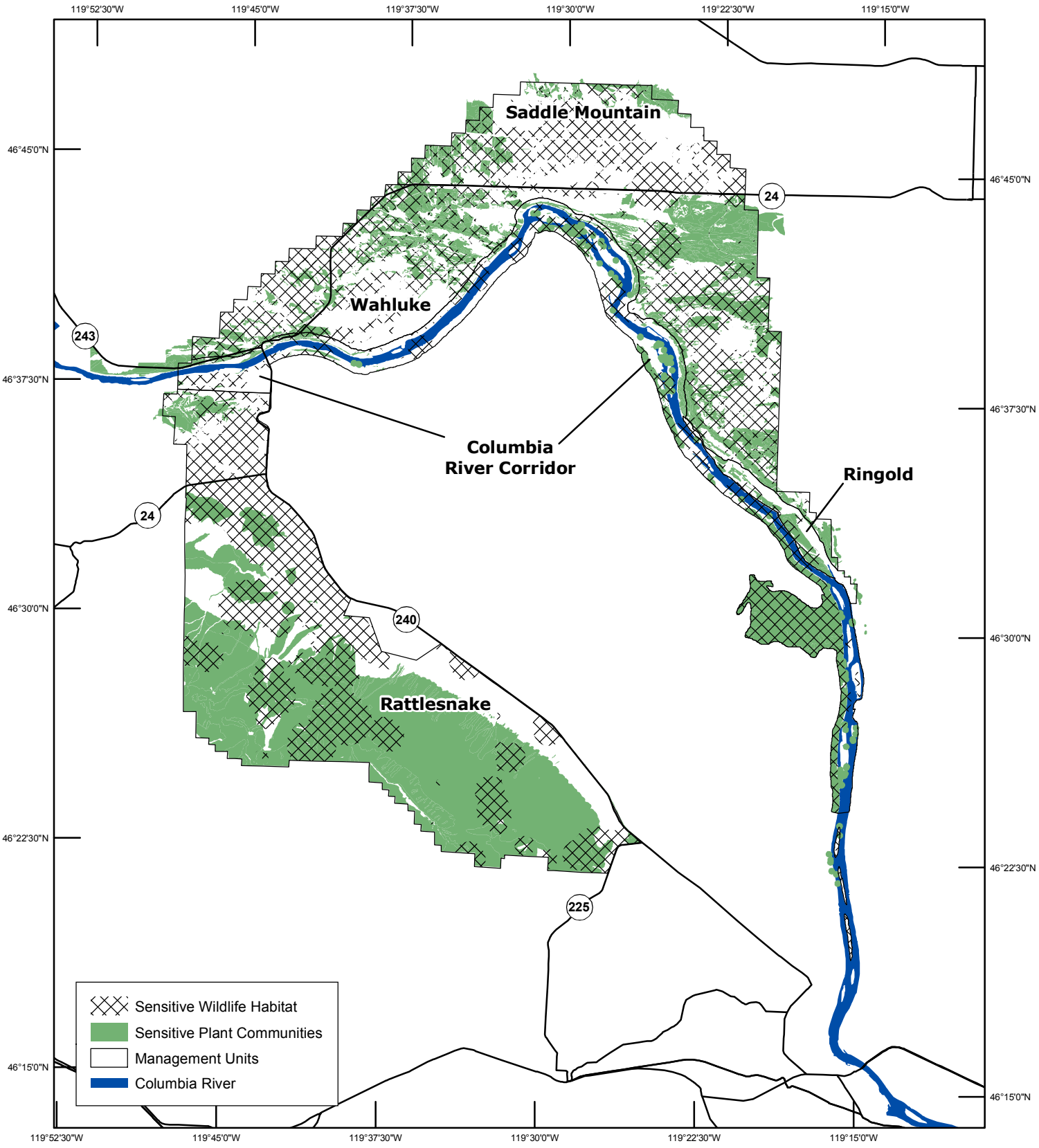
Map 7 - Sensitive Wildlife



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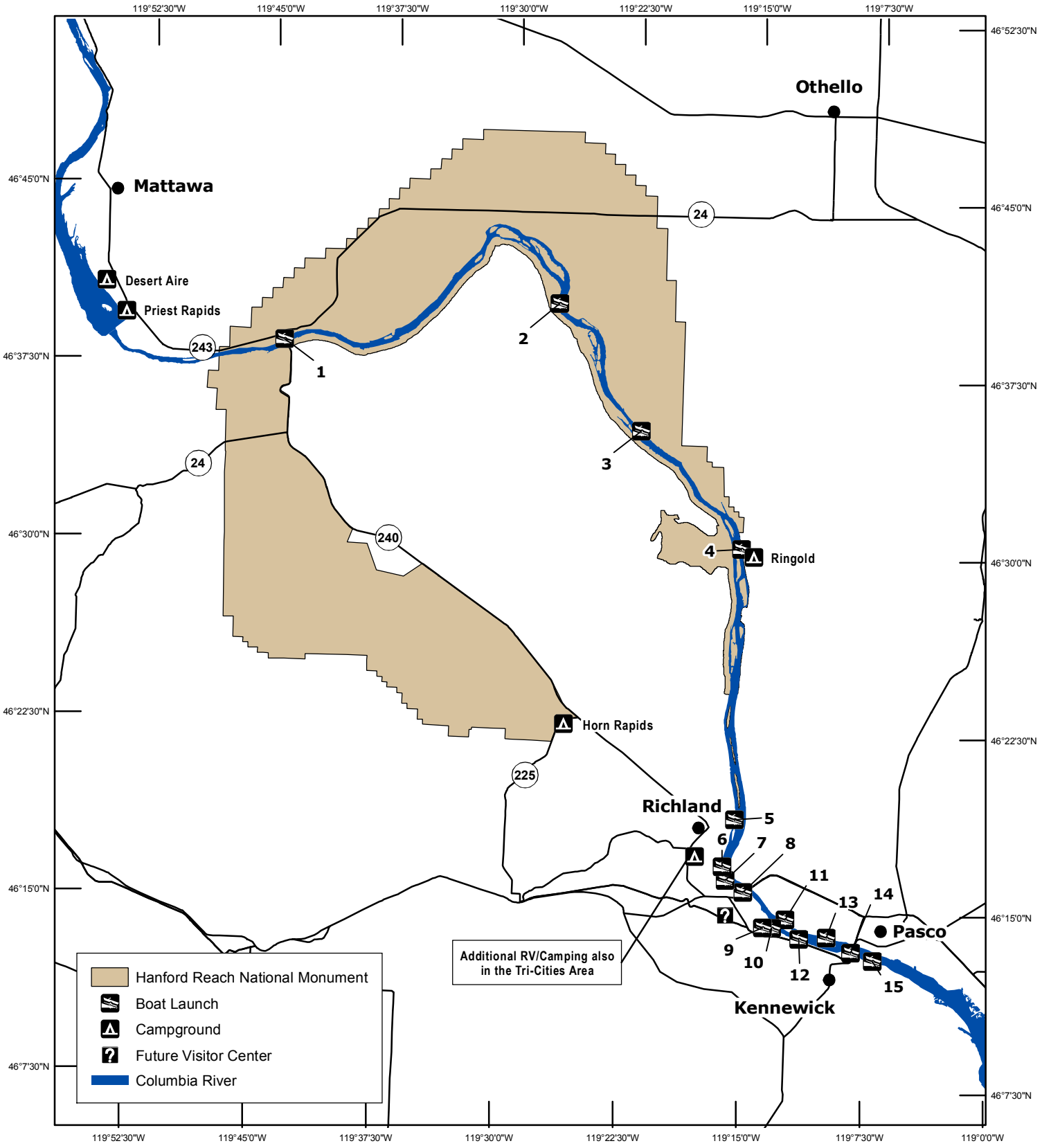
Map 8 - Local Recreation Facilities



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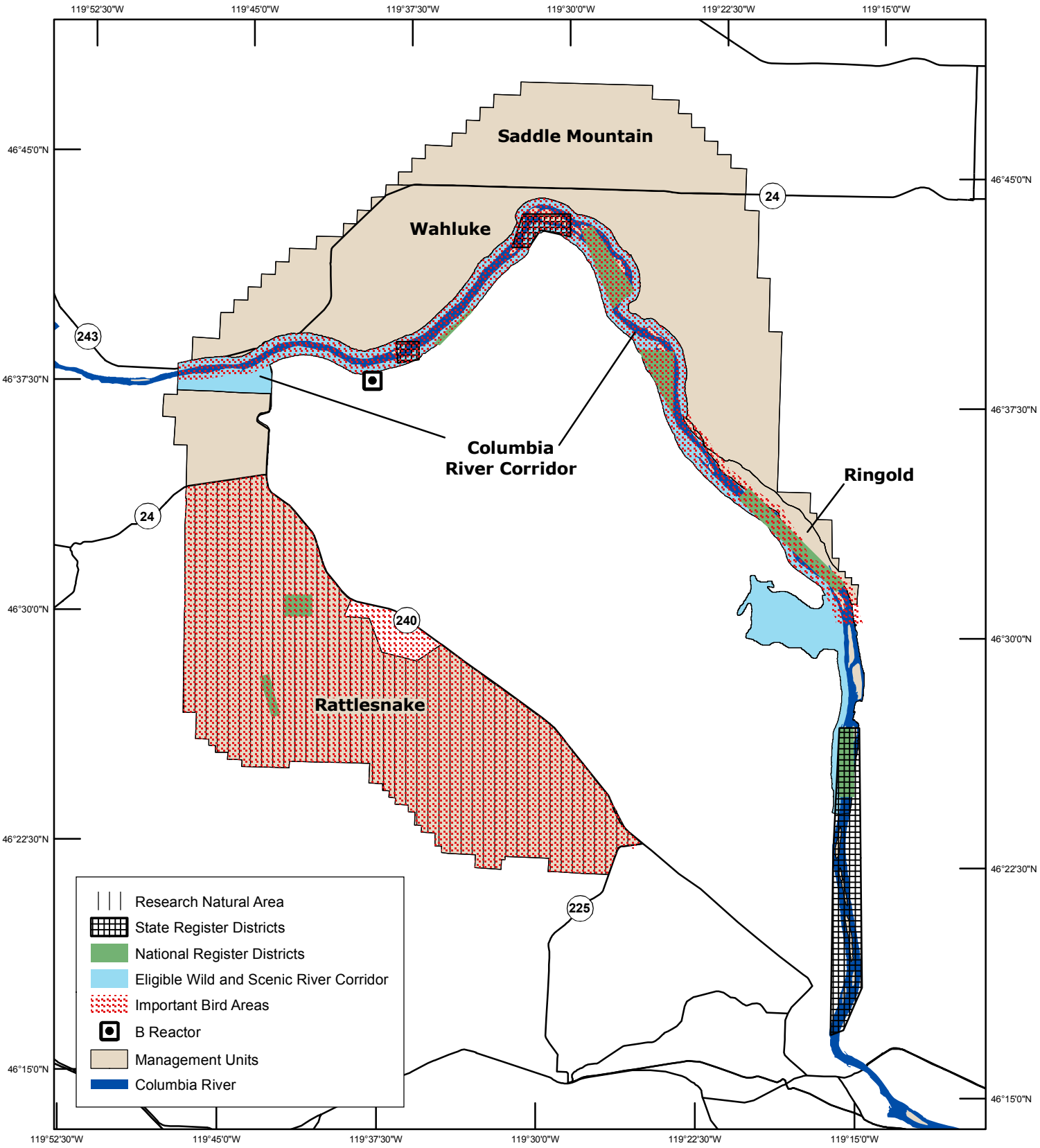
Map 9 - Special Management Areas



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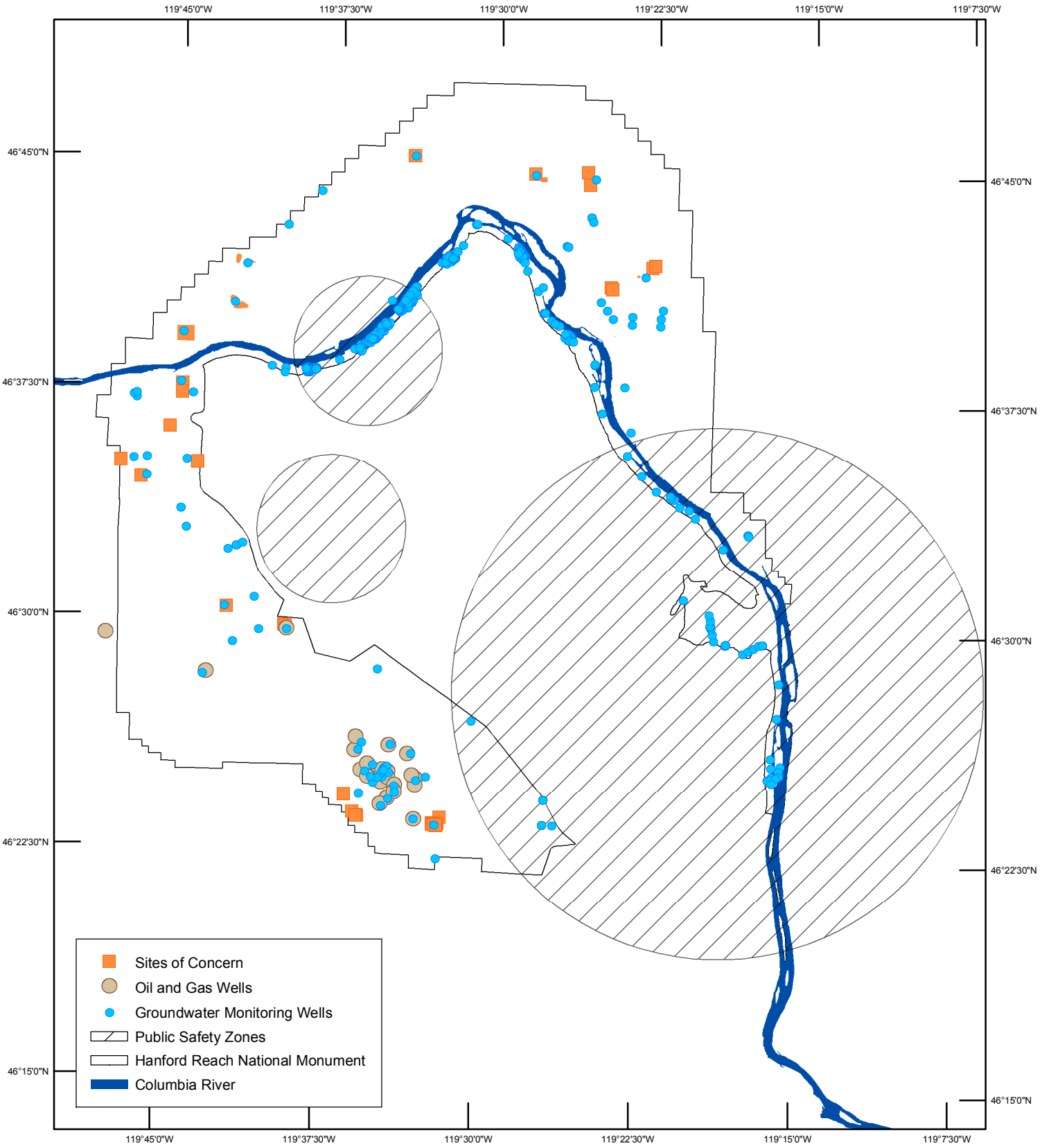
Map 10 - Areas of Concern



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Section 1

Background

History of the Monument

The Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument), located near the Tri-Cities (Kennewick, Pasco, and Richland) in south-central Washington State, is managed by the U.S. Fish and Wildlife Service (FWS) and the Department of Energy (DOE). Its national monument status is the result of a long series of events, culminating in numerous overlying current designations, including the national monument designation.

The land comprising the Monument has an unusual and colorful provenance. The entry of the United States into World War II and the race to develop an atomic bomb led to a search for a suitable place to locate plutonium production and purification facilities. In 1943, the War Department (later to become the Department of Defense) went in search of a remote, easily defensible, geologically stable site, with plenty of cool water, abundant energy (from hydropower dams on the Columbia River), and a moderate climate, on which to build secret plutonium production reactors for the Manhattan Project.[1] The U.S. Army Corps of Engineers (ACOE) selected a site in Washington State near the isolated desert towns of White Bluffs and Hanford. The War Department then acquired the land through condemnation and purchase of private lands and withdrawal of public lands within the basin formed by Rattlesnake Mountain and the Saddle Mountains. The Atomic Energy Commission (AEC), a precursor to the DOE, then established and ran the 375,000-acre "Hanford Site" (then known as the Hanford Engineering Works).

For more than forty years, the primary mission at the Hanford Site was the production of nuclear materials for national defense. During that time, management activities and development practices were driven by needs related to nuclear production, chemical processing, waste management, and research and development. The AEC, and later the DOE, developed infrastructure and facility complexes to accomplish this work in the central portion of the site, but large tracts of land used as protective buffer zones for safety and security purposes remained undisturbed. These buffer zones preserved a nationally significant biological and cultural resource setting in the Columbia Basin region, unique in that similar resources elsewhere in the Columbia Basin have been destroyed or replaced by development.

In the early 1970s, there was a reduced need for large safety and security buffer zones around the Hanford Site, and the DOE transferred management of portions of the "North" or "Wahluke Slope" (the area north of the Columbia River) to the FWS—through the creation of the Saddle Mountain National Wildlife Refuge—and to the Washington State Department of Fish and Wildlife (WDFW). By the late 1980s, the primary DOE mission had changed from defense

[1] Hanford was one of three key sites related to the post-University of Chicago experiments, the other two being Oak Ridge, Tennessee, where uranium was being extracted through a physical process—Hanford extracted plutonium through a chemical process—and Los Alamos, New Mexico, where the nuclear materials from Hanford and Oak Ridge were assembled into atomic bombs.

materials production to environmental restoration, waste management, and science and technology research, further decreasing the need for a large land base.[2] In 1997, the DOE transferred the administration of the Fitzner-Eberhardt Arid Lands Ecology Reserve (ALE)[3] to the FWS. In 1999, the Wahluke Slope lands managed by the WDFW, known as the Wahluke Wildlife and Recreation Area,[4] were transferred to the FWS to be managed under DOE permit as part of the National Wildlife Refuge System (NWRS). The WDFW retained administration of the area around the Vernita Bridge under DOE permit to provide access for sport fishing on the Columbia River.

In the 1980s, concerns for protection of the Hanford Site's natural and cultural resource values grew, as did interest in consolidating management under one natural resource agency. In 1988, Congress directed the Secretary of the Interior and the Secretary of Energy to identify and evaluate the outstanding features of the Hanford Reach[5] and its immediate environment—including fish, wildlife, geology, scenery, recreation, historic and cultural values—and recommend alternatives for their preservation. The resulting Department of the Interior (DOI) report, the *Hanford Reach of the Columbia River Comprehensive River Conservation Study and Environmental Impact Statement* (National Park Service 1994), identified the FWS as best suited to protect those values and the lands necessary to support them. After years of discussion and controversy, the question of protection was settled when President Clinton created the Monument (Proclamation 7319) through his powers under the American Antiquities Act.

Ecosystem Setting

When European settlers first arrived in the Pacific Northwest, they found a harsh, but surprisingly productive, arid landscape that today is identified as the Columbia Basin Ecoregion (DOE 1996). This area historically included over 14.8 million acres of steppe and shrub-steppe vegetation across most of central and southeastern Washington State (Franklin and Dyrness 1973), as well as portions of north-central Oregon.

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[2] The Monument was created primarily from parts of the Hanford Site that were considered safety and security buffers during the weapons production period of the site's history. As such, the Monument forms a large horseshoe-shaped area around what is generally known as Central Hanford and, because use has been restricted in the area, the Monument provides a buffer for the smaller areas currently used for storage of nuclear materials, waste storage, waste disposal, and the Energy Northwest Power Plant.

[3] Now part of the Rattlesnake Unit.

[4] Now part of the Wahluke Unit.

[5] Within the Hanford Site, the Columbia River is essentially free flowing through an approximately 51-mile segment (46.5 miles within the Monument). This stretch is called the Hanford Reach. The Hanford Reach extends from the upper end of the McNary Dam Reservoir to Priest Rapids Dam.

Today, much of the Columbia Basin Ecoregion has been converted into farms and urban centers. However, the protected status of the Hanford Site since 1943 resulted in its becoming a refuge for native plants, animals and biological communities that were once far more common in the surrounding landscape. Equally important, the portion of the Columbia River within the Hanford Site is unique within the post-dam Columbia River system in the United States due to its free-flowing character. It still contains significant riparian habitat that is otherwise rare within the Columbia River system (National Park Service 1994). It is because of this duel juxtaposition of increasingly rare habitats—the only free-flowing, non-tidal stretch of the Columbia River remaining in the United States and the largest remnant of the shrub-steppe ecosystem that dominated the Columbia Basin prior to European settlement—that President Clinton established the Hanford Reach National Monument through Presidential Proclamation in June 2000.

The Monument is characterized as a shrub-steppe ecosystem. Such ecosystems are typically dominated by a shrub overstory with a grass understory. In the early 1800s, the dominant plants in the area were big sagebrush underlain by perennial Sandberg's bluegrass and bluebunch wheatgrass. With the advent of settlement, livestock grazing and agricultural production contributed to colonization by non-native plant species that currently dominate large portions of the landscape. Although agriculture and livestock production were the primary subsistence activities in the area at the turn of the century, these activities ceased when the Hanford Site was designated in 1943. Remnants of past agricultural practices are still evident.

At 195,777 acres, the Monument, along with the Department of Defense's (DOD) Yakima Training Center, retain the largest remaining blocks of relatively undisturbed shrub-steppe in the Columbia Basin Ecoregion (Smith 1994, Soll et al. 1999). When settlers arrived, the vegetation in the ecoregion consisted primarily of shrubs, perennial bunchgrasses, and a variety of forbs. An estimated 60% of shrub-steppe in Washington has since been converted to agriculture or other uses. Much of what remains is in small parcels in shallow rocky soils or has been degraded by historic land uses (mostly livestock grazing). This conversion of land extends even into the Monument; the Monument encompasses undeveloped land interspersed with industrial development along the southern shoreline of the Columbia River, and human-made intrusions—such as roads, power lines, irrigation canals, communications structures, and remnant domestic plants—are evident throughout the Monument.

The Monument contains some of the best remaining large-scale examples of the shrub-steppe vegetation type in the Pacific Northwest, supporting habitat for many species of native wildlife (including shrub-steppe obligate species), a diverse array of native plant communities (including many threatened and endangered taxa) and microbiotic crusts, and a unique invertebrate fauna that is still being catalogued (Soll et al. 1999, Evans et al. 2003). Many places in the Monument are relatively free of non-native species and are extensive enough to retain characteristic populations of shrub-steppe plants and animals that are absent or scarce in other areas.

The Monument's importance as a refuge for the shrub-steppe ecosystem is not solely related to size, however. The presence of a large diversity of physical features and examples of rare,

undeveloped, deep and sandy soil has led to a corresponding diversity of plant and animal communities. Because it is located within the hottest and driest part of the ecoregion, the Monument also retains some of its own uniqueness and fragility.

The Monument's other key feature—the Hanford Reach—is home to the most important salmonid spawning grounds remaining on the Columbia River. The Hanford Reach and associated riparian zones provide habitat for numerous wildlife and plant species, including remnant habitat for aquatic organisms that were widespread before the remainder of the Columbia River system was converted to reservoirs. Surveys have identified several rare plant associations along the shoreline and islands of the reach (Salstrom and Easterly 1995, Soll and Soper 1996), further defining the Monument's importance to the nation.

Monument Purposes

National monuments are established to protect "antiquities" or to set aside lands for scientific purposes. Most presidential proclamations specifically define the reason(s) the particular national monument was established and the purposes for which it is to be managed. The Monument Proclamation is unusual in its level of detail and is very specific as to those resources deemed nationally significant. Rather than noting only one or two significant resources, as most monument proclamations have historically done, this particular proclamation specific notes an extensive list of resources President Clinton deemed nationally significant, including:

- A shrub-steppe ecosystem, including breeding populations of steppe and shrub-steppe dependent birds such as loggerhead shrikes, sage sparrows, sage thrashers, and ferruginous hawks.

- Water-related resources, including 46.5 miles of the 51-mile-long Hanford Reach of the Columbia River, fall Chinook salmon spawning areas, and sturgeon.

- Important archaeological and historic artifacts from more than 10,000 years of human occupation, including prehistoric pit houses, graves, spirit quest monuments, hunting camps, game drive complexes, quarries, hunting and kill sites, and more recent human activity such as homesteads and early towns.

- A diversity of native plant and animal species, including rare and sensitive plant species such as Umtanum desert buckwheat and White Bluffs bladderpod; habitat for migratory birds, as well as resident species, including wintering habitat for bald eagles, white pelicans, and ducks; nesting sites for rare bird species, including prairie and peregrine falcons; mammals, including elk, beaver, badgers, and bobcats; and insect species new to science or not previously identified in the state of Washington.

- Microbiotic crusts.

- Significant geological and paleontological objects, such as the White Bluffs and Hanford Dune Field, and mammalian fossils of rhinoceros, camel, mastodon and others.

The Monument Proclamation, and its accompanying "Background Paper,"[6] also set forth specific management actions that are to be followed, establishing a basis for management of the Monument. In addition, they set forth the following mechanisms for protection of the significant resources found in the Monument.

- Federal lands are withdrawn from disposition under public land laws. This includes all interests in these lands, such as future mining claims.

- Off-road vehicle use is prohibited.

- The ability to apply for water rights is established.

- Grazing is prohibited.

- The FWS and DOE (subject to certain provisions) are established as the managers of the Monument.

- A land management transfer mechanism from the DOE to the FWS is established.

- Clean-up and restoration activities are assured.

- Existing rights, including tribal rights, are protected.

Because the Monument is administered as a component of the NWRS, the legal mandates and policies that apply to any national wildlife refuge apply to the Monument. The purposes of any national wildlife refuge are "specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge, refuge unit, or refuge subunit" (National Wildlife Refuge System Administration Act). In this case, those would be the Antiquities Act, the Monument Proclamation, and the permit establishing the Saddle Mountain National Wildlife Refuge.[7]

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[6] Along with the Monument Proclamation, the White House submitted additional guidance to the DOI and DOE on how the Monument was to be managed through what it called a "Background Paper). This document provided much more direction on legal and policy matters (e.g., the preservation of valid existing rights, although it only identified a couple of those rights).

[7] The Saddle Mountain Wildlife Refuge was created on November 30, 1971, through a permit issued to the FWS by the DOE. This approximately 31,000-acre area is located in the northwest corner of the Hanford Site, and when the Monument was created, the Saddle Mountain National Wildlife Refuge was incorporated it. Historically, this area was known as the Saddle Mountain Unit; now it is part of the new Wahluke Unit.

The Monument Proclamation also goes further than most proclamations have historically gone in establishing specific management actions that are to be followed. It establishes a basis for management of the Monument, as well as several of the mechanisms for protection of the significant resources found in the Monument. The following mechanisms are specifically outlined in the Monument Proclamation.

- Federal lands are withdrawn from disposition under public land laws. This includes all interests in these lands, such as future mining claims.
- Off-road vehicle use is prohibited.
- The ability to apply for water rights is established.
- Grazing is prohibited.
- The FWS, under permits and agreements with the DOE, and the DOE are established as the managers of the Monument.
- Clean-up and restoration activities are assured.
- Existing rights, including tribal rights, are protected.

Authority to Plan for DOE Lands in the Monument

The Monument is also unique in its complexity and its management; it is the only national monument managed by the DOE and is the first of only five managed by the FWS.[8] The Monument is superimposed over approximately 196,000 acres of the 586-square-mile DOE Hanford Site. The DOE currently administers approximately 29,000 acres of land within the Monument and retains land surface ownership or control on all acreage.[9, 10] Approximately

[8] On June 15, 2006, President Bush established the nearly 140,000-square-mile Northwestern Hawaiian Islands Marine National Monument. On January 6, 2009, President Bush protected almost 200,000-square-miles more under the Antiquities Act by creating the Pacific Remote Islands Marine, Rose Atoll Marine, and Northern Mariana Islands National Monuments.

[9] Presidential Proclamation 7319 directs that 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 [FWS], 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." Thus, the FWS and DOE have joint management responsibility of the Monument.

[10] The DOE retains administrative control pursuant to the Atomic Energy Act of 1954, as amended, and applicable public land orders.

165,000 acres are currently managed by the FWS through its authorities under the National Wildlife Refuge System Management Act (16 United States Code § 668dd–ee) and through agreements with the DOE.[11, 12] The WDFW administers approximately 800 acres of the Monument through a permit with the DOE. Other state and federal agencies and utility districts maintain rights-of-way or manage small tracts of land within the Monument boundaries.

The Monument Proclamation established the authority of the FWS to write a management plan for the Monument. As stated in the Presidential Proclamation for the Monument:

> 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.

All lands included in the Monument are federal lands under the primary jurisdiction of the DOE. Under agreement with the DOE, the FWS manages the ALE (eastern portion of the Rattlesnake Unit) and most of the Monument lands north of the river—including the Wahluke, Ringold and Saddle Mountain Units—and the shorelines of the Columbia River Corridor Unit in Franklin and Grant Counties to the east of the Vernita Bridge.[13] The DOE manages the balance of the Monument, including the western end of the Rattlesnake Unit and the remainder of the Columbia River Corridor Unit (west of the Vernita Bridge in Grant County, all of the Benton County shoreline, and the Hanford Dune Field). The DOE intends to manage its portion of the Monument consistent with existing regulatory agreements regarding cleanup of the Hanford Site

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[11] The Secretary of the Interior has authority pursuant to the Fish and Wildlife Coordination Act of 1934, as amended (16 U.S.C. § 661-666c), and the Fish and Wildlife Act of 1956, as amended (16 U.S.C. § 742a-j; 70 Statute 1119), to enter into cooperative agreements to manage fish and wildlife resources on lands owned by, or under the jurisdiction of, another entity. The National Wildlife Refuge System Act of (16 U.S.C. § 668dd) consolidates all areas administered by the FWS for the management, conservation and protection of fish and wildlife (including those areas managed by the FWS under cooperative agreement with other federal agencies) into the NWRS.

[12] These Monument lands are administered as an "overlay refuge." Overlay refuges exist where the FWS manages lands for the benefit of fish and wildlife resources, but where it is not the primary holder in fee title of lands forming the refuge.

[13] Please refer to Section 2 for a description of the new management units.

(Hanford Federal Facility Agreement and Consent Order), the Hanford Comprehensive Land-Use Plan (DOE 1999, 64 FR 61615), the Monument Proclamation (65 FR 37253).

The FWS and DOE together fulfill several missions at the Hanford Site. The FWS is responsible for the protection and management of the Monument's resources and the management of people and their access to Monument lands under FWS control. The FWS also has the responsibility to protect threatened and endangered species, administer the Migratory Bird Treaty Act, and protect fish, wildlife and trust resources within and beyond the boundaries of the Monument. The DOE is responsible for protecting the resources of the Monument, managing energy research, and remediating wastes remaining from weapons material production. The DOE also administers agreements and permits with other entities—such as the Washington Department of Transportation (WSDOT), U.S. Bureau of Reclamation (BOR), South Columbia Basin Irrigation District (SCBID), Bonneville Power Administration (BPA), Energy Northwest, adjacent counties, and others—to enable these entities to fulfill their missions in energy production, energy distribution, communications, transportation and irrigation. Because the DOE has primary jurisdiction, it retains approval authority over certain management aspects of the Monument, including approval of access granted to tribes.

Planning Area

The geographic scope of this CCP includes all publicly owned lands and waters within the boundaries of the Monument and within the national wild and scenic river study area (see the Special Area Designations, Section 3). All islands within the Hanford Reach of the Columbia River, both those within the Monument boundary and those managed by the FWS in close proximity, are also included in this CCP; these islands will be administered/managed by the Monument. Some areas immediately adjacent to the Monument (e.g., B Reactor) are also discussed if they will be affected by the plan or if they influence management or affect resources of the Monument.

Plan Elements

The National Wildlife Refuge System Improvement Act of 1997 (Improvement Act) requires that all national wildlife refuges be managed in accordance with an approved CCP by 2012. This CCP provides guidance for management of the Monument consistent with the Presidential Proclamation that established it. Specifically, the CCP:

- Protects and restores biological, cultural, geological and paleontological resources.
- Identifies compatible activities and uses, emphasizing wildlife-dependent public uses.

- Identifies the overall need for, and distribution of, visitor facilities, including public access and transportation routes.

- Identifies areas of the Monument open to the public, areas open by permit, and areas closed to protect natural and cultural resources and the cultural traditions of Native American tribes.

- Provides for the protection of the eligibility of the Hanford Reach of the Columbia River as a national wild and scenic river.

- Provides a basis for budget requests to support needs for Monument staffing, operations, maintenance and capital improvements.

- Provides a set of decisions that outline management direction and create a framework for future planning, decision-making, and coordination with other affected stakeholders.

This final plan is comprised of various components from the final CCP/EIS, including:

- The Monument's vision statement.

- Enough background information from Chapters 1 and 3 and the Appendices to provide a snapshot of the Monument and its resources.

- A description of the selected management alternative and the goals, objectives and implementation strategies from Chapter 2 directly related to the selected alternative.

- A description of monitoring and other implementation programs.

- Maps.

- Appropriate Use Determinations and Compatibility Determinations.

- A list of completed and needed step-down plans.

- A schedule for plan revision.

Step-Down Plans

CCPs are intended to provide a framework for management direction. As such, they often take a broad view of a refuge, leaving finer details to other subsequent plans. Additional plans stemming from a CCP are known as step-down plans (FWS 2000, Refuge Manual 602 FW 4).

The CCP provides the framework and priorities for management, and the step-down plans provide management detail. Step-down management plans allow the planning process to be tiered and broken into a manageable effort.

The use of the CCP as a broad planning umbrella is especially relevant for the Monument. The Monument is a large, complex land area that faces a multitude of complex issues and has a wide range of competing interests. This complexity, coupled with the newness of the Monument, the lack of an existing CCP to use as a basis, and a shortage of biological and cultural information, necessitates the development of numerous step-down plans. These plans include, or could include:

- Cultural Resources Management[14]
- Fishing
- Habitat Management
- Hunting[15]
- Interpretation and Education
- Integrated Pest Management (IPM)[16]
- Landscape Design Standards/Aesthetics
- Law Enforcement and Emergency Response
- Resource (Wildlife, Habitat, Cultural Resources, Public Use) Monitoring
- Visitor Services

When these step-down plans are developed, the public will be invited to assist in their development, in most instances directly through public scoping and/or workshops (to the extent legally allowed), and in all instances through public review of the plans and all supporting National Environmental Policy Act (NEPA) documentation.

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[14] A Cultural Resources Management Plan may be jointly produced with the DOE.

[15] A Hunt Opening Package has already been prepared. However, it will need to be revised in the future due to completion of this CCP.

[16] The IPM was completed at the same time as this CCP. The IPM and CCP were simultaneously released for public review and comment.

CCP Review, Amendment, and Revision

The CCP is intended to be a dynamic plan based on the concept of adaptive management. Consistent with this concept, the CCP will be reviewed annually to determine whether it requires amendment or revision. The FWS will document and make minor plan modifications whenever this review, or any other monitoring or evaluation process, suggests that changes are needed to achieve the Monument's purpose, vision and goals. Modifications will be coordinated with partners and subject to appropriate NEPA compliance.

More extensive revisions of the CCP will occur when significant new information becomes available, ecological conditions change, a significant boundary change occurs, or when the need for major changes has been identified during annual plan reviews. FWS guidelines state that a revision should occur every fifteen years, although this is subject to necessity. All plan revisions will follow the procedures outlined in FWS planning policies for preparing CCPs and will require NEPA compliance. When the CCP requires a major revision, the CCP process will start anew at the preplanning phase.

Section 2

Management Units

Public Use Zones

To implement management goals and objectives under each alternative, it was important to first define the level of public access and use that could occur in an area while still protecting Monument resources. The following subsections describe the access levels used in the CCP. These public access levels are used in the description of the new management units (see Maps).

Open Zone

The public may access open zones year-round with no special use permit (SUP). Primary recreation opportunities generally include hunting, fishing, wildlife observation, photography, environmental education and interpretation, hiking and equestrian use. Open areas may include specific activity restrictions, seasonal closures, and year-round closures for public safety or resource protection needs. For example, bicycling is restricted to designated routes only, and hiking is not allowed in rare plant habitats.

Open, Controlled Zone

The public may access open, controlled zones year-round with no SUP; however, these areas have a greater degree of management presence and use restrictions than open zones due to resource sensitivity and concerns. Some activities are confined to designated sites, some sites are closed seasonally, and some activities are not allowed for public safety or resource protection needs. For example, hiking may be seasonally restricted to designated routes or disallowed, and sensitive avian nesting areas are seasonally closed to all access.

Designated Use Zone

The public may access designated use zones year-round with no SUP,[17] but uses are restricted to designated sites, routes, trails, or roads. For example, camping is allowed only in designated sites along the river, boats may be launched only at designated sites/launches, vehicles may park only in designated areas or lots, and hikers must stay on trails.

[17] Specific activities or specific sites may require a permit. For example, a permit obtained through a reservation system will likely be required for camping at floatboat sites.

Closed Zone

Closed zones are established for specific public safety or resource protection needs. Any access requires an approved SUP or other permissions granted by the FWS through a specific program (e.g., docents may lead tours). For example, the Rattlesnake Unit's Research Natural Area (RNA) is a closed zone to protect sensitive natural and cultural resources,[18] irrigation canal roads are closed for public safety purposes, and the Columbia River south shore is closed for security and public safety purposes while the DOE carries out its missions.

Management Units

Historically, the Monument was divided into six management units, which existed prior to establishment of the Monument in 2000 (see Maps). The unit boundaries followed preexisting lines, such as roads, the Columbia River, and county boundaries; they were based primarily on DOE operational needs rather than natural resource needs. The FWS identified the need to redefine the Monument into five new management units that are based primarily on ecological values rather than geographical, historical, or political boundaries; however, easily identifiable features were used to identify the boundaries to the extent possible (see Maps). The new units reflect a culmination of ideas and input received from the Hanford Reach National Monument Federal Advisory Committee (FAC), cooperating agencies, and the public, as well as the combined expertise of Monument staff.

Ringold Management Unit

Area

The Ringold Unit (3,120 acres) encompasses lands within the Monument from the Washington Department of Fish and Wildlife's (WDFW) Ringold Fish Hatchery north and west to a point where the bluffs meet the river, approximately 1/2 mile below the northern/western locked gate on Ringold Road. The unit includes lands from the high water mark of the Columbia River to lands below the rim of the bluffs bounding the unit on the north and east.

[18] Closed zones could have smller, included designated use zones. For example, the Rattlesnake Unit is considered a closed zone. However, a hiking trail in the Rattlesnake Unit could be established through this CCP. Use will be strictly limited to hiking, wildlife observation, photography and other activities that can be conducted from the trail corridor.

Open/Closed

The Ringold area has been used by the public for more than thirty years. The Ringold Unit will continue to be open to the public year-round from two hours before sunrise to two hours after sunset, with limited seasonal closures and use restrictions to protect sensitive resources and minimize chances of wildland fires during periods of high fire danger. Vehicle access will be controlled through the automatic gate located 1/2 mile north of the Ringold Fish Hatchery. Two of the existing eight parking lots should be closed.

Rationale for Ringold Unit Boundaries

Plant associations in the Ringold Unit have been heavily impacted by past management activities, including homesteading and farming, grazing, fire and irrigation development. Most plant communities in the unit are in a low successional stage, are heavily infested by non-native invasive species, and/or are monocultures created by past wildlife habitat management actions. Although some habitats still exist that support a wide variety of wildlife species, extensive restoration, with significant effort and resources over a long period, will be required to revitalize affected plant communities to a fully functional state of native shrub-steppe habitat. These lands rate low on the priority scale for restoration activities. Ecologically, this unit is low in biologic integrity, contains a relatively low percentage of sensitive resource values, and can sustain a higher level of public use without compromising resource quality.

There are sensitive cultural sites within the area that require protection; however, impacts on these resources can be avoided or minimized with proper management.

Fire suppression and law enforcement are both comparatively easy to administer in this unit. Law enforcement is aided by the unit being narrow and easily accessible by road and water. Fire suppression is aided by the presence of good roads (access and fire breaks) and the river, which acts as a natural firebreak. Both activities are hindered by the long response times needed to reach that side of the Monument. However, given the nature of the unit, the availability of other response units, and the quality of access, this is an appropriate area to concentrate use.

Wahluke Management Unit

Area

The Wahluke Unit encompasses those lands within the Monument boundary south of State Route 24 to within 1/4 mile of the Columbia River and to the northern boundary of the Ringold Unit. The eastern half of the unit includes all lands south of State Route 24 in the old Wahluke Unit from within 1/4 mile of the Columbia River to the eastern Monument boundary and north of the Ringold Unit boundary. The western half of this unit encompasses all lands within the Saddle Mountain National Wildlife Refuge (the old Saddle Mountain Unit) south of State Route

24 to within 1/4 mile of the Columbia River.[19] The Wahluke Unit encompasses 57,807 acres (29,486 acres currently open; 28,321 acres to potentially be opened pending DOE release of areas currently closed for security and public safety reasons).[20]

Open/Closed

The entire unit is available for public access in some form. The western end of the area will retain a "hunting exclosure" where many/most public uses might be allowed, but where hunting would not be. This is in order to create an area of sanctuary north of the river.

Rationale for Wahluke Unit Boundaries

This unit has been delineated because of its similar and important ecological characteristics (soils, flora/fauna), paleontological and geological characteristics, and cultural/historical diversity. This unit contains some of the last remaining intact shrub-steppe habitat in the Saddle Mountain Range in the Columbia Basin. The area contains dune soil/plant associations that are more biologically diverse than shrub-steppe communities on surrounding lands; these associations are maintained through wind patterns, continual dune movement, and natural geological erosion from the White Bluffs. This unit also has artificial wetlands in the form of ponds and waste ways created by the South Columbia Basin Irrigation Project; this wetland system provides valuable habitat for migratory waterfowl and shorebirds that visit and nest on the Columbia River.

This unit has a wide range of historic public use and access. The area within the Saddle Mountain National Wildlife Refuge has many unique plant communities and wildlife habitats and has been closed to the public since its creation in 1971. Public use of open lands has been seasonal in nature.

A recent intensive vegetation inventory has shown that past disturbance activities (i.e., wildland fire, farming, site conversion through irrigation projects, and land management activities) have significantly altered the biodiversity of these plant communities and habitats. Extensive public use could further threaten these areas through disturbance to native plant communities and sensitive wildlife habitats, increased distribution of non-native invasive plant species, and an increased risk of wildland fire. (Wildland fire poses the greatest threat to ecological integrity in the shrub-steppe ecosystem.) Intensive public use management through designated access points, obligatory trails and road systems, and seasonal use restrictions is necessary to ensure resource protection. These lands rate moderate on the priority scale for restoration activities.

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[19] The Columbia River and a 1/4-mile corridor on either side of the river—except within the Ringold Unit—comprises the Columbia River Unit, as described later.

[20] Public use on lands currently in the Saddle Mountain National Wildlife Refuge could not occur until the DOE suspends present day safety and security restrictions.

Fire suppression and law enforcement, while not easy, are possible within this unit. Law enforcement is aided by the unit being crisscrossed with service roads and ready access from State Route 24. Fire suppression is aided by the presence of service roads (access and fire breaks) and by the river, which acts as a natural firebreak. Both activities are hindered by the very long response times needed to reach that side of the Monument. However, given the nature of the natural and cultural resources on this unit, the difficulty in law enforcement and fire suppression is acceptable.

Saddle Mountain Management Unit

Area

The Saddle Mountain Unit (24,055 acres) encompasses those lands within the Monument boundary north of State Route 24 to the northern boundary of the Monument.

Open/Closed

The Saddle Mountain Unit is open to the public year-round from two hours before sunrise to two hours after sunset, with possible limited seasonal closures and use restrictions to protect sensitive resources (e.g., migratory bird species such as burrowing owls) and to minimize chances of wildland fires during periods of high fire danger.[21] Vehicle access is through existing access located at mile 60.1 on State Route 24; any additional access throughout the unit is through the established road system.

Rationale for Saddle Mountain Unit Boundaries

The Saddle Mountain Unit is ecologically different from both the Ringold and Wahluke Units; it has not historically been used as extensively as the Ringold Unit, and it is not as biologically diverse as the Wahluke Unit because of degradation from past homesteading activities, land management (e.g., military uses), and fire events. However, in the western third of this unit, some areas of high-quality shrub-steppe habitat persist, and the area has shrub overstory components and soils that may be conducive to recovery efforts of endangered species (e.g., pygmy rabbits); the area also has species of interest or concern that are present due to some remaining intact vegetative habitat components. Some use restrictions may be necessary in this area to protect these resources.

[21] Public access to tops of the Saddle Mountains may need to be regulated in some manner in the future due to the presence of a potential Traditional Cultural Property. The tops of the Saddle Mountains are an open controlled area, although the existing road will continue to be open as it currently is for the time being.

Management of biological resources will be different in the Saddle Mountain Unit than in the Ringold or Wahluke Units for restoration activities. The Saddle Mountain Unit rate moderate on the priority scale for restoration activities. This area is second in priority for restoration activities in the Monument (the Rattlesnake Unit is the highest priority).

The Saddle Mountains also contain several other significant Monument resources that will have to be protected through careful planning and visitor management. For example, the Saddle Mountains are potentially a Traditional Cultural Property (TCP) with cairns, lithic quarries, and other artifacts important to Native American peoples. There are also deposits of petrified wood. Collecting is a concern, as is the possible need to rehabilitate diggings.

There is a broader range of compatible public use activities within this unit than is available in other open units. The flat areas in the Saddle Mountain Unit contain a relatively low percentage of sensitive resource values and can sustain a higher level of public use without compromising resource quality. Cross-country hiking in areas of non-sensitive plant communities that are presently dominated by cheatgrass poses little threat of site degradation and habitat/ecological integrity loss in the spring, fall and winter months.

Fire suppression and law enforcement are not easily accomplished in this unit. Fire suppression is difficult due to the lack of natural firebreaks and scarcity of service roads. Law enforcement is also hindered by the lack of roads, although this is somewhat alleviated by access from State Route 24 running parallel to the unit. Both activities are hindered by the very long response times needed to reach that side of the Monument. While not an ideal situation for these management activities, it is possible to allow Monument-compatible uses on this unit.

Columbia River Management Unit

Area

The Columbia River Unit encompasses a forty-six-mile segment of the Hanford Reach of the Columbia River and those lands within the Monument boundary within 1/4 mile on either shore of the Columbia River above the mean high water mark, except in the Ringold Unit where the boundary is to the high water mark.[22] The Columbia River Unit also includes: 1) the Hanford Dune Field across from the Ringold Unit; 2) the old Vernita Bridge Unit; and 3) the old Riverlands Unit. The Columbia River Unit is 29,951 acres—29,667 acres within the Monument and 284 acres of islands outside the Monument which are part of the McNary National Wildlife Refuge.

[22] Lands located along the Columbia River within Benton County and some within Grant County will not be available for proposed public uses until current safety and security restrictions are suspended by the DOE.

Open/Closed

Primary access to this unit is by boat on the Columbia River, originating at several developed (i.e., the White Bluffs Boat Launch[23]) and undeveloped boat launches within the Monument and at developed launches downstream of the Monument. Access to most of the north shore in the Columbia River Unit is in designated areas only, with the exception of the area north and west of the Vernita Bridge, which is open. The south shore west of the Vernita Bridge is closed; east of the bridge, the shore is open in designated areas, subject to DOE approval and release.

Rationale for Columbia River Unit Boundaries[24]

The Columbia River Unit is ecologically and culturally unique due to influences of the Columbia River, a wealth of resources, past use by Native American peoples, geologic formations, and resilient plant communities. Riverine and riparian communities have been shaped by river flows and other geologic processes, homesteading and historic commerce activities. Eighty percent of fall Chinook salmon returning to Northwest streams spawn within the Hanford Reach. This area has a long and rich history of Native American occupation and use and is culturally significant to tribes throughout the region; more than two-thirds of the known cultural sites on the Monument are in this unit. Protection of cultural sites, nesting rookeries, migration stopover sites, wildlife sanctuaries, culturally significant plant communities, riparian vegetation, shoreline integrity, riverine habitats, and rare plants is imperative. Lands in the Columbia River Unit rate moderate to high on the priority scale for restoration activities.

Apart from the uniqueness of the wildlife and plant communities in the Columbia River Corridor Unit, public use of this unit is also dramatically different. This unit currently experiences the highest public use of all units in the Monument because of the fisheries resources in the Columbia River. Recreation is either water-based or primarily dependent upon water-related resources. Unique regulations and management are necessary for this unit; balancing protection with public use requires special management in this unit.

Finally, the boundaries for this unit coincide with the DOI's finding that the Hanford Reach is both eligible and suitable for designation as a component of the National Wild and Scenic Rivers System (NWSRS). The FWS is responsible for managing resources within this unit in accordance with the river's wild and scenic eligibility.

Fire suppression and law enforcement are at the same time both enhanced and difficult in this unit. Law enforcement is possible from the river, and there are numerous (potential) service

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[23] There will likely be a need in the future to establish a capacity limit at the White Bluffs Boat Launch in order to protect natural and cultural resources and to ensure a quality visitor experience.

[24] Islands within the Columbia River Corridor Unit are an exceptional resource and, although part of the unit, are discussed separately. See below for a description of island closures and the rationale for protection of these unique, ecologically important resources.

roads leading to the corridor. Fire suppression is aided by the presence of access roads and the river acting as a natural firebreak. On the south side of the river, strong DOE enforcement and fire fighting units are and will continue to be present. However, both management activities are hindered by the very long response times needed to reach the north side of the river. That aside, it is possible to allow Monument-compatible uses on this unit, and in light of the fact that the FWS does not control surface use on the river, there is little choice but for the FWS to plan for law enforcement and fire suppression.

Rattlesnake Management Unit

Area

The Rattlesnake Unit (81,070 acres) encompasses those lands within the Monument boundary south of Highway 240 not in the Columbia River Corridor Unit (the old ALE and McGee Ranch Units).[25]

Open/Closed

The area will remain closed to public access with the exception of the possible establishment of a hiking trail or two.

Rationale for Rattlesnake Unit Boundaries

The Rattlesnake Unit has been delineated because of its similar ecological characteristics (soils, flora/fauna), paleontological and geological characteristics, and cultural/historical diversity and uniqueness. The lands within the Rattlesnake Unit are a rarity within the Columbia Basin; they represent one of the largest remaining intact shrub-steppe habitats left within the Columbia Basin eco-region. While these lands have been impacted by catastrophic fire events, this land base has not been significantly disturbed by humans for more than sixty years, and the area has remained a prime example of successional recovery and the importance of shrub-steppe plant community in the interior Columbia Basin. Shrub-steppe associations here are more biologically diverse than shrub-steppe communities on surrounding lands. Biological diversity studies conducted in the Monument have documented more than 1,500 unique species to this area, more than forty-three of which are new to science. This unit contains a rare plant population found nowhere else on the planet—Umtanum desert buckwheat. However, this buckwheat is susceptible to elimination from any form of disturbance during any time of the year. The area includes a mixture of lower successional communities as well as recovering bunchgrass/sage

[25] The ALE was officially recognized by Congress and will continue to exist, as will the RNA, within the Rattlesnake Unit.

communities. Fire and cheatgrass invasion threaten the ecological diversity of this area. Lands in this unit rate high on the priority scale for restoration activities.

The rarity of large blocks of shrub-steppe habitat has led, in part, to the Monument's recognized importance as a scientific research site; the ALE is a designated RNA.[26]

This unit is also rich in cultural resources and contains some of the earliest known sites in the Monument. Rattlesnake Mountain, Yakima Ridge, and Umtanum Ridge are culturally significant properties; Rattlesnake Mountain is treated as a TCP, although it has not yet been formally designated as such.[27] There are culturally significant plant communities of types still used by area Native American peoples.

Management in this unit focuses almost exclusively on preservation and restoration and is influenced by special factors. For example, the ALE's designation as an RNA brings with it certain management parameters. Extensive public use activities would threaten resources within the Rattlesnake Unit through destruction of microbiotic crusts, disturbance of native plant communities and sensitive wildlife habitats, spreading of non-native invasive plant species, and increased risk of wildland fire. Wildland fire, increased through public access, poses the greatest threat to the ecological integrity of the shrub-steppe ecosystem. Some public use is compatible with resource protection goals if positioned, administered and monitored properly. However, if public access is provided, intensive management through designated access points, trails and road systems, as well as seasonal use restrictions, is necessary to ensure resource protection.

Fire suppression and law enforcement are difficult in this unit. There are few natural firebreaks, and access is sparse in some areas of the unit.

Columbia River Islands

Although islands in the Columbia River often contain resources similar to those on the rest of the Monument, the islands are inextricably linked to the water surrounding them and thus are included in the Columbia River Unit. The islands being addressed by this CCP are located in and immediately adjacent to the Monument (see Maps). There are thirteen islands that are currently part of the Monument (Hanford Islands). In addition, there are six islands that are currently part of the McNary National Wildlife Refuge (McNary Islands, river mile 341 to 351). Of the McNary Islands, three are within the Monument proclamation boundaries, and the other three are immediately adjacent to the Monument. All nineteen islands are managed as part of the Columbia River Management Unit; management of the McNary Islands has been assigned

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[26] Ibid.

[27] The DOE has completed a National Register Determination of Eligibility for *Laliik* (Rattlesnake Mountain) to identify its potential as a TCP, determining that it is eligible under National Register of Historic Places criteria. The Washington State Historic Preservation Office has concurred with this determination.

to the Monument.[28] There were several reasons to transfer jurisdiction of islands to one refuge: 1) Law enforcement personnel from the Monument patrolling the river will also cover the islands; 2) enforcement/compliance patrols by other jurisdictions (e.g., resource patrols by the Wanapum) benefit by having to interface with only one FWS office (this would also apply to other matters); 3) money will be more efficiently used because of the proximity to the Monument and resource similarity. Finally—and of greatest importance—the islands are closely linked with Monument resources.[29]

For a complete discussion of the islands, see the Islands portion of the Special Management Considerations Section.

Open/Closed

Because of high biological and cultural resource sensitivity, the islands under control of the FWS are closed above the high water mark.[30, 31] Islands managed by the DOE were already closed.

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[28] There are twenty-one islands. The lower two islands are not included within this CCP because they are owned by other entities. However, they are described in this CCP because they directly contribute to the wildlife diversity of the Hanford Reach.

[29] Since the release of the draft CCP, management of the Monument and McNary National Wildlife Refuge—as well as that of Cold Springs, Columbia, Conboy, McKay, Toppenish and Umatilla NWRs—has been combined into the Mid-Columbia River National Wildlife Refuge Complex. This renders the management question somewhat moot, although planning for those islands remains within this CCP.

[30] The Washington Department of Natural Resources holds primary jurisdiction below the ordinary high water mark, and access to lands below the high water mark is subject to their regulations and policies.

[31] Columbia River islands provide critical nesting and brood areas for waterbirds, waterfowl and colonial shorebirds; fawning areas for deer; potential roosting sites for bald eagles; and foraging and resting areas for a wide range of raptors, passerines, wading birds, and mammals. The islands are a migratory stopover for shorebirds heading to breeding sites to the north (spring migration) and overwintering locations to the south (fall migration). Island 19 (locally known as Third Island) has historically had an extensive bank swallow nesting colony, which is highly susceptible to crushing of the excavated nests; Locke Island also has a swallow colony. Islands 18 and 20 have large multi-species waterbird rookeries, including the only known egret nests on Island 18. Island 2 supports a sizeable heron rookery. Island 15 is consistently a foraging site for large numbers of pelicans.

Islands in the Columbia River also harbor an irreplaceable wealth of cultural resources from extensive use by Native Americans over the millennia. The archaeological remains of residences, processing and gathering camps, and other use areas can be found on numerous islands. For archeologists, the islands in this stretch of the river are renowned for the diversity of scientific data they have provided. Several islands are included in the Hanford North, Locke Island, Savage Island and Wooded Island Archeological Districts (National Register of Historic Sites) and the Coyote Rapids, Wahluke and Wooded Island Archeological Districts (Washington Heritage Register Sites). Several islands contain irreplaceable resources and sensitive site information significant to extant Native American groups in the area who continue to practice traditional life ways.

Section 3

Additional Designations And Special Management Considerations

Special Area Designations

As noted throughout the CCP, the Monument is a unique and special place. This has led to the creation of several additional actual or potential designations or management overlays, including those resulting from the existence of the Hanford Nuclear Reservation. These overlays include an Important Bird Area (IBA), an RNA, National Register of Historic Places Historic Districts, Washington Heritage Sites, eligible TCPs, a potential National Historic Site (B Reactor), and a river corridor eligible and suitable for designation into the NWSRS. Also addressed as per FWS policy are potential wilderness areas.

Important Bird Area

The IBA program is a global effort to identify areas that are crucial for maintaining bird populations. An IBA is a site that provides essential habitat for one or more species of birds. IBAs represent discrete sites, both aquatic and terrestrial, that are critically important to birds during their annual life cycle (i.e., breeding, wintering, feeding and migration). When the sites are identified, conservation efforts can focus on protecting those sites.

The IBA selection process examines sites based on two characteristics: 1) the presence and abundance of birds; and 2) the condition and quality of habitat. IBAs are chosen using standard biological criteria and the expert review of ornithologists. All sites nominated as potential IBAs are rigorously evaluated to determine whether they meet the necessary qualifications.

Within the United States, the program has been promoted and maintained by the American Bird Conservancy (ABC) and National Audubon Society (NAS). The ABC coordinates the identification of nationally significant IBAs, while the NAS works to identify sites in individual states. The NAS, as the Partner Designate for Bird Life International, works within each state to identify a network of sites across the country that provide critical habitat for birds. By working through partnerships, principally the North American Bird Conservation Initiative, to identify those places that are critical to birds during some part of their life cycle, the hope is to minimize the effects that habitat loss and degradation have on bird populations. In the United States, the IBA program has become a key component of many bird conservation efforts.

In Washington State, the goals of the IBA program are twofold: 1) identify the sites in the state most essential for long-term conservation of birds; and 2) take action to ensure the conservation of those sites.

The ALE is a designated IBA. It was chosen because of its unique habitat features and because, prior to the 2007 fires, it was one of the few large, contiguous blocks of shrub-steppe habitat in the Northwest still retaining a dominant pre-European settlement ecology and physical character. The ALE also supports an extraordinary assemblage of breeding birds associated with grassland and shrub-steppe ecosystems, including ferruginous hawks, long-billed curlews, burrowing owls,

loggerhead shrikes, sage thrashers, sage sparrows, Brewer's sparrows, and grasshopper sparrows. Two year-round desert springs support extensive riparian areas that provide breeding habitat for flycatchers, warblers, orioles and other neotropical migrants.

The Hanford Reach corridor is also a designated IBA. It comprises the Columbia River and the near-shore environment and extends approximately one-quarter mile inland from the river between the Vernita Bridge and the Ringold Fish Hatchery. The majority of this stretch of river contains specialized habitats, including islands, gravel bars, and rapids, not found elsewhere along the Columbia. This last free-flowing section of one of the largest rivers in the United States is important for birds that use riverine habitats in the arid West. It supports a high concentration of wintering bald eagles and waterfowl. Cliffs provide nesting sites for swallows, owls, hawks and falcons. The forty-plus species of fish inhabiting the Hanford Reach support American white pelicans, gulls, terns and cormorants. Waterbirds, such as herons and egrets, have well-established rookeries in several locations along the river. The riparian habitat within this IBA is important for neotropical migrant species, as well as for the characteristic breeding species of riparian habitats in the interior Columbia River Basin.

Research Natural Area

In addition to being an ecological reserve, the approximately 77,000-acre ALE is an RNA, known as the Rattlesnake Hills RNA. An RNA is a physical or biological unit (or both) in which natural conditions are maintained insofar as possible by letting natural physical and biological processes prevail without human intervention (Federal Committee on Ecological Reserves 1977). Following are the objectives for establishing RNAs.

- Preserve examples of all significant natural ecosystems for comparison with those influenced by humans.[32]

- Provide educational and research areas for ecological and environmental studies.

- Preserve gene pools for typical and rare and endangered plants and animals.

In 1928, the U.S. Forest Service (USFS) established the first RNA, the Santa Catalina Natural Area, on the Coronado National Forest in northern Arizona. Since then, the program has grown nationwide and includes designations by other federal agencies, as well as cooperation with state natural area programs and The Nature Conservancy (TNC). The RNA program in the Northwest began in 1931 when the Metolius RNA was established on the Deschutes National Forest in Oregon. RNAs in Oregon and Washington on federal lands are managed by the U.S. Department of Agriculture (USDA); the DOI (Bureau of Land Management [BLM], National

[32] In some circumstances, human intervention may be justified to maintain the feature for which the RNA was set aside. The introduction of prescribed fire in seral stands historically maintained by fire is an example.

Park Service [NPS] and FWS); the DOD (Navy); and the DOE. Management differs somewhat between agencies, but the agencies all concur on the objectives for RNAs.

Scientific use of RNAs has always been encouraged in Oregon and Washington. RNAs provide useful and essential information to land managers; they also contribute to basic science. Research activities must be essentially non-destructive, and the scientific and educational values of the areas must not be impaired. Each agency has a set of guidelines for use, but none is particularly restrictive as long as the essential characteristics and processes of the RNA are maintained.

The Rattlesnake Hills RNA was established as a result of a federal interagency cooperative agreement. The ALE constitutes the single largest tract in the federal RNA system for Oregon and Washington (Franklin et al. 1972), due in part to its being one of the few remaining large tracts of shrub-steppe vegetation in Washington that retains a predominant pre-European settlement character. The ALE is closed to general access by the public and is maintained for scientific purposes consistent with its value as an RNA.

National Register of Historic Places Listed and Eligible Properties (Historic Districts)

The National Register of Historic Places (National Register) is the nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act (NHPA), the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate and protect our historic and archeological resources. It is a list of buildings, sites, structures, objects and districts significant—at the local, state, or national level—in American history, architecture, archeology, engineering and culture. The NPS administers the National Register.

A National Register Historic District is a concentration of historic buildings, structures, sites, or objects united historically or aesthetically by plan or physical development. Any one of the properties in a historic district may not have particular historical, architectural, engineering, or archaeological distinction, but collectively they are significant in one of these areas.

The Secretary of the Interior established criteria to determine the eligibility of historic properties for inclusion in the National Register. All projects must be reviewed for any listed or eligible National Register sites in accordance with these regulations through the (Washington) State Historic Preservation Officer (SHPO). The following criteria are used to determine which sites qualify for listing.

- An association with events that have made significant contributions to broad patterns of our history.

- An association with significant persons in our past.

- Having distinctive characteristics of a type, period, or method of construction; having high artistic values; or being representative of a master or other significant entity.

- Having yielded, or being likely to yield, important historic or prehistoric information.

The Monument has a total of 127 sites evaluated for inclusion in the National Register, with forty-nine actually listed. Most of the National Register sites are part of six National Register Historic Districts (Hanford North Archaeological District, Locke Island Archaeological District, Rattlesnake Springs Historic District, Savage Island Archaeological District, Snively Canyon Archaeological District, Wooded Island Archaeological District), all of which are archaeological in nature and most of which comprise several sites. It is of note that the Hanford Site has a substantially higher percentage of archeological districts than historic districts; this characteristic is somewhat unusual nationwide.

Washington Heritage Register Sites

The Washington Heritage Register (WHR), maintained by the Washington Office of Archaeology and Historic Preservation, is similar in nature to the National Register. In fact, all National Register sites are automatically on the Washington Heritage Register. However, several resources on the Hanford Site are on the WHR but not the National Register. Sites eligible for the WHR must meet state-established criteria rather than national criteria. To be considered for inclusion in the WHR, sites—including buildings, structures and objects—must meet the following criteria.

- The resource must be at least fifty years old or have exceptional, documented significance.

- The resource must retain a high to medium level of integrity (i.e., defining characteristics from its historic period of construction).

- The resource must have documented historical significance at the local, state, or federal level.

In the Monument, there are three state archaeological districts—Coyote Rapids Archaeological District, Hanford South Archaeological District, and Wahluke Archaeological District. The Hanford Site also contains the Gable Mountain Archaeological Site.

Any sites listed in the WHR must be given consideration when evaluating projects requiring compliance with the Washington State Environmental Policy Act (SEPA). The SHPO reviews such documentation and makes recommendations on the effects of the project.

Traditional Cultural Properties Eligible Sites

A TCP is a recognized component of the National Register. Under the National Register, the word *culture* is understood to mean the traditions, beliefs, practices, lifeways, arts, crafts and social institutions of any community, be it an Indian tribe, a local ethnic group, or the people of the nation as a whole. One kind of cultural significance a property may possess, and that may make it eligible for inclusion in the National Register, is traditional cultural significance. *Traditional* in this context refers to those beliefs, customs and practices of a living community of people that have been passed down through the generations, usually orally or through practice. The traditional cultural significance of a historic property, then, is significance derived from the role the property plays in a community's historically rooted beliefs, customs and practices. Examples of properties possessing such significance are:

- A location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world.

- A rural community whose organization, buildings and structures, or patterns of land use, reflect the cultural traditions valued by its long-term residents.

- An urban neighborhood that is the traditional home of a particular cultural group and that reflects its beliefs and practices.

- A location where a community has traditionally carried out economic, artistic, or other cultural practices important in maintaining its historic identity.

- A location where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice.

A TCP, then, can be defined generally as one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that: 1) are rooted in that community's history; and 2) are important in maintaining the continuing cultural identity of the community. There are multiple sites in the Monument associated with ongoing Native American use, beliefs and ceremonial activities that likely qualify as TCPs; several potential TCPs and sacred areas are known to exist. Although no areas have been officially designated as TCPs, an area such as Rattlesnake Mountain (known to the native people as *Laliik*) is revered as a sacred area by all Native Americans in the area.[33] However, for reasons described below, the exact locations, boundaries and even numbers of potentially eligible TCPs in the Monument is unknown.

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[33] The DOE is currently working with local tribes in delineating and assessing the eligibility of Rattlesnake Mountain and associated areas as a TCP. The DOE has completed the National Register Determination of Eligibility, determining that it is eligible. The Washington SHPO has concurred with this determination.

In the Monument, the significance of the environmental setting is integral to the Native American heritage connectivity or cultural traditions. Native people tie traditional, continuous use and occupation patterns to this land. Spiritual beliefs link plants, animals and sacred areas within the cultural landscape. Utilization of traditional hunting, gathering and collecting territory has been uninterrupted for generations.

The descendants of aboriginal people in the Columbia Basin practice cultural traditions and follow belief systems that may be recognized as being indigenous or traditional. Many of these cultural elements are expressed even today in collection and use of traditional resources such as foods, medicinal plants, and fibers. This cultural continuum expressed in the region within and surrounding the Monument is an important element of the ethnographic pattern of Native American expression within the cultural landscape. It represents an unusual and significant connection for Native American presence and land use patterns in the Columbia Plateau.

Traditional cultural values are often central to the way a community or group defines itself, and maintaining such values is often vital to maintaining the group's sense of identity and self-respect. Properties to which traditional cultural value is ascribed often take on this kind of vital significance, so that damage to or infringement upon such properties is perceived to be deeply offensive, and even destructive, to the group that values them. As a result, it is extremely important that traditional cultural properties be considered carefully in planning and that actions proposed under the CCP be respectful of Native American values.

TCPs are often hard to recognize. A traditional ceremonial location may look like merely a mountaintop, a lake, or a stretch of river; a culturally important neighborhood may look like any other aggregation of houses; and an area where culturally important economic or artistic activities have been carried out may look like any other building, field of grass, or piece of forest in the area. As a result, such places may not necessarily come to light through the conduct of archeological, historical, or architectural surveys. The existence and significance of such locations can often be ascertained only through interviews with knowledgeable users of the area, or through other forms of ethnographic research. The subtlety with which the significance of such locations may be expressed makes it easy to ignore them; on the other hand, this subtlety makes it difficult to distinguish between properties having real significance and those whose putative significance is spurious.

Identifying TCPs can present special challenges. First, those who ascribe significance to the property may be reluctant to allow its description to be committed to paper or to be filed with a public agency that might release information about it to inappropriate people.[34] Second, documentation necessarily involves addressing not only the physical characteristics of the property as perceived by an outside observer, but culturally significant aspects of the property that may be visible or knowable only to those in whose traditions it is significant. Third,

[34] Under Section 304(a)(3) of the NHPA, "The head of federal agency shall withhold from disclosure to the public, information about the location, character, or ownership of a historic resource if the Secretary and the agency determine that disclosure may . . . impede the use of a traditional religious site by practitioners."

boundaries are often difficult to define. Fourth, in part because of the difficulty involved in defining boundaries, it is important to address the setting of the property.

Particularly where a property has supernatural connotations in the minds of those who ascribe significance to it, or where it is used in ongoing cultural activities that are not readily shared with outsiders, it may be strongly desired that both the nature and the precise location of the property be kept secret. Such a desire on the part of those who value a property should of course be respected, but it presents considerable problems for the use of National Register data in planning. In simplest terms, one cannot protect a property if one does not know that it is there, which is one of the problems the FWS will face in implementing this CCP.[35]

B Reactor, Potential Historic Site

One of the unique components of the Monument is its association with the nuclear age and the Cold War. While other national wildlife refuges exist as the result of nuclear and other Cold War-era weapons (e.g., Rocky Flats, Rocky Mountain Arsenal), none are so closely linked with American history as the Monument. Over a three-decade span, nine reactors were eventually built on the Hanford Nuclear Reservation. Most famous among these reactors is B Reactor.

B Reactor was the first reactor built—there was no A Reactor at Hanford—and was the world's first industrial-scale nuclear reactor, producing weapons-grade plutonium. Completed in September 1944, B Reactor was a focal point of the top-secret Manhattan Project to develop the atomic bomb. Integral to World War II weapons development, B Reactor was part of the response to concerns over German development of nuclear capability (later learned to be unfounded). Completed in just thirteen months, it was one of three plutonium production reactors built in total secrecy at Hanford during WWII.

Apart from being the world's first major nuclear reactor, B Reactor holds many other distinctions. Plutonium from the B Reactor was used in the world's first nuclear explosion on July 16, 1945, at the Alamogordo Bombing and Gunnery Range in New Mexico. B Reactor plutonium was used in the Fat Man bomb dropped on Nagasaki, Japan, on August 9, 1945.[36] As a result of its history and the fact that it was the "first" in many categories, B Reactor has received many designations. B Reactor has the following current designations.

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[35] The need to reveal information about something that one's cultural system demands be kept secret can present agonizing problems for traditional groups and individuals. It is one reason that information on traditional cultural properties is not readily shared with federal agencies and others during the planning and environmental review of construction and land use projects. However concerned one may be about the impacts of such a project on a traditional cultural property, it may be extremely difficult to express these concerns to an outsider if one's cultural system provides no acceptable mechanism for doing so. TCPs may be kept confidential under the authority of Section 304 of the NHPA.

[36] Fat Man, exploding in a twenty-kiloton blast, devastated more than two square miles of the city and caused approximately 45,000 immediate deaths and as many as 150,000 total deaths. Japan sued for peace five days later.

- National Historic Mechanical Engineering Landmark (American Society of Mechanical Engineers, 1976).
- National Register of Historic Places (National Park Service, 1992).
- Nuclear Historic Landmark (American Nuclear Society, 1993).
- National Civil Engineering Landmark (American Society of Civil Engineers, 1994).
- National Historic Landmark (National Park Service, 2008).

Due to its role in history, there is a large amount of local and national support to preserve the B Reactor. This led to passage of Public Law 108-340 on October 18, 2004, which directed "the Secretary of the Interior to conduct a study on the preservation and interpretation of the historic sites of the Manhattan Project for potential inclusion in the National Park System." The NPS is assessing the B Reactor—as well as the Cold War nuclear sites of the Los Alamos National Laboratory and town sites in New Mexico, Oak Ridge Nuclear Reservation in Tennessee, and a nuclear trigger production facility in Dayton, Ohio—for national significance and possible designation as a unit of the National Park System (e.g., national park, national historical park, national historical site). The NPS held public scoping meetings for B Reactor on March 22, 2006, with the scoping period concluding on June 30, 2006. Since that time, the NPS has been evaluating the site; the final report and determination is expected in 2010.

While not actually part of the Monument, the B Reactor lies just outside its boundaries, and interpretation of the B Reactor would be partially within the Monument. The most likely permanent access route would begin in, or cross through, the Monument.[37] If the B Reactor is preserved for public use and education, it will have significant impact on the Monument, and for that reason was considered within the CCP as a reasonably foreseeable action.

Wilderness Eligible Areas

The Wilderness Act of 1964 directed the Secretary of the Interior, within ten years, to review every roadless area of 5,000 acres or more within NWRS and to recommend to the President the suitability of each qualifying area for inclusion in the National Wilderness Preservation System. This assessment is still in progress. In August 2003, the FWS began the wilderness assessment for the Monument.

Using criteria derived from the Wilderness Act, FWS standards, and the BLM's Colorado and Utah State Offices, Monument staff and contractors developed a standardized checklist to be

[37] The DOE began providing tours to the B Reactor originating from the Vernita Bridge Rest Area in the summer of 2009.

used in the wilderness assessment. This checklist was completed in the field using methodologies developed by the BLM for the Utah wilderness assessment.

With the completion of the field assessment, it was determined that three areas on the Rattlesnake Unit met the criteria as being potentially eligible as wilderness. These areas included Bobcat and Snively Canyons and the southwestern-most corner of the Monument. However, at this time it has been determined that carrying these areas forward to the wilderness study phase is not compatible with the DOE's current mission for site cleanup and the protection of public property and safety. These areas will be re-examined when the CCP is revised and the mission of the DOE changes and cleanup of the Hanford Site is completed or progresses enough to allow for wilderness designation.

Wild and Scenic River Study Area

As the mission of the DOE at Hanford changed from production of plutonium to environmental restoration, the need for buffer lands diminished. Alternatives for disposition of these lands were proposed by different interests, one alternative of which was preservation of the area to protect the large block of shrub-steppe habitat and the unique assemblage of plant and animal species present. Equally as important a consideration as the shrub-steppe habitat was the last free-flowing segment of the non-tidal Columbia River (the Hanford Reach) remaining in the United States.[38]

In November 1988, Congress enacted Public Law 100-605, known as the Hanford Reach Comprehensive River Conservation Study Act, to address the future of the Hanford Reach and surrounding lands. The Act required the Secretary of the Interior, in consultation with the Secretary of Energy, to prepare a study that would evaluate the outstanding features of the Hanford Reach (including fish and wildlife, geologic, scenic, recreational, natural, historical, and cultural values) and its immediate environment (i.e., surrounding lands) and examine alternatives for preserving those values. The alternatives considered were to include, but not be limited to, inclusion of the Hanford Reach in the NWSRS. The study was to be conducted in cooperation with state, local and tribal governments and with participation from the public and would conclude with a recommendation to Congress of a preferred alternative for preservation of lands surplus to the DOE's mission.

The Secretary of the Interior designated the NPS as the lead agency for the study. A study team was organized with representatives from the NPS, DOE and FWS. Their job was to conduct the study, prepare the necessary documentation, including the environmental analysis, and develop the agencies' recommendations for protection of the Hanford Reach.

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[38] While the Hanford Reach is bounded upstream and down by hydroelectric dams, it retains some semblance to conditions supported by a natural flow regime and is free-flowing as defined by Section 16 of the Wild and Scenic Rivers Act (Public Law 90-542, as amended; 16 USC 1271-1287).

In June of 1992, the NPS released the *Draft Hanford Reach of the Columbia River Conservation Study and Environmental Impact Statement*, followed by the final report and EIS in June of 1994. In that report, the NPS found that approximately fifty-one miles of the Hanford Reach—from one mile below Priest Rapids Dam (river mile 396.5) to the backwaters of the McNary Pool (river mile 345)—were eligible for designation into the NWSRS. The NPS study recommended that, should the Hanford Reach be designated, it be classified as recreational.[39]

Under the Wild and Scenic Rivers Act, eligible rivers must be free-flowing and support one or more "outstandingly remarkable resources" (ORVs)—"scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values" to be preserved in free-flowing condition so that "they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations." ORVs are generally considered to be unique, an exemplary example of the type of feature, or of importance to the region or nation; this provides the basis for measurement of a resource as an ORV. While a designated or eligible river needs only one ORV to be eligible for designation, the NPS found that Hanford Reach supported seven ORVs—fall-run Chinook salmon along with their spawning and rearing habitat; the intact ecosystem of the river and the adjacent Wahluke Slope; American Indian cultural resources; archaeologic artifacts and sites; hydrology and geology; federally recognized rare animal species; and federally recognized rare plant species.

The NPS study also addressed the "suitability" of the Hanford Reach for designation, concluding that it is suitable for designation.[40] The eligibility, classification and suitability findings were transmitted by Secretary of the Interior, Bruce Babbitt, to Congress along with the recommendation that the Hanford Reach be designated a national wild and scenic river under FWS management and that the Wahluke Slope be administered as a national wildlife refuge.

Following completion of the study and its subsequent transmittal to Congress, debate continued over the final disposition of the Hanford Reach and the surrounding lands. According to public opinion polls, the majority of Washington residents wanted the area protected according to the preferred alternative of the NPS study—designation of the Hanford Reach as a national wild and scenic river and protection of the Wahluke Slope as a national wildlife refuge. However, many interests in the immediate area were either opposed to further designations or wanted the area

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[39] Section 2(b) of the Wild and Scenic Rivers Act mandates that every designated river be classified as wild, scenic, or recreational. These classifications are based solely on the degree of development existing along the river at the time of designation, with wild being almost free of the evidence of man, and recreational rivers being "readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past."

[40] Eligibility is based on the physical characteristics of the river—free flow and river resources. Suitability refers to the social and economic feasibility and impacts of designation. There may be other, more suitable, ways to protect a river and its resources, or there may be more suitable uses for a river area than designation. Factors considered include the status of land ownership, including the amount of private lands involved; uses of the land that would be enhanced, foreclosed, or curtailed if the river were designated and the values lost if it were not; public and state/local government interest in designation; the costs of acquiring necessary lands and of administration of the river following designation; and other issues and concerns identified during the study process.

opened to other uses, agriculture being the primary use. This debate continued for several years, finally leading to creation of the Monument.

Creation of the Monument did not convey with it full protection of the river's eligibility as a wild and scenic river. In 1996, Section 404 of Public Law 104-333, the Omnibus Parks and Public Lands Management Act of 1996, amended the original study legislation (Public Law 100-605) to mandate that 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:

- Be planned, designed, located and constructed to minimize direct and adverse effects on the values for which the river is under study; and

- 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 to minimize and provide mitigation for any direct and adverse effects on the values for which the river is under study.

Under the Wild and Scenic Rivers Act and DOI practices, the FWS will manage the river as if it were a wild and scenic river and will take no actions that would change its status. This protection only partially extends to other federal agencies. Those agencies are obligated to take all reasonable care to protect the river's free flow and ORVs, but they are not obligated to forego projects if no reasonable alternative exists.

National Environmental Research Park

As early as 1952, ecological research on radionuclide cycling was underway at the Hanford Site and on land surrounding other nuclear weapons facilities. Scientists sought to understand the natural ecosystem and the transport, cycling and fate of radionuclides and other contaminants in soils, water and air. Out of the radionuclide research grew pioneering technologies for quantifying the movement of both natural materials, such as nutrients and fluids, and introduced pollutants through the ecosystem. In 1967, the AEC formally designated a portion of the Hanford Site—the ALE—as a study area for scientists and educators. This environmental research designation was assigned two years before NEPA directed each federal agency and department to make environmental protection a part of its mission.

In an effort to comply with the spirit of NEPA, in 1977, the U.S. Energy Research and Development Agency (a predecessor to the DOE) developed the idea of National Environmental Research Parks (NERPs) and designated the entire Hanford Site as one of seven NERP sites in the United States. A NERP is an outdoor laboratory where research may be carried out to

achieve national environmental goals, as articulated by NEPA, the Energy Reorganization Act, the Department of Energy Organization Act, and the Non-nuclear Energy Research and Development Act. The NEPA translated the public concern for a quality environment into environmental goals, and the NERP network provided lands to help the nation and DOE comply with the spirit of NEPA. The Energy Reorganization Act of 1974 directed the DOE to engage in environmental research related to the development of energy sources so as to advance the goals of restoring, protecting and enhancing environmental quality. The NERPs are actually field laboratories set aside for ecological research, for study of the environmental impacts of energy developments, and for informing the public of the environmental and land use options open to them.

Because public access to DOE land is limited, environmental research projects can be carried out with a minimum of interference. Any land outside restricted areas may be made available by the DOE field manager for study under DOE's site-use procedures. The DOE has protected some areas of the ALE from all anthropogenic manipulations for more than sixty years in order that the area might serve as an environmental studies control area. While execution of the program missions of DOE sites must be ensured, ongoing environmental research projects and protected natural areas are given careful consideration in any DOE site-use decisions. Where appropriate, research parks may be established with other governmental agencies (through interagency agreements) such as the Rattlesnake Hills RNA.

Hanford Site Protective Safety Buffer Zones

Existing and planned waste disposal sites, waste processing facilities, and hazardous or radiological materials storage facilities are found throughout the Hanford Site. To protect the public from routine or accidental releases of radiological contaminants and/or hazardous materials, protective measures for waste remediation, processing and disposal facilities are required by numerous laws, regulations, rules and DOE internal orders.

One method of public protection, engineering control, uses the current Hanford Site boundary as the point-of-compliance to identify and design safety class systems, structures and components for operating facilities in both accidental and routine operation scenarios.

Another method of public protection, institutional control, uses distance as the protective measure expressed as safety buffer zones. These buffer zones limit public exposure to radiological and hazardous chemicals from routine operations and accidents. Some of these safety buffers extend into the Monument.[41]

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[41] At a minimum of every five years, the DOE revisits the buffer zones through various methodologies to determine the location, size, shape and characteristics of the buffer zones needed for the Hanford Site, using information from existing safety analysis reports, hazard assessments, and emergency planning zone studies. This process allows the restriction of potential land uses in areas where hazardous or radioactive material handling could pose an unacceptable risk to human health.

The DOE divides the buffer zones necessary to protect human health and safety from potential accidents into two components—an inner exclusive-use zone (EUZ) and an emergency planning zone (EPZ). Within portions of the EUZ, certain types of access would be restricted, while other types of public access within that same area might be acceptable.[42] The protective buffer zones for the Hanford Site are established using boundaries calculated for individual limiting facilities (i.e., facilities, such as the water treatment plant, with accidents [e.g., a chlorine leak] of maximum potential public health impact). Information about the limiting facilities, controlling contaminants, and credible accidents for 1999, were presented in the DOE's Comprehensive Land Use Plan (CLUP).[43]

In addition to known risks (e.g., Hanford's radioactive waste Tank Farms), the DOE reserves land for operational safety and/or remediation/stewardship buffer zones for unknown risks.[44]

In addition to DOE's protective buffer zone requirements, the security and emergency preparedness needs of Energy Northwest (formerly Washington Public Power Supply System) must be considered. Under U.S. Nuclear Regulatory Commission procedures, the Energy Northwest WNP-2 Reactor requires a 10-mile EPZ and a 1.2-mile EUZ, both of which cover Monument lands. Energy Northwest has placed public warning sirens in appropriate areas within the Monument consistent with NRC requirements; however, any new activities proposed under the CCP may require additional warning sirens.

Additional Management Considerations

While the Monument presents numerous management challenges, there are four—fire, elk, river flows, and sites of (potential contamination) concern—that are highly controversial and that are exceptionally challenging for a number of reasons. All are influenced by outside actions, and in the case of river flows, almost entirely outside the control of the FWS. All represent significant social problems/concerns, perceptions and attitudes that likely exceed the biological or cultural resource challenges. All involve significant costs to resolve or control, either to the

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[42] The only current buffer zone in the Monument is that surrounding the K Basins. It is anticipated that this zone will be reduced such that it does not encroach on the Monument within a decade or less. However, the plutonium finishing plant may require an increase in buffer area based on future emissions.

[43] The CLUP was developed by the DOE to direct land use within the Hanford Site.

[44] It is extremely difficult for the DOE to adequately characterize heterogeneous burial grounds created more than forty years ago (e.g., the 618-4 burial ground near Richland had approximately 1,500 barrels of uranium fines packed in mineral oil that was previously unknown). The EUZ and EPZ boundaries provide a conservative buffer zone based on risk and consequence management that is expected to be sufficient to address protective zone needs for the multiple facilities present in each area on the Hanford Site. As the cleanup mission progresses, the extent of these EUZs is expected to shrink in size and eventually migrate inward to the Central Plateau within Central Hanford (e.g., the K Basins).

agencies involved or to society. Finally, all are at least in part beyond the scope of this CCP. Fire management and control have already been addressed through a separate plan in 2009, which has become a step-down plan to this CCP. Additional elk management methods may need to be addressed through a step-down plan, although the basis is addressed within this CCP. River flows are beyond the scope of this CCP—other than to note their known and potential impacts—and are being addressed through the FERC licensing process and other venues. Finally, the Hanford Site is one of the largest CERCLA sites in the United States. While most of the lands within the Monument are not contaminated, there are "sites of concern" that require additional investigation and management consideration.

Fire

In the desert, shrub-steppe environment that comprises the Monument, fire is one of the biggest threats to natural and cultural resources, as well as to human life. The Monument devotes considerable time, money, personnel and other resources to the management, suppression and strategic use of fire to protect and enhance natural, cultural and recreational resources, as well as to safeguard life and property.

One of the step-down plans associated with this CCP is a Fire Management Plan. The Fire Management Plan is unique among the Monument's step-down plans in that it has already been written, approved and implemented in early 2009.[45] The plan is an operational guide for managing both the Monument's wildland and prescribed fire programs.[46] The plan defines levels of protection needed to promote firefighter and public safety, protect facilities and resources, and restore and perpetuate natural processes within the context of current understanding of the complex relationships in natural ecosystems.

Fire Season

Records show that fire season is typically from May to mid-September. Depending on the specific weather of any particular year, the fire season may start earlier or last longer. Most fires in the area occur during the summer months, with the majority of ignitions in June, July, August and September. Although precipitation-free months are rare, summer months are generally hot and dry, averaging sixty-five days of 90º or more during the summer with only 0.3 inches of precipitation per month. Usually, July and August have some dry lightning storms that pose ignition hazards across the Columbia Basin.

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[45] The new Fire Management Plan used the NEPA documentation for the previous plan; an environmental assessment for the Fire Management Plan was issued on April 3, 2001, and a finding of "No Significant Impact" was issued in June 2001.

[46] The Monument will suppress all wildland fires using appropriate management strategies. Prescribed fire will reduce hazardous fuels and/or improve wildlife habitat through the preparation of prescribed fire plans.

Fire Ecology

Fire has played an integral role in the shrub-steppe environment. The bunchgrass component of the native shrub-steppe is a discontinuous fuel bed that prevents many large fires (Paige and Ritter 1999). Prior to manmade disturbances,[47] the historic fire regime was a thirty-two- to seventy-year fire return interval (Quigley and Arbelbide 1997) of small, high-intensity fires that removed small patches of the fire-intolerant shrub overstory. Small, infrequent fires maintained bunchgrass openings within the shrub-steppe, providing for both shrub and grassland communities.

However, the historic fire regime has been significantly altered by sociopolitical and economic factors. After the 1900s, human activities interrupted the natural fire interval and patterns of burning. Agricultural development and livestock grazing reduced the light fuels that would normally carry a fire. Livestock grazing also had the effect of suppressing native bunchgrasses and allowing non-native invasive species (e.g., cheatgrass) and native sagebrush densities to increase.

Fire suppression organizations developed in the early twentieth century nationwide. Beginning about 1906 through the present, fire suppression efforts have resulted in increased sagebrush stand density. This allows for hotter, more destructive fires, due to the closer proximity of each individual plant, which allows fires to spread within the shrub canopy.

Of even greater impact, though, is the introduction of cheatgrass and other invasive species and noxious weeds. Rangeland "improvements" brought in a variety of non-native grasses, either as purposeful introductions to provide forage enhancement, or as accidental introductions in seed/pasture mixes. Plants such as cheatgrass, tumbleweed and other annual species altered the native plant community structure. The discontinuous fuel that native bunchgrasses provided were invaded by thick, continuous fuels that would carry fires over large areas. Cheatgrass also cures into dry fuel earlier in the fire season than native grasses, providing a longer fire season. A high mortality of perennial grasses may occur if fire burns in a cured litter of annual grasses while perennials are still actively growing. Fires that start in cheatgrass stands often spread to surrounding habitats, resulting in the loss of shrubs from adjacent communities.

Finally, the arrival of settlers brought additional sources of wildfire. Even today, many fires on the Monument are ignited by such sources as cigarettes, sparks from machinery, and motor vehicles. The 24 Command Fire, one of the most destructive in recent history, was caused by a highway accident, and the Wahtoma Fire of 2007 was almost certainly human-related.

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[47] It is highly possible that Native American's used fire to shape the landscape, drive wildlife, etc., as they did in other parts of the country. However, until additional factors, such as extensive livestock grazing, introduction of exotic species, and farming, significantly altered the ecology of the area, fire would likely not have had as significant an impact as it does today. Fires set by Native Americans could arguably be considered part of the historic, natural fire regime, if indeed fires were purposely set in the Columbia Basin.

Particularly hard-hit by modern, high-intensity fires are sagebrush and other shrubs; sagebrush does not tolerate fire, while native grasses are more fire-tolerant. The natural recovery of sagebrush stands following a fire is further hampered by the presence of invasive species, which often out-compete sagebrush following a disturbance such as fire. Additionally, sagebrush totals only 15-25% of the vegetative cover in sagebrush shrub-steppe communities, and although wind can disperse sagebrush seeds up to ninety feet, most seeds fall within three feet of the canopy (Meyer 1994), so the natural reintroduction of sagebrush into an area can take decades.

In summary, the contemporary fire regime is a short fire-return interval of large, high-intensity fires that remove large patches of the fire-intolerant shrub overstory. The invasion of cheatgrass has changed the community appearance and altered the fire regime because of an abundance of available and continuous fuel. Natural succession has been altered by cheatgrass such that burned areas do not recover to their former community structure following fire. This has led to a decrease in the fire intolerant sagebrush and a commensurate increase in exotic species, primarily cheatgrass and tumbleweed, thereby creating a cycle that is hard to break.

Fuels

The fuel types in shrub-steppe are typically grass and shrub. The fuel is generally herbaceous plants that are dormant, or are nearly dormant. Occasionally, litter and dead/down stemwood from the open shrub overstory contributes to the fire intensity. Fires in this fuel type are surface fires that move rapidly through the cured grass and associated material. In rare instances, brush can become the primary carrier of fire spread; however, brush requires moderate winds (more than eight miles per hour at the mid-flame height) for fire to spread from crown to crown.

Four different fuel types are currently recognized on the Monument.

- ***Native grasslands*** are characterized by dry, open, grassy areas, with individual grass clumps providing a discontinuous natural fuel. Native perennial grasses and forbs are found throughout this community. Perennial grasses and forbs tend to have long, fibrous root structures that can access moisture throughout the soil profile. Thus, native vegetation in this area remains green during the first half of the fire season, curing out during the late summer, typically July and August. Fires during late summer can burn within these areas. Perennial grasses may suffer high mortality if fires fueled by cured annual grasses burn perennial species during their active growing season, or if they burn at such a high intensity that the crown (the actively growing part of the plant) is damaged or killed. Fires during late summer can burn within perennial grassland areas. Occasionally, depending upon wind conditions, surface fires can move rapidly through the cured grass and associated materials.

- ***Shrub-steppe*** areas are grasslands that retain a component of shrub as an overstory. Wyoming big sagebrush is the most common, dominant shrub, but there are also communities of three-tip sagebrush, bitterbrush, black greasewood, spiny hopsage, and gray and green rabbitbrush. Generally, the shrubs burn with greater intensity than the

grasses and produce longer flame lengths. Sagebrush has volatile, flammable chemicals associated with its foliage. In some areas, the shrubs can burn with such intensity that they permanently destroy the understory plants and create hydrophobic conditions on the soil surface.

- ***Riparian and riverine bottoms*** are occupied by willow-dominated communities. Because of their proximity to water, riparian and riverine habitats tend to have a high density of shrubs and trees and a greater amount of vertical structure. Native and non-native grasses are found in the understory throughout the community. Vegetation in this area remains green during the majority of the fire season, but as the grasses cure, the understory becomes more flammable. Dried grasses and shrubs can provide ladder fuels that burn into the riparian tree canopy and can kill overstory trees. Occasionally, aquatic vegetation can build up such that open water habitat becomes limited. These situations may require fire to reduce such buildups.

- ***Non-native plant communities*** are dominated by invasive species such as cheatgrass, tumbleweed and other exotic plants. Cheatgrass germinates in late fall, winter and early spring and cures earlier than native grasses, usually by early June. As the cheatgrass cures, it becomes an available and abundant fuel. Often, fires start within the cheatgrass and spread to other adjacent communities. Subsequently, other plants are exposed to burning earlier in the fire season than they historically would have been. This weakens native plants because they are burned during the peak of their growing cycle, which allows cheatgrass to spread further into native plant communities. This reduces biodiversity and accelerates the fire cycle.

Elk

The Monument is within the home range of an impressive elk herd, the Rattlesnake Hills Elk Herd. The Rattlesnake Hills Elk Herd is identified as a sub-population of the Yakima Elk Herd, which also includes the Cascade Slope Elk Herd (WDFW 2002). The Rattlesnake Hills Elk Herd resides east of the Yakima River and west of the Columbia River in the Rattlesnake Hills region. Archaeological evidence suggests that elk inhabited these areas over the past 10,000 years; however, they have not been found here since at least the mid-1800s based on discussions and writings of Native Americans, early explorers, and settlers. Following their extirpation from Washington, the area was devoid of elk for several decades until the 1930s, when Rocky Mountain elk were brought from Yellowstone National Park in Wyoming and reintroduced to Washington in the Cascade Mountains near Mt. Rainier. Elk were first seen on the Monument (ALE) in 1972 (Fitzner and Gray 1991). This original group of animals was believed to originate from the Cascade Mountains to the west and arrived naturally. Since approximately 1975 (Rickard et al. 1977), the Rattlesnake Hills Elk Herd core range has been the ALE and private land to the south and west (Tiller et al. 2000). Peripheral rangelands include the Hanford Site, the Rattlesnake Hills west of State Route 241, the Yakima Training Center, and southern Grant and western Franklin Counties.

Historically, the Rattlesnake Hills Elk Herd has had a high reproductive rate, averaging an approximate 25% initial annual increase.[48] This reproductive output, coupled with low annual harvest, led to substantial population growth throughout the 1980s and 1990s; by 1998, the population was estimated at more than 800 animals. The increasing herd size prompted multiple concerns, including damage to private agricultural lands, potential damage to fragile resources on the Monument, vehicle collisions and public safety on State Route 240, and increased elk presence within Hanford Site surface contamination areas. Efforts to reduce the herd have had some success. Since 1986, hunting seasons on private lands around the ALE have actively harvested elk. The WDFW has continued to liberalize hunting seasons on adjacent lands in order to reduce the herd and alleviate some of the above concerns. Further, the FWS, along with the WDFW and DOE, have conducted two capture and relocation efforts to reduce the herd. In 2000, 191 animals (primarily cows) were removed and taken to the Blue Mountains in Asotin County and the Selkirk Mountains in Pend Oreille County. In 2002, a smaller capture/relocation removed thirty-two animals to the Spokane Indian Reservation. Both increased hunting success and the capture/relocation efforts, combined with reduced calving rates in recent years, have contributed to the reduction in the elk population from its historic high.

The FWS and WDFW have been cooperatively monitoring the Rattlesnake Hills Elk Herd population on the ALE since 2001. Standardized winter inventories conducted over the last three years have estimated the herd to be 674 (2005), 537 (2006), 681 (2007), and 639 (2008) animals—a four-year average of 633 elk. The 2008 survey showed a 56:67 sex ratio of bulls to cows. Calf recruitment typically adds about ninety animals/year, and annual harvest on lands adjacent to the ALE is between fifty-seventy animals, although this past hunting season likely resulted in over 100 animals being harvested.[49] Additional animals are likely removed by natural or other causes (e.g., killed by vehicles). As the WDFW's current population level goal (post-harvest) for the Rattlesnake Hills Elk Herd is 350 animals (WDFW 2002), the herd is still above the targeted level for management.

Movements of the Rattlesnake Hills Elk Herd have been monitored through tracking radio-marked elk. The Pacific Northwest National Laboratory (PNNL) began annual monitoring of the herd from the late 1970s (shortly after the herd established itself in the Rattlesnake Hills) through the spring of 2001 (Rickard et al. 1977; Eberhardt et al. 1996; Tiller et al. 2000; Tiller unpublished data). The summer of 2001 was the last season of intensive monitoring by the PNNL. At that time, while the distribution of radio-collared elk had remained relatively stable between the 1980s and 2000, increased use of lands south of Rattlesnake Ridge and north of State Route 240 was observed in 1999, 2000 and 2001. Both population growth and the effects of wildfire in 2000 may have played a role in the shift of radio-marked elk movements. It is possible that elk use areas may change again in the future.

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[48] While the birth rate is still quite high, averaging approximately ninety calves per year, the herd size has not seen any substantial growth in recent years. In fact, in some years herd size has trended downward.

[49] Exact harvest levels are unknown at this writing and are based on hunter success reports and landowner permits issued.

The Rattlesnake Hills Elk Herd is a wide-ranging natural herd. Elk have habituated to the use of agricultural lands as agricultural development has encroached on native habitats within their home range in the Columbia Basin. Much of their current range may be attributed to behavioral shifts based on resource availability on the landscape, and it is unknown if herd reduction alone will resolve the current management concerns.

River Flows

The Hanford Reach lies just downstream of the Priest Rapids Dam, which is part of a two-dam hydroelectric project—the Priest Rapids Hydroelectric Project—owned and operated by the Public Utility District (PUD) #2 of Grant County. The project consists of Priest Rapids and Wanapum Dams and is licensed by the FERC as Project #2114. These dams significantly impact flows through the Hanford Reach, although their overall ability to modify flows in the Columbia River is greatly influenced by the operation of larger water storage facilities upstream, such as Chief Joseph and Grand Coulee Dams. These dams, as well as several other federal and privately owned dams on the Columbia and Snake Rivers, have completely altered the flow regime and natural environments of the Columbia River System. For additional discussion of the water flows in the Hanford Reach, see Section 3.3.1.1 in the full CCP/EIS.[50]

Although development of the Columbia River hydrosystem has not eliminated the relatively free-flowing Hanford Reach and its unconstrained alluvial floodplain, it has altered the timing and magnitude of the hydrograph, both seasonally and hourly. The spring freshet has been reduced by storage of higher flood and channel maintenance flows in reservoirs for flood control and for power generation during summer and fall. Hourly regulation of the hydrosystem, which is conducted to meet electrical demand in the region (load following), results in water level fluctuations of six to ten vertical feet in a matter of hours. Flow levels and fluctuations affect the interaction between surface water, groundwater and the associated convergence zones.

These seasonal and daily flow alterations from the natural condition affect the Hanford Reach, although the exact extent of impact is under debate. The rapid and continuous water level fluctuations that occur in the Hanford Reach may have the most significant impact on aquatic

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[50] See all of Section 3.3, Hydrology, in the full CCP/EIS for the hydrologic benefits of dams to the region—flood control, water storage, etc. In addition to these beneficial impacts, dams on the Columbia River also provide for hydroelectric generation, reservoir recreation, barge transportation, and irrigation.

These projects have recently gone through the process of being issued a new license by the FERC. The EIS associated with that licensing provides a full description of the environmental and social impacts, both beneficial and non-beneficial, of these dams on the river, the region, and the nation. This CCP/EIS is only concerned with noting the impacts of the dams on the Monument. However, these dams have impacts reaching far beyond the borders of the Monument, and it is the responsibility of the FERC to address those impacts in the licensing EIS. Please refer to that document for a full discussion of the impacts of the Priest Rapids Dam Complex, including things like the need for electrical power, the benefits to irrigation, the environmental trade-offs associated with replacement power, etc.

species, including benthic macroinvertebrates, anadromous fish, and resident fish (see Section 3.10.1.5.1 in the full CCP/EIS for a discussion of the impacts of river fluctuations on juvenile salmonids). Alternate drying and rewetting of wetlands, riparian zones, and shallow-water habitats limit the production of aquatic plants and invertebrates that are important as forage species for both wildlife and juvenile fish. The stability and productivity of the riparian zone, islands, wetlands, sloughs, backwaters and other shallow-water habitats is a function of streamflow levels and fluctuations; the artificial hydrograph and, to a greater extent, the short-term hourly fluctuations currently compromise the productivity of these habitats, although the degree of impact is unknown. Fluctuations may also be affecting populations of persistent-sepal yellowcress, a rare plant species found in the wetted zone at water's edge. Fluctuations in water levels can also flood bird nests along the island shorelines and well into nesting trees.

Flow fluctuations may also be affecting erosion rates within the Hanford Reach. The daily inundation and dewatering of the inherently unstable soils within the Hanford Reach may exacerbate natural erosion, although this is unproven and additional study is necessary. However, if natural erosion rates are accelerated, there could be several far-reaching implications. Cultural resources would be eroded out of the strata, thereby either losing the resource itself or losing its archeological context. Aesthetics would be negatively affected. Siltation of salmon redds might occur. Water quality would be affected. Finally, the loss of the White Bluffs could be furthered beyond that taking place through landslides. While none of these impacts are proven to be occurring and are not shown to be directly tied to flow fluctuations, further study is warranted.

River fluctuations also affect recreational use of the Hanford Reach. Flow fluctuations have resulted in vehicles parked at boat launches becoming submerged as well as beached boats being swept away. Flow fluctuations either slow or speed human-powered boat trips. High flows may create turbulent conditions, thereby creating a potential swamping situation. Low flows may lengthen trip times to such an extent that some boaters are unable to complete their trip during daylight hours. Daily low flows also create navigational concerns for motor boaters. Daily fluctuations impact aesthetics by occasionally creating a flooded landscape or by creating a "bathtub ring" along the shoreline (i.e., an area where no vegetation grows due to the daily fluctuations). These dewatered areas are also of safety concern from the exposure of algal- and silt-encrusted rocks, which are extremely slippery.

Sites of Concern

As previously noted, the land within the Monument boundary is held by the DOE. However, the eventual, possible planned disposition of the majority of this land area may be to transfer it to the FWS. Prior to the transfer of title, the FWS must be assured, either by outside agencies (e.g., Environmental Protection Agency [EPA] or Washington Department of Ecology [WDOE]) or by internal assessment, that the lands meet FWS standards regarding possible residual contamination and/or physical hazards. While most of the lands within the Monument are considered clean and can be transferred quickly, there are some areas that will remain with the

DOE for the long term (e.g., lands around reactors) or that require additional assessment prior to transfer.

At present, there are approximately fifty of these sites of concern—areas that require additional assessment. Potential contaminant concerns at these sites range from oil spills to prior applications of insecticides such as DDT. In addition, there are concerns over potential physical hazards, ranging from uncapped wells to minor excavations. In some instances, it is likely that limited remediation could return the property to a condition that would be acceptable for transfer to the FWS. For contaminants, all that might be required is excavation of contaminated soils in specific areas and their proper disposal elsewhere. For physical hazards, backfilling holes or providing an appropriate permanent cover might be adequate. Although these sites have been identified as requiring further investigation, an assessment at any particular site could reveal that there are no problems and no further action would be required. Furthermore, many of the concerns are related to resident wildlife with life-long exposure to the site; transitory contact by wildlife or human visitors may not be a health concern.

Islands

There are nineteen islands located in the Columbia River upstream of Richland, Washington, that are managed by the FWS and included within the scope of this plan. Six islands are currently part of the McNary National Wildlife Refuge (McNary Islands); the three islands furthest upstream are actually within the Monument's boundaries. The remaining thirteen are part of the Monument (Hanford Islands).[51] The McNary Islands are located from river mile 341, just north of the Snyder Street Boat Launch in Richland, upstream to the first powering crossing at river mile 351. Upstream of river mile 351 are the thirteen Hanford Islands, which are held in fee title by a mixture of the ACOE, BLM, DOE, FWS and Washington Department of Natural Resources (WDNR). One island (Homestead) is a mixture of federal and private ownership; this CCP applies only to that portion owned by the federal government.

Although all nineteen islands are natural features within the Columbia River, and not man-made through dredging or development, some vegetation on these islands is different than what would be historically present in a natural river setting. Tree species were not historically prevalent; natural flood flows annually scoured these islands, thereby reducing the potential for tree establishment or survival. Likewise, naturally occurring native species are not as abundant on shorelines due to daily fluctuations of river levels as discussed above. Nonetheless, these islands today hold a wealth of sensitive biologic and irreplaceable cultural resources unique to the entire Columbia River system.

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[51] As noted elsewhere, the Monument and the McNary National Wildlife Refuge have been consolidated—along with six other national wildlife refuges—under the Mid-Columbia River National Wildlife Refuge Complex. The result being that all the islands under FWS management are now part of the Mid-Columbia River National Wildlife Refuge Complex and are managed by one office.

Island History

The islands of the Hanford Reach have been used for thousands of years as important dwelling, gathering and food processing places for Native American peoples. In the late 1800s to early 1900s, the islands were also used by homesteaders and river operators. In 1943, all public access to the islands and approximately forty-eight miles of the Columbia River upstream of Richland was closed due to site security and public safety needs associated with construction of the nuclear reactors. In the early 1970s, the Hanford Reach was reopened to public access along its entire length. Although the islands remained closed to the public above the ordinary high water mark, the shoreline areas below this level have been used by hunters and fishermen for more than forty years.

The McNary Islands were withdrawn from the public domain by the Department of the Army for flood control purposes through Public Land Order 606, dated September 13, 1949. The McNary National Wildlife Refuge was established on April 30, 1956. A cooperative agreement between the ACOE and FWS, established in September 1963 and amended in September 1969, provided for the protection and management of islands and shorelines of the Columbia River, including the McNary Islands. Under the cooperative agreement, the FWS would provide "maintenance and management of wetlands resources of and habitats thereon, particularly non-migrating birds, fish, waterfowl, and upland birds." The McNary Islands would also be managed to provide for waterfowl nesting, resting and feeding habitats.

Seasonal public use (July 1 - September 30) occurred on the McNary Islands for several years following the reopening of the river. However, following a lawsuit settlement in 1993, the McNary Islands were again closed to summertime public use in 1994 for the protection of shorebird and migratory waterfowl breeding, nesting and rearing habitat.[52] The five upstream islands remained open to waterfowl hunting. (The downstream island is within the city limits of Richland and hence closed to firearm use.)

While the islands' closure was implemented in 1994, the islands' shorelines have continued to receive public use due to fluctuating Columbia River water levels, which regularly expose the shorelines below the ordinary high water mark.[53] Typical recreational uses of these areas include hunting, fishing, picnicking, camping, waterskiing, sunbathing, swimming and social gatherings. However, these activities are frequently extended beyond the high water mark and into the closed portion of the islands, in particular on Island 19 due to its proximity to a public boat launch and its long, sandy beach. Unfortunately, because the islands are so small, it is easy to significantly affect resources through public use. Impacts on wildlife resources from shoreline activities—especially those that extend above the mean high-water mark—include disturbance

[52] The lawsuit, filed by the NAS and other conservation interests, challenged the FWS compatibility determinations for allowed uses of the islands.

[53] The riverbed and shorelines up to the ordinary high water mark are controlled by the WDNR and are open to public recreational uses.

of colonial nesters (especially during pre-nesting when birds can be disturbed from nesting, as well as later when there are young flightless birds); destruction of bank swallow nesting sites; disturbance to breeding waterfowl; and interruption of foraging and resting activities by a wide range of raptors, passerines, wading birds, waterfowl and mammals. Other impacts include unsanitary waste, littering, fire, noxious weed spread, and unauthorized collecting. Renewed patrols and signing efforts to enforce the court-ordered closure of the McNary Islands were undertaken in 2004, with varying degrees of public acceptance.

Island Wildlife Values

Islands provide important nesting and foraging habitat and escape cover for many species of birds and mammals, including waterfowl, migratory water and shore birds, colonial water birds, neotropical birds, and deer. Nesting on the islands has increased through the years, especially by ring-billed and California gulls. Great blue heron and great egret rookeries have increased on Island 17. Other bird species using the islands include black-crowned night-heron, Forster's tern, Caspian tern, killdeer, pelican, Canada goose, mallard, teal and bank swallow. Foraging species frequenting the islands include white pelican, long-billed curlew, spotted sandpiper, black-necked stilt, and American avocet. Wildlife, such as deer, likely seek out the islands for breeding habitat for safety and security and in order to avoid some mammalian predators. Other wildlife, such as river otter and mink, use the islands extensively.

Shoreline riparian communities are seasonally important for a variety of species. Willows trap food for waterfowl (e.g., Canada geese) and birds that use shoreline habitat (e.g., Forster's terns), as well as provide nesting habitat for passerines (e.g., horned larks). Terrestrial and aquatic insects are abundant in emergent grasses and provide food for fish, waterfowl and shorebirds.

Island Vegetation

Plant communities on the islands consist of very complex terrestrial and aquatic systems, including riffles, gravel bars, oxbow ponds, backwater sloughs, and cobble shorelines that are otherwise rare in the Columbia River today. In order to provide a concise analysis of current conditions on the islands, riparian vegetation classifications have been simplified.[54] Island plant communities have been classified into the following five primary groupings.

Wooded – These are islands with plant communities comprising tree and shrub overstories and forb and grass understories. Shorelines are ringed by shrub species including willow, poplar and mulberry. Tree species are prevalent on shorelines and the interior portions of the island and serve as nesting and roosting habitat for many species, including egrets, herons, hawks, owls and

[54] An extensive survey of riparian plant communities was conducted in 1995 (Salstrom and Easterly, TNC) and has been recently updated by the DOE and PNNL. Current information is synthesized in the 2005 Hanford Site National Environmental Policy Act Characterization.

eagles. Understory species along shorelines include smartweed, sedges, rushes, horsetail, reed canary grass, and barnyard grass. The uplands are primarily cobble or sand dunes and contain a higher percentage of cover than other islands. Upland vegetation includes bulbous bluegrass, sand dock, buckwheat, balsamroot and non-native species including cheatgrass and kochia.

Sparsely Wooded/Shrub – These islands characteristically have shorelines occupied by small groves of shrubs, including willow, poplar and mulberry. Siberian elm, cottonwood and sycamore are present but scattered across the uplands and shoreline. Shrubs and tree species provide hiding, roosting and nesting habitat for a variety of wildlife species. Mature trees, generally mulberry, are used by herons and egrets for rookeries. The uplands consist of sand dunes and cobble. Upland plant communities contain bulbous bluegrass, sand dock, buckwheat, balsamroot, and non-native species, including cheatgrass, Russian thistle, and kochia. Stabilized sand dune soils provide habitat for bank swallow colonies but also provide small stretches of sandy beach that invite public use.

Grass/Cobble – These islands consist primary of cobble and sandy soils that support grass and forb species, with significantly less vegetative cover than the wooded islands. Shoreline areas consist of reed canary grass, smartweed, sedges, rushes, horsetail and barnyard grass. Scattered shrubs may be present along the shorelines but do not contribute to the overall vegetative makeup of the island. The uplands are primarily cobble or sandy soils and include a variety of native and non-native species, such as sand dropseed, Indian ricegrass, sagewort, sand dock, balsamroot, buckwheat, lupine, lomatiums, curlycup gumweed, cheatgrass, willow-herb, Russian thistle, and mullein.

Grass/Cobble/Scattered Trees – These islands are similar in soils and vegetative characteristics to the grass/cobble islands, but they have scattered trees, generally mulberry, which are used by wildlife for nesting and roosting activities.

Cobble/Dune – These islands are composed of mostly bare cobble or silt soils. Shorelines and large portions of the island can be inundated almost daily during the growing season due to water flow manipulation upriver at Priest Rapids Dam (Salstrom and Gehring 1994). Plant species on these islands are similar to the grass/cobble classification, but the vegetation cover is generally less than 5%.

Specific Island Descriptions

Below are brief descriptions of ownership, island morphology, and unique wildlife habitat features of islands within the Hanford Reach. Slackwater areas around Islands 1 through 10 serve as important resting and spawning habitat for Chinook salmon and support a myriad of wildlife species that come to forage during the spring and fall anadromous fish runs. Coyotes, bald eagles, golden eagles, pelicans, cormorants, egrets, and herons are but a few of the wildlife species that utilize these islands throughout the year. These descriptions detail unique features for each island.

Island #1 (WDNR) – Located just south of the Wahluke town sites, the island is sparse/grass and cobble. The island is used by many wildlife species, including deer, geese, ducks, American white pelicans, and double-crested cormorants. The western portion of the island has pronounced cobble shores that are shallow and provide resting and foraging opportunities for many avian species.

Island #2 (BLM) – Island 2 is sparse grass and cobble and used by deer, geese, ducks and pelicans. A unique feature is a lone mulberry tree on the eastern shore that has been used as a great blue heron rookery for the past two years.

Island #3 (BLM) – The island is cobble/dune and used by many species including deer, geese, ducks, pelicans and coyotes. The sand dune features of the island have supported an active coyote den.

Island #4 (WDNR) – Island 4 is cobble with sparse vegetation cover. Shorelines serve as resting and foraging areas for many avian species.

Island #5 (WDNR) – Island 5 is cobble with sparse vegetation cover. Shorelines serve as resting and foraging areas for many avian species.

Island #6—Locke Island (DOE) – Locke Island has a grass/shrub cover type,[55] provides hiding, nesting and foraging habitat for deer, geese, eagles and coyotes. In 2004, WDFW biologists described how coyotes pull salmon carcasses from the shoreline into grass or shrub cover on the upper bench of the island before consuming the fish. The lee and slack-water sides of the island provide foraging habitat for bald eagles, which feed on the "zombies" (i.e., fish that have spawned and are near death in shallow pools near the island shores).[56]

Locke Island is situated at the north end of the White Bluffs Formation on the Hanford Reach of the Columbia River. Renewed landslide activity began in the White Bluffs about 1977, with several small landslides along a two-mile section of the bluff. By 1984, the landslides were a nearly continuous landslide mass. Landslide activity seemed to peak by the mid 1980s, but minor activity is still occurring. As the landslides amassed, the sloughed material was forced into the river toward Locke Island. The landslide mass has partially blocked the river channel on the bluff side and forced the river's path toward Locke Island.

During 1996-97, the river experienced record high runoff which, combined with the partial channel blockage, resulted in major erosion of Locke Island's east bank. The accelerated erosion has affected about 1,500 feet of Locke Island's east bank, with an average width of ninety feet lost. Studies of erosional process on the island resulting from the sloughing have

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[55] Noxious weeds on the island pose a threat to the biological integrity and stability of the island.

[56] Bald eagles prefer to feed on the live fish rather than those that are dead on the shoreline, although they will also scavenge carcasses.

been conducted since 2000. Slough-related erosion has negatively affected vegetation, wildlife habitat, rare plant species, and cultural resources.

Island #7 (WDNR) – Island 7 is sparse grass and cobble and used by many wildlife species including deer, geese, ducks, white pelicans, and double-crested cormorants.

Island #8 (DOE) – The island is sparse grass and cobble and is similar to Island #7. A survey conducted by the Washington Natural Heritage Program (WNHP) has identified this island as a potential reintroduction site for northern wormwood, which is a Washington State endangered plant species and an FWS candidate for listing under the Endangered Species Act (ESA).

Island #9 (BLM) – This island is sparse grass and cobble and is similar to Island #8. This island is also considered a potential reintroduction site for northern wormwood.

Island #10 (WDNR) – Island 10 is sparse grass and cobble and is used by many avian species, including white pelicans, geese, cormorants and bald eagles.

Island #11 (BLM) – This island is sparse grass/shrub vegetation with scattered trees along the shoreline and used by a variety of wildlife. Noxious weeds on the island poses a threat to biological integrity and stability, as well as to rare plant species. Columbia yellowcress—considered endangered by the state of Washington and a species of concern by the FWS—has been mapped on this island in the past; however, recent monitoring suggests that the population of plants has been significantly reduced in this area.

Island #12 (BLM) – This island is similar to Island #11, is sparsely vegetated by grass and shrub species, and is used by herons as a foraging area. Noxious weeds on the island pose a threat to biological integrity and stability, as well as to rare plant species. Columbia yellowcress has been mapped on this island in the past; however, recent monitoring indicates that the population of yellowcress in this particular area has declined significantly.

Island #13—Homestead Island (BLM, WDNR, Private) – This island has mixed ownership and has been affected by past development attempts. Past attempts to convert private lands to orchards altered vegetation on the island; however, following court-ordered restoration work, the island is primarily wooded with cobble uplands and shore on the north end of the island. Homestead Island provides habitat for avian species, as well as deer, coyotes, porcupines and other mammals. In March of 2006, up to 500 sandhill cranes were recorded as using the island as a roosting area. Noxious weeds on the island pose a threat to the biological integrity and stability, as well as to rare plant species. Columbia yellowcress has been mapped on this island in the past; however, recent monitoring indicates that the population of yellowcress in this particular area has declined significantly.

Island #14—Wooded Island (FWS) – Wooded Island is grass/cobble and supports a variety of wildlife, including ducks, geese, pelicans, egrets and great blue herons. This island has been used by local waterfowl hunters. Noxious weeds on the island pose a threat to its biological

integrity and stability and have the potential to spread to other lands as a result of public use of these lands.

Hanford Reach Islands.

Number/ Name	Ownership	Vegetation Cover	Biological Resources, Wildlife Species of Concern; Threats
1	WDNR	Sparse Grass/Cobble	
2	BLM	Sparse Grass/Cobble	Heron Rookery - Mulberry Tree
3	BLM	Cobble/Dune	Coyote Den
4	WDNR	Cobble	
5	WDNR	Cobble	
6 Locke	DOE	Grass/Shrub	Bank Swallow Colony; Noxious Weed Concerns*
7	WDNR	Sparse Grass/Cobble	
8	DOE	Sparse Grass/Cobble	Potential Northern Wormwood Reintroduction Site
9	BLM	Sparse Grass/ Cobble	Potential Northern Wormwood Reintroduction Site
10	WDNR	Sparse Grass/Cobble	
11	BLM	Shrub/Sparse Grass/Scattered Trees	Rorippa; Noxious Weed Concerns
12	BLM	Sparse Grass/Shrub	Heron Foraging Site; Rorripa; Noxious Weed Concerns
13 Homestead	Private/BLM/ WDNR	Wooded (Cobble North Side)	Rorripa; Noxious Weed Concerns
14 Wooded	FWS	Grass/Cobble	Noxious Weed Concerns
15	FWS	Grass/Cobble (Small Satellite Island)	Noxious Weed Concerns
16 Underwater	FWS	Wooded	
17 Johnson	FWS	Grass/Scattered Trees	Potential Northern Wormwood Reintroduction Site; Noxious Weed Concerns
18	FWS	Shrubs/Sparsely Wooded	Multi-species (Gull, Forster's Tern, Great Egret) Nesting/Rookery; Potential Wormwood Reintroduction Site; Noxious Weed Concerns
19	FWS	Shrubs/ Sparsely Wooded/ Dune/Cobble	Bank Swallow Colony; Potential Wormwood Reintroduction Site; Noxious Weed Concerns
20	ACOE	Wooded/ Cobble	Black-crowned Night Heron Rookery; Gull Nesting Colony
21 Nelson	City of Richland	Wooded	
* Noxious Weed Concerns: These islands possess noxious weed populations that would be affected through increased public use activities. The threat of weed movement to other locations through public use is high.			

Island #15 (FWS) – This island is grass/cobble and supports a variety of wildlife, including ducks, geese, pelicans, egrets and great blue herons. A small cobble "satellite" island is used by American white pelicans, great blue herons, and great egrets for foraging. The island has been used by local waterfowl hunters. Noxious weeds on the island pose a threat to its biological integrity and stability and have the potential to spread to other lands as a result of public use of these lands.

Island #16 (FWS) – This island is often referred to in historic management plans as Underwater Island. Daily river fluctuations inundate the lowlands and leave very little of the island visible and usable for wildlife. The island contains shrubs and immature trees on the upland portions and is classified as wooded here. The island is less than one acre in size with less than 25% of the island visible during high flows.

Island #17—Johnson Island (FWS) – The island is grass/scattered trees. Backwater areas of the island have been used by local waterfowl hunters. Noxious weeds, such as purple loosestrife, on the island pose a threat to its biological integrity and stability and have the potential to spread to other lands as a result of public use of these lands. A survey conducted by the WNHP has identified this island as a potential reintroduction site for northern wormwood.

Island #18 (FWS) – This island is sparsely wooded with shrubs on the shorelines. The island is extensively used by California and ring-billed gulls for nesting. Great blue herons, great egrets, and black-crowned night-herons have an established rookery in trees on the east side of the island. This rookery was severely damaged by a windstorm in March 2005, and few trees remain that will provide long-term nesting sites for these birds. The island also supports other avian species, including geese and ducks. A survey conducted by the WNHP has identified this island as a potential reintroduction site for northern wormwood. Noxious weeds on the island pose a threat to its biological integrity and stability and have the potential to spread to other lands as a result of public use of these lands.

Island #19 (FWS) – Often referred to as Third Island by the general public, this island is sparsely wooded with groves of shrubs on the shoreline. Uplands are comprised of cobble and sand dunes and support a variety of wildlife, including bank swallows, geese, ducks, deer, coyotes and porcupines. Shallow cobble shorelines on the northern point of the island are used extensively by pelicans, herons, egrets, and cormorants for foraging. The sand dune structure of this island creates attractive sandy beaches that draw boaters and water skiers; however, the island is closed to all public access year-round. A survey conducted by the WNHP has identified this island as a potential reintroduction site for northern wormwood. Noxious weeds on the island pose a threat to its biological integrity and stability.

Island #20 (ACOE) – Island 20 is wooded with cobble uplands. Directly adjacent to the Snyder Boat Launch in Richland, the island is home to an active heron rookery that supports great blue herons and black-crowned night-herons. Geese, ducks, pelicans and gulls now use the island for foraging and nesting. This island, although outside the management purview of the FWS, directly contributes to the wildlife diversity of the Hanford Reach.

Island #21—Nelson Island – This island is owned by the city of Richland and is the last of the islands identified in the Hanford Reach of the Columbia River. Nelson Island is wooded and supports foraging and nesting habitat similar to that of Island #20. No active rookery has been established on this island due, potentially, to its location adjacent to a high-use city park. This island, although outside the management purview of the FWS, directly contributes to the wildlife diversity of the Hanford Reach.

Island Cultural Resources

The islands were historically used by Native American tribes and contain regionally and nationally significant cultural resources. Recorded archaeological sites tend to demonstrate extensive use by Native American tribes over at least the past 10,000-12,000 years. The majority of site inventories represent a wide range of Native American site types, including pit house villages, campsites, fishing stations, root gathering and resource processing camps, caches, hunting blinds, rock cairns, hearth features, sacred locations, cemeteries, quarries and lithic tool production sites. Resource procurement and processing sites make up the bulk of sites on the islands, with nineteen of the twenty-three recorded pit houses on the Monument in the vicinity of the processing stations. One of these sites contains an extensive array of pit house depressions, one of the largest such villages remaining in the region.

Unfortunately, a cultural resource inventory of all lands within the Monument, including the islands, has not been completed to date. The DOE reports that 1,171 cultural resource sites and isolated finds have been documented on the Hanford Site (DOE 2003). Of these, 575 sites fall within the Monument, with just over half (367) in the Columbia River Unit; it is likely that many of these documented resources are located on the islands. However, because site records reflect various levels and styles of reporting, the database can be difficult with which to work.

Island Salmon Habitat

The islands also serve as an important habitat for salmon—a culturally significant resource for area tribes—for spawning and rearing of juvenile fish. A three-year study conducted by the FWS, United States Geological Survey (USGS), WDFW, Yakama Indian Nation, Columbia River Intertribal Fish Commission (CRITFC), and Alaska Department of Fish and Game shows that fall-run Chinook salmon spawning is concentrated in a number of specific areas scattered throughout the Hanford Reach (Anglin et al. 2005). The majority of known spawning in the Hanford Reach occurs in areas in the upper segment, primarily Vernita Bar (35%); the middle segment from White Bluffs to 100F slough (60%); and the lower segment near Ringold, Homestead Island, and Wooded Island (5%). Spawning habitat in the middle and lower segments of the Hanford Reach has been associated with water depths of six-twelve, water velocities of 4.6-6.6 feet/second, and areas with lateral slopes of less than 4% (Geist et al. 2000). In addition to the observations of shallow-water spawning, spawning beds have also been documented in deep waters (up to thirty feet), but the extent of deep-water spawning has not been quantified (Chapman et al. 1986; Swan 1989).

Impacts on salmon in the Hanford Reach include entrapment of juveniles and dewatering of redds due to river fluctuations, impacts associated with predation by native and non-native species, siltation and disturbance by human activities. Fall-run Chinook typically build their redds in clusters, making large-scale impacts more likely. Impacts on spawning fish, redds and juveniles can be reduced through cooperative management actions.

Section 4

Goals, Objectives, And Strategies

Assumptions and Best Management Practices

The CCP was developed using many assumptions and best management practices (BMPs). These assumptions and BMPs mold the management objectives and strategies, and it is instructional to include them in the stand-alone plan as they define what is to be done in implementing the management goals, objectives and strategies. Assumptions address policy-level management decisions. BMPs are specific management and policy decisions that the FWS has committed to incorporate into management actions, as appropriate.

Assumptions

Development of the CCP and the selected alternative were based on several assumptions, as described below.

Landscape-level Planning

The CCP was developed using a landscape-level planning approach to develop broad short- and long-term management guidelines. This approach defines the uses to occur within each area, delineates the areas open/closed to the public, and provides the reasons an area is opened or closed. Projects and developments proposed under the selected alternative have not been sited, but have been developed at a conceptual level. The landscape-level approach provides few specific details. Instead, it sets the basis for subsequent step-down management plans, which will be developed to provide for site-specific management actions; these plans may address such issues as wildlife habitat management, elk management, cultural resource protection, visitor use, infrastructure development, and transportation systems. Step-down plans would require further analysis of the environmental effects of proposed site-specific projects.

Resource Protection

The selected alternative will be protective of the Monument's natural and cultural resources, although not to the level of other alternatives considered.[57]

Research Projects

Research projects would be allowed in the Monument in accordance with valid existing rights provisions, FWS policy guidelines, and SUP provisions.

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[57] Still other alternatives would have been less protective.

Increased Visitor Use

Visitor use in the Monument will increase at about the same rate as use on other public lands with similar outdoor recreational opportunities. Developing new facilities, such as parking lots, trails, interpretive signs, camping areas, and auto tour routes, will result in an increase in visitor use. Increased public access to, and use of, the Monument will increase the risk of wildland fire, the potential spread of non-native invasive species, and the costs of maintenance and law enforcement services. Furthermore, recreational use will entail some level of adverse effects on natural and cultural resources (Cole 2004a; Cline et al. 2005; Purdy et al. 1987). On the basis of typical public use patterns and management emphasis, it is assumed that the primary effects of public use will be concentrated within 1/4-mile of facilities such as parking lots, trails, interpretive signs, camping areas, and auto tour routes.

Interpretation and Education

Interpretation and education programs, activities, facilities and materials will have beneficial effects on Monument resources by increasing public awareness of, and appreciation for, these resources; informing visitors about proper resource use; and instilling a sense of stewardship in both visitors and the regional public. An Interpretation and Education Plan (step-down plan) will develop specific themes to address the full spectrum of resource issue areas (e.g., wildlife, vegetation communities, habitat characteristics, microbiotic crust, wildland fire and its effects, habitat connectivity, non-native invasive species, cultural resources, leave-no-trace ethics). Additionally, interpretation and education materials will be developed targeting groups engaging in specific recreational activities (e.g., hunting, fishing, wildlife observation, photography) to provide these users with useful and pertinent information, such as low-impact techniques, success rates, typical visitor use patterns, existing rules and regulations, annual and seasonal changes, access conditions, and other relevant communications.

Effects on Wildlife

Human activities affect animals through four primary mechanisms—exploitation or harvest through hunting, disturbance, habitat modification, and pollution (Knight and Cole 1995a; Knight and Cole 1995b). In general, most hunting management programs assume that hunting mortality to wildlife is compensatory mortality, rather than additive mortality. Compensatory mortality is defined as mortality within a population that would have taken place via some other source of mortality, therefore total mortality remains equal at the population level. Additive mortality is defined as mortality that is additional to other sources of mortality at a population level, therefore mortality caused by additive sources would add to total mortality at the population level. Hunting programs assume that at a population level there is a "harvestable surplus" of individual animals that can be harvested as compensatory mortality rather than additive mortality.

In many cases, human harvest via a hunting program substitutes for historical sources of natural predation that have been modified or reduced by humans. The removal/elimination of large predators in many areas has allowed populations of some prey species to increase. Hunting programs can mimic the ecological role that large predators once served, in both removing a segment of the population and also causing disturbance and animal movement. Hunting is not a direct ecological substitute for predators, however, as predators would naturally remove the sick, weak, or injured animals, whereas hunters often target the healthiest, largest animals for removal. Yet, in the absence of many large predators, hunting may provide some population-level regulation, as well as a source of disturbance that modifies animal use patterns and behavior within certain sites or areas.

It is assumed that effects specific to the Monument will occur primarily through disturbance and habitat modification, with additional effects anticipated from non-point source pollution such as litter, car exhaust, and marine engine emission.

A variety of animal behavior responses could result from human activity, depending on a range of variables associated with the activity. Examples of such variables include type, distance, direction of movement, speed, predictability, frequency, magnitude and location of the activity (Knight and Cole 1995b). Wildlife disturbance can precipitate behavioral changes, such as avoidance, habituation, or attraction (Knight and Temple 1995). Disturbance of wildlife species that habituate to human use tends to be greater when recreational activities occur away from established use areas such as parking areas and trails (Cole 2004a; Gutzwiller et al. 1994; Gutzwiller et al. 1997; MacArthur et al. 1982; Riffell et al. 1996). Conversely, disturbance effects may be somewhat minimized by establishing designated sites and routes for visitor activities in relation to such species (except for habituation, which is a disturbance response, and which would be exacerbated in established use areas). Physiological responses can include the "fight or flight" response, with elevated heart and respiratory rates, or the "freeze" response, with inhibition of activity and reduced heart and respiratory rates. The implications of disturbance are often heightened during sensitive life stages, such as breeding, overwintering and rearing of dependent young. Depending on the disturbance variables listed above, the long-term effects on individual animals can be altered behavior, reduced vigor, lower reproductive success, and/or death (Knight and Cole 1995a).

Human activities can also alter the suitability of an area as wildlife habitat. For example, effects on soils can alter the presence and characteristics of vegetation, in turn influencing the suitability of the site to serve as habitat for wildlife species that are dependent on a particular assemblage of species or particular vegetative structure (Youmans 1999). Moreover, habitat suitability for prey animals affects the habitat's suitability to support predators.

Effects on Vegetation

Effects on vegetation from visitor use occur primarily through trampling. Trampling of vegetation bends, weakens and breaks leaves and branches and damages photosynthetic surfaces, seed production, and carbohydrate reserves, eventually killing some species (Douglass et al.

1999). Trampling and resultant soil compaction and erosion can expose roots and kill plants (Cole 2004b), providing an opportunity for weed invasion. Depending on soil type, vegetation cover, topography and use intensity, effects on soils resulting from visitor use include compaction, reduced water infiltration, increased runoff and erosion potential, and inhibited seed germination and plant growth (Alessa and Earnhart 2000; Cole 2004b). The greatest effects of trampling typically occur at the initial impact, even if it is of low intensity; these effects increase incrementally with levels of use (Leonard et al. 1985).

Spread of Non-native Invasive Species

The presence of non-native invasive plant species can alter ecosystem structure and function; disrupt food chains and other ecosystem characteristics vital to wildlife; and dramatically modify key ecosystem processes, such as hydrology, productivity, nutrient cycling, and fire regime (Brooks and Pyke 2001; Mack et al. 2000; Randall 2001). Such species can displace native species; reduce forage and cover for wildlife; and increase the rate, intensity and severity of wildfire.

Some weed species, such as yellow star-thistle, render large blocks of land unusable for many wildlife species. Due to the sharp needle-like spines that radiate from the plant, some animals avoid these areas or suffer physical injury when passing through infested sites (Callihan et al. 1989). Other habitats are lost through the spread of weed species, such as Russian knapweed, which expands through underground root systems, thereby altering native plant community structure and reducing forage availability. Some weed species (e.g., knapweed) contain allelopathic agents that sterilize the soils around them and do not let native species grow within their zone of influence (Beck 2003).

Recreational uses can spread invasive species by varied mechanisms—such as transport on recreational equipment, clothing and footwear—and through equestrian uses, either in fecal material or in feed. Vehicle undercarriages can rapidly collect and distribute weed seeds (Montana State University Extension Service 2002).

Successful management of noxious weeds requires the development of a long-term strategic plan, incorporating prevention programs; educational materials and activities; and sustainable, long-term, integrated approaches that improve degraded plant communities, enhance the integrity of the ecosystem, and prevent re-invasion or encroachment by other noxious weed species (DiTomaso 2000).

Wildland Fire and Fire Suppression Activities

Fire is a major disturbance component of the Monument's ecosystems. Although natural fires (e.g., lightning strikes) do occur in the area, the vast majority of fires are of human origin. Fire can affect native ecosystems by changing fuel properties, which in turn influences fire behavior

and fire regime characteristics such as frequency, intensity, extent, type and seasonality (Brooks et al. 2004).

Fire in high-quality shrub-steppe habitats generally burns in a mosaic fashion. Historically, fires on the Monument were smaller in size because there were large spaces between bunchgrass plants. These interspaces would naturally have been occupied by microbiotic crust or bare soil. Fires normally did not burn for long periods due to a lack of continuity in fine fuels. Following lightning fires, vegetation in these areas would quickly regrow, reestablishing habitat connectivity.

Present-day fire regimes, however, have changed, and the destruction or degradation of habitat connectivity often results from catastrophic wildfire events where non-native invasive species are prevalent in shrub-steppe plant communities. Species such as cheatgrass occupy the interspaces between native shrub and bunchgrass species; the presence of such invasive species contributes to the overall fuel loads in these communities, causing rapid fire spread, increased fire intensity, and prolonged duration (D'Antonio and Vitousek 1992). Such fire has a major adverse effect on habitat connectivity. These unnatural fire events threaten to degrade plant community structure and function (D'Antonio and Vitousek 1992), decrease ecotones and edge effect, diminish plant community connectivity, and increase the spread of non-native invasive species.

Fire suppression activities can have moderate to substantial direct effects on upland habitats through the creation of firelines and erosion. These effects can be mitigated through Burned Area Emergency Stabilization and Fire Rehabilitation (BAER) actions, but the effects take time to remedy, especially in arid climates such as the Monument's. Emergency use of equipment (e.g., disking) for fire suppression has the potential to affect upland habitats by clearing vegetation and microbiotic crust, in turn increasing the risk of erosion and the invasion of non-native species. Effects caused by fire suppression activities can be mitigated through pre-suppression planning, adherence to initial attack stipulations, use of existing firebreaks and roads to confine and contain wildland fire, and proper implementation of rehabilitation treatments.

Cooperative Agreements

Where possible and beneficial towards achieving Monument management goals and objectives, the FWS will develop partnerships and cooperative working agreements with other federal, state, county and/or private entities.

NEPA Review

All proposed actions would be subject to review under the NEPA prior to implementation, and all actions would require a complete cultural resources review at the applicable level that could also be used to support NEPA review.

Regulatory Compliance

The FWS will follow all pertinent federal legislation, regulations, executive orders, and FWS policies regarding the protection and preservation of natural and cultural resources.

Tribal Consultation and Coordination

All appropriate and necessary consultation with tribes will be undertaken prior to implementing any action. Two Executive Orders (Executive Order 13007, Sacred Sites, and Executive Order 13175, Tribal Consultation and Coordination), as well as the Archaeological Resources Protection Act, NHPA and NEPA and have specific references/requirements for coordination and consultation.

Best Management Practices

In order to protect the Monument's unique resources—and avoid or mitigate environmental impacts from actions—the FWS is incorporating numerous well-accepted BMPs in this CCP.

Avoidance of Sensitive Resources

Visitor activity centers, visitor facilities, and both non-vehicular and vehicular travel routes will be sited to minimize effects by avoiding sensitive natural and cultural resources. Potential adverse effects from visitor use will be further minimized through closures or special restrictions at sites with seasonal protection needs or sites vulnerable to or experiencing resource damage. Group size limitations may be used for specific sites or activities as needed to protect sensitive resources. Visitor use will be managed using informational signs, educational materials, trails, protective devices, and law enforcement patrols. Because many threatened, endangered and sensitive (TE&S) species migrate through the Monument, construction projects and public use patterns will be scheduled seasonally to avoid adverse effects.

Proper Use of Chemicals in Controlling Non-native Species

The use of chemicals to control non-native invasive species will be conducted in accordance with EPA laws and regulations, FWS policy, and label directions. Pesticide Use Proposals (PUPs) will be completed annually and approved at the local, regional, or national level as required by FWS policy.

Implementation of Integrated Pest Management Plan

The Monument's IPM plan for invasive plant species control (*Invasive Plant Species Inventory and Management Plan for the Hanford Reach National Monument* (2008)) prescribes a

methodology for treatment that includes inventories and population mapping, assessments of risk, prioritization of treatments, integrated treatment implementation, and effective monitoring. This approach considers direct effects on soils, vegetation, watershed function, and biodiversity in all treatment recommendations. In sensitive plant communities, the use of multiple tools (e.g., chemical, biological, cultural, mechanical) may be necessary to prevent weed invasion and spread, as well as disturbance of soils and plant community structure and function. Use of biological control agents (e.g., insects, microorganisms, pathogens) for control of non-native invasive plant species will be implemented in accordance with FWS policies only after such organisms have been subjected to testing and evaluation by the USDA and approved for release.

Established populations of non-native invasive plants—such as yellow star-thistle and rush skeletonweed, and knapweed—will require extensive integrated treatments to control. Each weed treatment will be conducted in accordance with the IPM plan and in accordance with stipulations set forth in annual PUPs. Additionally, SUPs for activities, such as research projects and commercial tours, will include stipulations designed to prevent the spread of invasive species. Because many components of resource management incorporate methods of invasive species control, some of which are highly visible and potentially controversial (e.g., controlled burns, aerial spraying), information and education will be used to inform the public about the IPM program.

Restoration Activities

Native seeds and/or plants derived from the Columbia Basin will be used as a priority for all planting/restoration projects in the Monument. Providers of native seed or native plants to the Monument will provide documentation for the origin of seed or plants and will also, in the case of seed, provide certification that the seed provided to the Monument is free of noxious weed contamination. These requirements will be included in any scope of work prior to contracting the production and supply of plant materials. Plant materials may be refused if they do not meet these requirements. Occasionally, small amounts of seed will be collected from the Monument to be provided to plant nurseries and grown into seedling plants to be replanted onto the Monument. In these cases, Monument staff will supervise the selection of species for collection and the actual collection of seed from plants on the Monument. Seed collection needs for species and amounts will be based on annual restoration and rehabilitation needs. Seeds will be collected during the appropriate season as dictated by plant species phenology, and the parent plant will not be damaged or harmed in any way during seed collection. Seed will be collected from no more than 20% of individuals within a population, and no more than 50% of the total seed production from individual plants will be collected annually.

Data Collection, Monitoring, Adaptive Management

Inventories will be conducted to obtain data related to habitat conditions; wildlife populations and habitat requirements; restoration treatment locations, timing and effectiveness; resource protection measures; invasive species control; TE&S species; and other areas of management

concern. Resource information will be collected using global positioning satellite (GPS) technology, permanent monitoring plots, point counts, and pedestrian transect surveys. The information collected will be used to improve existing data sets, mapping and scientific knowledge concerning species, habitats, restoration needs, treatment effectiveness, land disturbance events, and other areas of concern.

Existing and new fish, wildlife, water and vegetation monitoring programs will be conducted by Monument staff, volunteers, or cooperators to support adaptive management. These programs will entail monitoring and evaluation of habitat management and restoration activities, TE&S species, and public uses. Periodic monitoring (every five-seven years) of priority sensitive plant communities will be conducted in permanent monitoring plots.

Adaptive management is an approach to resource management that emphasizes adjusting management practices in response to what has been learned. Adaptive management decisions are based on the best available science, common sense, experience, experimentation, new scientific discoveries, and monitoring. Where possible, Monument projects will be designed to contribute to the body of knowledge, as well as to meet specified resource objectives.

Cultural Resource Inventories

Prior to implementation of any ground-disturbing projects, the applicable cultural resource compliance investigation will be undertaken. This investigation may entail a literature review, records search, field survey, and tribal consultation. If cultural resources are present, appropriate procedures will be implemented to protect them as per federal laws and FWS policies and guidelines.

Fire Management

Fire management activities will conform to guidelines set forth in FWS policy and the approved Fire Management Plan for the Monument. Wildland fire will be suppressed when possible; suppression techniques will be designed to minimize surface disturbance in the vicinity of sensitive resources. Fire control policies will be implemented to reduce the risk of human-caused wildland fire.

Facility Design and Aesthetic Considerations

Landscape design standards will be developed to protect the Monument's natural beauty, scenic vistas, and cultural heritage and to ensure that all site developments and facility improvements contribute to, rather than detract from, aesthetic appeal. Facility design and placement will be carefully planned with landscape integrity in mind. Future interpretive sites and signs will be designed to have an unobtrusive profile, with framing and supports that blend with the environment. Visitors will be encouraged to use natural-colored equipment where appropriate.

Overview of Goals

Establishing goals for how to manage the Monument was the first step in identifying specific management actions; goals identified and focused management priorities and provided a link between management actions, the Monument Proclamation, legal requirements, and FWS policies and procedures. Ultimately, the goals work towards realizing the Monument's vision and purposes and provide the framework for sound and defensible management decisions. The management goals developed for the Monument, their implementation, and the management plan they fulfill will honor valid existing rights and comply with FWS policies and procedures, the Monument Proclamation, applicable laws, and court decisions.

The FWS identified ten management goals for the Monument.

1) Conserve and restore the plants, animals and shrub-steppe and other upland habitats native to the Columbia Basin.

2) Conserve and restore the communities of fish and other aquatic and riparian-dependent plant and animal species native to the Monument.

3) Enhance Monument resources by establishing and maintaining connectivity with neighboring habitats.

4) Protect the distinctive geological and paleontological resources of the Monument.

5) Protect and acknowledge the Native American, settler, atomic and Cold War histories of the Monument, incorporating a balance of views, to ensure present and future generations recognize the significance of the area's past.

6) Compatible with resource protection, provide a rich variety of educational and interpretive opportunities for visitors to gain an appreciation, knowledge and understanding of the Monument.

7) Compatible with resource protection, provide access and opportunities for high-quality recreation.

8) Protect the natural visual character and promote the opportunity to experience solitude in the Monument.

9) Facilitate research compatible with resource protection, emphasizing research that contributes to management goals of the Monument.

10) Establish and maintain a cooperative fire management program that protects facilities, resources and neighbors and fulfills natural resource management objectives.

Overview of Objectives

Objectives are incremental steps taken to achieve a goal. They are outcome-oriented and focus on what is to be achieved on the Monument. Objectives were derived from the Monument goals and provided a foundation for determining strategies and will be the basis for monitoring accomplishments and evaluating success. Otherwise stated, they are the foundation for "adaptive management," form the basis for management actions, and are key to effective management on the Monument. FWS policies for writing CCPs require a narrative (rationale) to support each objective, along with strategies to achieve the objective.

It should be noted that the indicated numbers that follow (acres, miles, facilities, etc.) are targets and, in most instances, indicate a maximum. Actual accomplishments in any given time frame may vary according to funding, available staff, outside factors, public needs, etc.

Management Goals, Objectives and Strategies

Objectives Common To All Goals

Following each objective identified and defined in the pages to follow is the FWS rationale for the objective(s). In some instances, strategies for implementing the objective(s) are also defined.

Objective C-1: Government-To-Government Consultation

Establish a regular schedule of government-to-government meetings with Native American Tribes.

Rationale

Four federally recognized Native American tribes (Confederated Tribes of the Colville Reservation [CCT], Confederated Tribes of the Umatilla Indian Reservation [CTUIR], Nez Perce Tribe, Yakama Indian Nation [Yakama Nation]), as well as the Wanapum People, have used the lands comprising the Monument since time immemorial. Their culture, including much of their religion, is tied to the land and its resources. By law, the FWS is required to consult with the tribes on matters that impact either the tribes or the resources that they depend upon. Apart from the legal need for consultation, staff and management of the Monument strongly believe in ongoing consultation with the tribes. As such, the FWS should establish a regular schedule of meetings with the tribes, both to inform the tribes of Monument activities and to seek their input on matters that impact the tribes.

Objective C-2 and Objective C-3: Partnerships

Recognize and cooperate with tribal, state and local governments, and federal agencies in the discharge of statutory responsibilities.

Enhance relationships and partnerships with community organizations and neighbors furthering management goals.

Rationale

If viewed from overhead, it is readily apparent that the Monument is an island surrounded by man's alterations of the landscape. For the most part, the Monument is bounded by agricultural fields. However, even this landscape is rapidly changing. The small cities and communities that dot the landscape are experiencing one of the highest expansion rates in the country. All of this leads to the inevitable conclusion that the Monument must recognize these outside influences and its role as part of the larger community of eastern Washington. It is imperative that the Monument be a 'good neighbor,' working with the other agencies, governments, economies, businesses and people to protect and preserve a portion of the shrub-steppe ecosystem that once blanketed the Columbia Basin.

Objective C-4, Objective C-5, Objective C-6: Valid Existing Rights

Foster, support and respect cooperative partnerships that preserve valid existing rights while protecting the purposes of the Monument.

Hold annual meetings with valid existing rights holders to discuss common issues.

Within one year of the CCP being adopted, evaluate operations and maintenance procedures of valid existing rights holders and begin to implement agreed changes to ensure protection of Monument resources.

Rationale

The staff and management on the Monument are committed to being a functioning, vibrant part of the community. Part of that good-neighbor policy is cooperating with those agencies, organizations and individuals that hold valid existing rights to operate on the Monument, rights which were guaranteed in the Monument Proclamation. Ensuring that these rights are exercised in a manner which benefits the holder while protecting the natural, cultural, aesthetic and recreational resources of the Monument will be one of the challenges facing the Monument. Meeting this challenge begins with establishing—continuing—open communication with holders of existing rights.

Objective C-7: Citizen Involvement

Within the first year of the CCP being signed, begin to develop an ever-evolving program to involve area residents, businesses and organizations in the management and protection of the Monument.

Rationale

Many opportunities for volunteers currently exist, and many more will be created as Monument facilities are developed and restoration efforts continue. With limited staffing, the Monument would benefit by establishing a volunteer base that demonstrates the ability to assist with education programs, special events, and habitat improvement projects. A volunteer coordinator must be identified, and outreach to the local community seeking volunteers would need to be organized.

While the large majority of Monument visitors follow rules and regulations, a very small minority of visitors do not. A Monument Watch program could enhance the law enforcement program by providing a forum for local landowners and regular Monument visitors who may observe inappropriate or illicit behavior on the Monument. A Monument Watch program would reduce the number of violators through increased surveillance, benefitting natural and cultural resources, taxpayers investment in visitor facilities, and visitor experiences.

Strategies

There are numerous strategies that might be implemented to involve others in assisting with protection of the Monument. While the implementation and timing of any one of these strategies—or entire programs, such as the Monument Watch described below—may vary according to the alternative chosen, all are feasible over the life of the CCP. Strategies to consider include:

- Developing a volunteer program to facilitate assistance with resource protection and environmental education efforts.
- Chartering a "Friends of Hanford Reach" and recruiting new members that have the skills to assist with environmental education and interpretation programs.
- Producing and distributing a seasonal volunteer newsletter.
- Creating and distributing informational materials, forms, releases, etc., on volunteer opportunities.
- Highlighting volunteer activities on the Monument web site.
- Identifying a staff member to serve as the volunteer coordinator.

- Working in coordination with the WDFW and local law enforcement officers and developing guidelines for a Monument Watch program, modeled after the community Neighborhood Watch program.

- Developing an outreach plan for the Monument Watch program, targeting neighboring landowners and communities, user groups, and Monument visitors.

Objective C-8: Staffing

Within the life of the CCP, recruit a professional staff to fully implement the CCP, fulfill the Monument Proclamation, and protect the outstanding natural, cultural, aesthetic and recreational resources of the Monument.

Rationale

Managing a national monument requires a significant variety and depth of personnel, as is reflected by the extent of this CCP. The specific needs—i.e., blend of disciplines and functions—will vary with the final management alternative chosen. The table on the following page outlines the different personnel needs for each alternative. It also points out the year following signature of the CCP that the staff person would need to be added to fully implement the CCP as envisioned; delays beyond that would likely mean that the objective would not be fully implemented or completed within the life of this CCP.

Objective C-9: Wildlife Population Control

Within the life of the CCP, manage, control, or remove populations that threaten or affect Monument resources, public safety, or private property.

Rationale

As populations expand, some species may cause adverse effects on habitat biodiversity, habitat connectivity, and plant community stability; facilitate the expansion of non-native invasive species; become a nuisance to the general public; increase threats to public safety; and/or affect privately owned lands and agricultural crops. Adverse effects can also include displacement and predation of other wildlife species, as well as disease transmission.

Strategies

Control of wildlife populations will be conducted as needed on the basis of scientific resource management data. Wildlife population control efforts may use both non-lethal and lethal methods. Control methods will be used to reduce populations to a level consistent with species management objectives and in a manner that controls target populations without impairing Monument resources.

Monument Staffing Needed To Fully Implement Alternative C-1.

Position	P/T[1]	Grade	Year		Position	P/T	Grade	Year
Project Leader	P	GS-14	0		Fire Management Officer	P	GS-12	0
Deputy Project Leader	P	GS-13	0		Asst. FMO	P	GS-11	0
ROS	P	GS-9	1		Supervisory Range Tech	P	GS-8	0
Supervisory Biologist	P	GS-12	0		Supervisory Range Tech	P	GS-8	1
Wildlife Biologist	P	GS-11	0		Crew Leader	P	GS-8	0
Wildlife Biologist	P	GS-11	3		Crew Leader	P	GS-7	0
Wildlife Biologist	P	GS-9	5		Range Tech	T	GS-5	0
Fisheries Biologist	P	GS-11	5		Range Tech	T	GS-5	0
Biological Tech	T	GS-5	3		Range Tech	T	GS-5	0
Biological Tech	T	GS-5	5		Range Tech	T	GS-5	0
Archeologist	P	GS-12	0		Contaminants Specialist	P	GS-12	0
Historian	P	GS-9	0		Volunteer Coordinator	P	GS-9	2
Geologist	P	GS-9	7		LMRD	P	GS-13	0
Cultural Resources Tech	P	GS-9	0		Planner	P	GS-12	0
Supervisory ORP	P	GS-12	0		GIS Specialist	P	GS-11	1
ORP	P	GS-11	1					
ORP	P	GS-9	3					
Education Specialist	P	GS-12	2					
Interpreter	P	GS-9	2					
Supervisory Maintenance	P	WG-10	0					
Maintenance Worker	P	WG-9	0					
Maintenance Worker	T	WG-7	0					
Maintenance Worker	T	WG-5	0					
Administrative Officer	P	GS-11	0					
Automation Clerk	P	GS-9	0					
Automation Clerk	P	GS-5	2					
Automation Clerk	T	GS-5	4					
Purchasing Agent	P	GS-9	0					
Law Enforcement Officer	P	GS-11	0					
Law Enforcement Officer	P	GS-9	1					
Total Positions	45							
[1] P = Permanent, T = Term								

Population control methods may take several forms. In many instances, no single population control tool will fully achieve population targets, so a variety of tools must be available to provide resource agencies with the flexibility to reach desired population targets or male/female ratios. These methods are discussed below. As the exact need or use of any of these methods is unknowable at this junction, any implementation may require additional NEPA review.

Biological Control. *Biological control* typically involves the introduction or re-introduction of one species that is either a predator of the target species, is a disease organism, or competes with the target species so as to control its numbers. Natural predation, described below, is one form of biological control. Outside of insect species, it is often difficult, if not impossible, to find a biological control that does not impact other, non-target species.

Chemical Control. *Chemical control* involves the use of chemicals, usually some form of pesticide, to kill or sterilize individual animals. Few chemicals are species specific, however, so it is often extremely difficult to implement chemical control in an open landscape. Repellants are also a form of chemical control and can be effective on a small scale.

Contraception. *Contraception* manages populations through the latest contraceptive technologies to safely prevent reproduction for as long as possible and with minimal treatments per animal. Although these methodologies are humane, they can be very expensive to administer and may be ineffective for some species.

Controlled Hunting. *Controlled hunting* entails a limited number of permitted hunters under the direct control of FWS personnel—and in coordination with the DOE, WDFW, Native American tribes, and sports groups—organized into hunting teams outside the normal hunting season to achieve population control objectives or to take animals that are causing damage.

Fencing/Physical Barriers. *Fencing*, while being very effective on a single species, of course impacts other, non-target species. Fencing also has the disadvantage of being extremely expensive for large, wide-ranging species such as elk. Other physical barriers, such as 'beaver deceivers' or Thurber baffles can be effective for specific locations and/or on specific species.

Government Culling. *Government culling* entails shooting or trapping targeted species by trained government personnel. Use of trained personnel can accomplish population control measures while protecting other natural resource values. This method has the benefit of requiring few agency personnel to administer.

Habitat Manipulation. *Habitat manipulation* involves altering the habitat requirements of one or more lifecycle stages of the target species in order to reduce its population. However, few species have habitat requirements so unique to that species that unintended impacts to other species can be avoided.

Hazing. *Hazing* uses aircraft and ground-based personnel to move problem wildlife using herding techniques. Hazing has proven to be effective in moving animals from areas where they are creating problems or damage.

Natural Predation. *Natural predation* to control population numbers, insofar as it is possible, is desirable and would be encouraged under all alternatives. Some predators are protected by special rules on FWS-administered lands and are not hunted in order to maintain a balanced predator/prey relationship.

Trap and Relocate. *Trap and relocate* involves the live capture, removal and relocation of target species. A variety of techniques exist that are effective under different specific conditions.

- *Drive trapping* entails the herding of larger ungulates by aircraft into corrals for subsequent relocation.

- *Live traps* may be used for capture and transport of small to medium-sized animals.

- *Helicopter net gunning* uses contract helicopter services and experienced net gunners and ground crews. The helicopter locates a target animal, and an experienced net gunner shoots a large net over the animal. Net gunning has the least effect on soils and vegetation, is a highly mobile technique, but is expensive for population control. However, benefits for the protection of Monument resources may offset initial costs.

Goal 1: Conserve and restore the plants, animals and shrub-steppe and other upland habitats native to the Columbia Basin.

Objective 1-1: Protect High-Quality/Sensitive Shrub-steppe Plant Communities

Throughout the life of the CCP, 86,057 acres of existing high-quality, functional shrub-steppe plant communities (native plant species assemblages) will be protected and/or maintained. These areas are characterized by 10-25% native shrub cover (e.g., sagebrush species, spiny hopsage, antelope bitterbrush, winterfat, black greasewood), at least 20% native grass cover as the dominant species in the understory, and a low incidence (less than 20% cover) of non-native species. A mosaic of successional stages will be maintained while retaining structure, function and condition within these sensitive communities. Priority areas for maintaining plant communities will be identified based upon the following factors:

- *Areas that are adjacent to one another to increase landscape connectivity.*

- *Areas that are important habitat for resident and migratory wildlife species, or areas that have known records of use by sensitive wildlife such as sage grouse, sage sparrows, loggerhead shrikes, sagebrush lizards, sagebrush voles, and ferruginous hawks.*

- *Areas that are large (≥200 acres), that represent unique habitat features, or that are of exceptional habitat quality.*

- *Areas that contain plant communities representing the foundation shrub-steppe plant communities of the Columbia Basin—communities that have been diminished throughout their range due to past and present land management practices (e.g., grazing, urbanization, agricultural development, wildfire), including those plant communities identified as "element occurrences" by the Washington Natural Heritage Program (WNHP) and serve as representations of native plant communities in relatively undisturbed (historic) condition.*[58]

Unit	Alternative C-1 (Acres Protected)
Columbia River	9,568
Rattlesnake	50,505
Ringold	1,074
Saddle Mountain	3,490
Wahluke	21,420
Total	***86,057***

[58] From the WNHP:

The condition is determined by the relative importance of native versus non-native species, extent and nature of human-caused disturbance, and how well the occurrence represents the ecosystem type definition. Viability is determined by size of the area and landscape setting. Minimum criteria for an occurrence of an ecosystem:

1) *Native plants dominate the site: tree layers composed of only native species.*

2) *Little or insignificant disturbance to vegetation by logging, conversion to agriculture, heavy grazing, residential development, or other human extractive activities that alter the ecosystem processes.*

3) *Large enough for minimal viability and ecological function: at least 100 acres for forests in the montane provinces and at least four average tree heights wide at its narrowest width, at least 20 acres for forest in the Puget Lowlands, and at least 10 acres for native grasslands.*

The degree to which these criteria are applied to a site depends on characteristics of the particular ecosystem types present. Some ecosystem types are found almost exclusively as small patches, perhaps in areas smaller than in criterion 3. In this case, meeting criteria 1 and 2 would be sufficient. Large but moderately disturbed ecosystems representative of types that have been altered throughout their range because of various land uses may need only meet criteria 1 and 3.

Rationale

Plant communities—a term referring to the generally recognizable assemblages of plant species that occur in patterns across landscapes—are important and useful indicators of biodiversity, as they form the biotic component of the habitat used by most other organisms. Different types of plant communities, and even different successional stages of a single plant community, provide distinctly different habitats. Conservation of the full range of native plant communities is therefore of fundamental importance for the conservation of regional biodiversity. Many of the rare and declining shrub-steppe dependent species in the lower Columbia Basin Ecoregion rely for part or all of their life cycle on particular shrub-steppe plant communities.

The Monument contains both large expanses of common communities in good ecological condition and examples of less common ones that are not well protected elsewhere in the region. Many of the existing plant communities have been ranked as either: 1) important locally or state-wide; or 2) globally significant because of their rarity or due to factors making them very vulnerable to extirpation and extinction.

The Monument contains many endemic plant communities and species that have been lost or significantly reduced throughout all or a significant portion of their range. Nearly everywhere else, livestock grazing, urbanization and agricultural conversion have fragmented native shrub-steppe or drastically reduced its extent and quality.

Sensitive plant communities have been defined as those that: 1) are foundation plant communities within the Columbia Basin Ecoregion and have been identified as either state ranked, globally rare, or ecologically significant within western shrub-steppe environments; 2) have been significantly diminished throughout their range due to past and present management actions (e.g., grazing, agricultural development, urbanization, wildfire) and serve as important habitat for resident and migratory wildlife species; and 3) could be significantly damaged or lost through major disturbances (i.e., wildfire) and require some additional protection considerations within the CCP. This loss would be significant within the context of regionally important plant communities for the long-term survival of wildlife species and potential reintroduction sites for listed species.

In addition to those areas identified as "element occurrences" by the WNHP, the Monument has identified sensitive plant communities through vegetation mapping efforts. These communities are defined by a high abundance and diversity of native plants, a low incidence of non-native species, and records of use by sensitive wildlife species characteristic of shrub-steppe habitats. Significant disturbance within these plant communities would lead to the rapid spread of non-native invasive species that would further threaten their ecological integrity and importance for effective wildlife habitat.

Strategies

- Minimize any ground disturbing and management activities that disturb the soil surface.

- Revegetate with native plant species materials in areas where ground disturbing activities cannot be avoided (see shrub-steppe restoration objective).

- Control the effects of noxious weeds and non-native invasive species within these plant communities by continuing to inventory and control non-native plant species according to the Integrated Plant Species Inventory and Management Plan (IPSIMP; 2003).

- Prevent wildland fire, when possible, and limit size of wildland fires. Use Minimum Impact Suppression Techniques (MIST) and resource advisors on scene to limit impacts to sensitive plant communities. (Refer to the Fire Management Plan).

- Implement emergency stabilization and rehabilitation actions within three years of wildland fire impacts, including soil stabilization, cultural resource protection, non-native invasive species control, native seeding and planting, effectiveness monitoring, and threatened and endangered species stabilization actions, to maintain and improve perennial bunchgrass communities.

- Conduct periodic (every five to seven years) monitoring of high-quality vegetative communities in permanent monitoring plots established by a Biodiversity Inventory and the Biological Resources Management Plan.

- Install monitoring plots in those plant communities where permanent monitoring plots currently are not established to track potential changes.

- Continue to document, map and refine current geographical information systems (GIS) data base on vegetation condition on the Monument.

Objective 1-2: Protect Dense Sagebrush Areas

Throughout the life of the CCP, maintain ≥10,000 acres of existing dense stands of sagebrush shrub cover in patches of at least 400 acres in size and characterized by an average of a 10-30% cover of sagebrush and sagebrush height >20 inches, a native herbaceous cover of >10%, and an open ground cover of >10%.

Unit	Alternative C-1 (Acres Protected)
Columbia River	3,000
Rattlesnake	6,500
Ringold	50
Saddle Mountain	5,065
Wahluke	19,534
Total	***34,149***[1]

[1] The total acres of mapped Wyoming big sagebrush may not meet the criteria listed in the objective above.

Rationale

The increasingly rapid and widespread degradation, fragmentation, or total loss of sagebrush ecosystems throughout western North America presents a grave challenge to natural resource agencies charged with their management and restoration. Sagebrush once covered roughly 156 million acres in western North America, but very little now exists undisturbed or unaltered from its condition prior to Eurasian settlement. Perhaps 50-60% of the native sagebrush steppe now has either exotic annual grasses in the understory or has been converted completely to non-native annual grasslands. Sagebrush habitats are among the most imperiled ecosystems in North America (Knick et. al. 2003).

Shrub-steppe, often characterized by sagebrush as the dominant shrub, is a priority habitat for conservation as identified by the WDFW. Sagebrush provides essential wildlife habitat for sagebrush-obligate species; sagebrush is either a food source or provides nesting, resting, thermal and/or escape cover for a wide variety of native wildlife. Several species are dependent on dense stands of sagebrush for nest sites, food and cover. In order to maintain populations of sagebrush obligate species (i.e., sage grouse, sage sparrows, pygmy rabbits, black-tailed jackrabbits, loggerhead shrikes, Brewer's sparrows, striped whipsnakes, etc.), sagebrush communities should be maintained in relatively undisturbed condition and fragmentation should be avoided. Large patches of sagebrush ($\geq$400 acres) are required by some species for successful reproduction (e.g., sage sparrows). Management activities that increase cheatgrass and other exotic species that increase the risk of wildfire also should be avoided.

Strategies

- Prevent wildland fire, when possible, and limit size of wildland fires. Use MIST and resource advisors on scene to limit impacts to mature sagebrush areas.

- Continue to inventory and control non-native plant species according to the IPSIMP (2003).

- Replant sagebrush seedlings in areas affected by disturbance (see shrub-steppe restoration objective) to replace sage areas lost to fire or other disturbance.

- Continue to document, map and refine current GIS data base on vegetation condition on the Monument.

- Establish permanent vegetation monitoring plots within two years of CCP being approved and collect baseline data (e.g., percent of cover) in areas of dense sagebrush cover. Revisit plots to track changes every five years.

Objective 1-3: Shrub-steppe Restoration

Throughout the life of the CCP, conduct restoration efforts annually on 2,000 to 6,000 acres within shrub-steppe habitats that have been degraded by historic uses (e.g., settlers, military, grazing), wildfire events, maintenance-related project work, Hanford Site mitigation, and invasive species in order to retain and restore stable functioning ecosystems that support diverse biotic communities. Restore a mosaic of shrub-steppe plant communities and seral stages that support shrub-steppe dependent species (e.g., loggerhead shrikes, sage sparrows, sage thrashers, ferruginous hawks, sagebrush voles). Priority areas for shrub-steppe restoration will be identified based upon the following factors:

- *Areas affected by wildfire.*
- *Areas where restoration activities will have the potential to be successful—based on soil characteristics, elevation, aspect, presence of remnant native species and essential shrub-steppe components (e.g., microbiotic crust)—and effective wildlife habitat vegetation types.*
- *Areas where restoration can improve habitat for, and use by, high-priority shrub-steppe dependent wildlife species, especially those that are endangered, threatened, rare, sensitive (e.g., prairie falcons, Washington ground squirrels, pygmy rabbit), indicator (e.g., sagebrush voles), and/or sagebrush-obligate (e.g., sage grouse, sage sparrows) species.*
- *Areas that have been treated for invasive plant species, where priority is given to those areas close to valuable biological resources.*
- *Areas that occur between areas of high-quality habitats or vegetation communities where restoration activities could reduce habitat fragmentation and increase habitat connectivity on and/or adjacent to Monument lands.*[59]
- *Areas highly affected by non-native plant species (i.e., cheatgrass) with low native plant species abundance and diversity (areas where cheatgrass exceeds 20% total vegetative cover).*
- *Areas that appear to have a diverse shrub component in the overstory, but have an understory with low native diversity and/or an understory that is affected by invasive species.*

[59] This may include being away from public access in order to allow restoration to be undisturbed, or could include a short-term closure to public access.

- *Areas affected by previous land uses—such as old farm fields, plowed areas, grazed areas, and areas of former miliary activity—that currently have a low abundance and diversity of native plant species (as long as these areas are not part of historical sites).*

- *Areas affected by ground disturbing activities required for operations and maintenance by the FWS or other agencies that have valid existing rights on Monument lands.*[60]

Unit	Alternative C-1
Columbia River	Restore lands degraded by historic uses, wildfires, project work, Hanford site mitigation, and invasive species management.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

A total of 727 species, representing ninety families of vascular plants, have been recorded on the Hanford Site (Sackschewsky and Downs 2001). This represents an incredible diversity of plant life. Of this total, 179 are non-native species that have colonized and established in the area. The existing natural plant communities have been altered by Euro-American activities, resulting in the proliferation of non-native species. Cheatgrass is the dominant non-native species. It is an aggressive colonizer and has become well-established across the Hanford Site (Rickard and Rogers 1983). Hanford Site plants are adapted to low annual precipitation (6.8 inches), low water-holding capacity of the rooting substrate (sand), dry summers, and cold winters— situations that are ideal for cheatgrass.

Range fires that historically burned through the area during the dry summers eliminate fire-intolerant species (e.g., big sagebrush) and allow more opportunistic and fire-resistant species a chance to become established. Recovery of burned areas is a slow process, and it requires many years before areas naturally reestablish the natural component of vegetation and associated animal life. Recovery of many areas affected by wildfire would not generally occur in the absence of active management to restore native plant species.

Restoration of shrub-steppe habitat is a top priority of the Monument. Providing the full range of options and management techniques for restoration is in the best interest of the Monument's natural resources. Likewise, leaving all management options and techniques open for the treatment of invasive plant species and noxious weeds is best for the protection Monument's resources.

[60] Other agencies may have responsibilities to mitigate habitat disturbed through their management activities.

Strategies

- Implement emergency stabilization and rehabilitation actions within three years of wildland fire impacts, including soil stabilization, cultural resource protection, non-native invasive species control, native seeding and planting, effectiveness monitoring, and threatened and endangered (T&E) and sensitive species stabilization actions.

- Each year, initiate active planting and seeding restoration activities on priority plant communities to improve cover and distribution of native understory and overstory species. Consider the needs of priority wildlife species, including sage sparrows, sage grouse, burrowing owls, pygmy rabbits, ground squirrels, and long-billed curlews.

- Initiate actions on non-native invasive species populations (i.e., cheatgrass, diffuse knapweed) that threaten the biological integrity of shrub-steppe habitats according to the IPSIMP (2003).

- Reestablish native grass communities through controlling non-natives (i.e., cheatgrass) and conducting aerial, drill and/or broadcast seeding using native seeds.

- Collect native seeds for restoration projects from Monument sources to ensure ecological compatibility and increase the success of re-vegetation.[61]

- Expand native seed availability by contracting with local seed producers to multiply seed stocks collected from the Monument.

- Use native seed to produce native seedling plants for outplanting with native plant nurseries.

- Develop a Monument native plant nursery in cooperation with other partners to provide native plant materials for restoration actions.

- Use prescribed fire to reduce hazardous fuel accumulations that contribute to destructive wildland fire events (e.g., tumbleweed accumulations).

- Use prescribed fire to assist in non-native invasive species control and restoration activities in shrub-steppe plant communities.

Objective 1-4: Protect Native Perennial Grasslands

Throughout the life of the CCP, maintain 47,759 acres of existing high-quality, functional grassland plant communities (native plant species assemblages). High-quality grasslands are

[61] All seed used to re-vegetate would at least be "source identified" as being from the Columbia Basin.

characterized by >15% native bunchgrass species with >60% total grass cover,<10% cover of native shrubs, and <40% cover of non-native annual grasses, such as cheatgrass.

Unit	Alternative C-1 (Acres Protected)
Columbia River	1,419
Rattlesnake	37,352
Ringold	2,441
Saddle Mountain	3,259
Wahluke	3,288
Total	***47,759***

Rationale

The Monument contains many endemic plant communities and species that have been lost or significantly reduced throughout all or a significant portion of their range. Native grasslands of the Columbia Basin Ecoregion have experienced more than an 85% decline since European settlement and have been described as an "endangered ecosystem" (Noss 1995). Many plant communities have been ranked as important—either locally or state-wide—or globally significant because of their rarity, or due to other factors that make them vulnerable to extirpation and/or extinction. These communities have been significantly diminished throughout their range due to catastrophic wildfire events and past/present management actions (e.g., grazing, agricultural development, urbanization). They serve as important habitat for resident and migratory wildlife species and could be significantly damaged or lost through major disturbances (e.g., wildfire), thereby warranting additional protection considerations within the CCP. This loss would be significant within the context of regionally important plant communities for maintaining healthy, sustainable wildlife populations. These plant communities may serve as potential reintroduction sites for federally and Washington State listed species. Additionally, significant disturbance within these plant communities would lead to the rapid spread of non-native invasive species that would further threaten their ecological integrity and importance as effective wildlife habitat.

The large expanses of native bunchgrass on the Monument are a unique habitat and provide foraging, nesting and resting areas for a number of native species. Bunchgrass habitat is used for foraging by a variety of raptors, including Swainson's hawks, golden eagles, prairie falcons, short-eared owls, red-tailed hawks, ferruginous hawks, sharp-shinned hawks, and rough-legged hawks, among others. Meadowlarks, horned larks, and grasshopper sparrows are some of the ground-nesting birds that are commonly found in bunchgrass habitat on the Monument. Burrowing owls and northern harriers have been documented nesting and feeding in bunchgrass habitat. Long-billed curlews also prefer grassland habitats for nesting and foraging.

Strategies

- Minimize any ground disturbing activities and management activities that disturb the soil surface.

- Revegetate with native plant species materials in areas where ground disturbing activities cannot be avoided (see the shrub-steppe restoration objective).

- Implement emergency stabilization and rehabilitation actions within three years of wildland fire impacts, including soil stabilization, cultural resource protection, non-native invasive species control, native seeding and planting, effectiveness monitoring, and T&E species stabilization actions to maintain and improve perennial bunchgrass communities.

- Initiate IPM actions on non-native invasive species populations that threaten the ecological integrity of grassland habitats.

- Install monitoring plots in those plant communities where permanent monitoring plots currently are not established to track potential changes.

- Use prescribed fire to reduce hazardous fuel accumulations that contribute to destructive wildland fire events (e.g., tumbleweed accumulations).

Objective 1-5: Protect Native Short Grasslands

Throughout the life of the CCP, maintain up to 23,584 acres of the existing functional short grassland plant communities (native plant species assemblages). Short grasslands are characterized by a cover of ≥20% native bunchgrass and forbs, with grass height <16 inches, a <10 % cover of native shrubs, and open ground ≥20%. The highest priorities for maintenance of short grass habitat are in areas where soil types allow for burrow development (for burrowing owl habitat).

Unit	Alternative C-1
Columbia River	4,454 (Existing)
Rattlesnake	4,281
Ringold	1,652
Saddle Mountain	9,275
Wahluke	3,922
Total	***23,584***

Rationale

This objective is closely tied to the objective for perennial grassland (steppe) habitat, and much of the rationale would be the same for perennial grassland and short grassland habitat areas.

It is necessary to identify areas that maintain grass heights less than 16" for several species of concern. Many of the short grass areas are used more frequently by horned larks, long-billed curlews, and burrowing owls for feeding, nesting and rearing. These areas are also used for foraging by Swainson's hawks, ferruginous hawks, short-eared owls, golden eagles, northern harriers, and rough-legged hawks. Short grass areas are often preferred by these species for their openness. The openness/visibility in this habitat makes finding and capturing prey easier and may allow for certain species to spot and avoid predators more easily.

Short grass habitats provide a unique component of the vegetative community. On the Monument, short grass areas tend to be the most vulnerable to invasion by cheatgrass, and therefore there are few areas of short stature grasslands that are in pristine condition. However, because these areas provide critical habitat for several species of concern, maintaining habitat areas in short grass is an important component of providing adequate habitat for all species of concern on the Monument. When short grass communities are invaded by taller stature plants, including native shrubs, (but also non-native plants such as Russian thistle, diffuse or Russian knapweed, or black locust), they become less suitable habitat for many species that prefer short-grass habitat. Taller stature plants make it more difficult for certain species to forage, or provide perch sites and hiding cover for predators, making the openness of short grass less hospitable. It is important, therefore, to maintain short grass areas within the larger grassland habitat management objective for the Monument.

Strategies

- Use prescribed fire, if necessary, or carefully manage wildland fires to promote short grass acreage within grassland habitat types.

- Continue to inventory and control non-native plant species according to IPSIMP (2003) to control taller stature plants (i.e., tumbleweeds).

- Evaluate habitat use versus availability, habitat preference, and species habitat needs and productivity for species that prefer short grass (burrowing owls, long-billed curlews, grassland nesting birds).

- Continue to document, map and refine the current GIS database on vegetation conditions on the Monument.

- Install monitoring plots in those plant communities where permanent monitoring plots currently are not established to track potential changes.

- Revegetate short-grass habitats with native plant species materials in areas where ground disturbing activities have occurred.

Objective 1-6: Native Grassland Restoration

On Monument lands within grassland habitat degraded by historic uses (e.g., settlers, military, grazing), wildfire events, maintenance-related project work, Hanford Site mitigation, and invasive species, annually conduct management activities on up to 320 acres for long-term restoration of the appropriate mosaic of grassland plant communities and seral stages (including short grass areas <16" in height) that support grassland dependent species (e.g., grasshopper sparrows, ferruginous hawks, burrowing owls, long-billed curlews). Priority areas for grassland restoration will be identified based upon the same criteria presented for shrub-steppe restoration objective (above) and:

- *Areas where restoration can improve habitat for, and use by, high-priority grassland-dependent wildlife species, especially those that are endangered, threatened, rare, sensitive (e.g., burrowing owls, long-billed curlews, ferruginous hawks), indicator (e.g., horned larks) and/or grassland obligate (e.g., grasshopper sparrows).*

Unit	Alternatives
Columbia River	Implement after major disturbance events as resources permit.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Native grasslands of the Columbia Basin Ecoregion have experienced more than an 85% decline since European settlement and have been described as an "endangered ecosystem" (Noss 1995). The large expanses of native bunchgrass on the Monument are a unique habitat and provide foraging, nesting and resting areas for a variety of raptors, including Swainson's hawks, golden eagles, prairie falcons, short-eared owls, red-tailed hawks, ferruginous hawks, sharp-shinned hawks, and rough-legged hawks, among others. Meadowlarks, horned larks, and grasshopper sparrows, are some of the ground-nesting birds that are commonly found in bunchgrass habitat on the Monument. Burrowing owls and northern harriers have also been documented nesting and feeding in bunchgrass habitat. Long-billed curlews also prefer grassland habitats for nesting and foraging.

Strategies

- Each year, initiate active planting and seeding restoration activities on priority plant communities to improve cover and the distribution of native understory and overstory species. Consider the needs of priority wildlife species such as burrowing owls, long-billed curlews, grasshopper sparrows, ferruginous hawks, and northern harriers.

- Implement emergency stabilization and rehabilitation actions within three years of wildland fire impacts, including soil stabilization, cultural resource protection, non-native invasive species control, native seeding and planting, effectiveness monitoring, and T&E species stabilization actions.

- Initiate IPM actions on non-native invasive species populations (e.g., cheatgrass, diffuse knapweed) that threaten ecological integrity of grassland (steppe) habitats.

- Reestablish native grass communities by controlling non-natives (e.g., cheatgrass) and conducting aerial, drill and/or broadcast seeding using native seeds.

- Collect native seeds for restoration projects from Monument sources to ensure ecological compatibility and increase the success of re-vegetation.

- Expand native seed availability by contracting with local seed producers to multiply seed stocks collected from the Monument.

- Use native seed to produce native seedling plants, using native plant nurseries, for restoration activities.

- Develop a Monument native plant nursery in cooperation with other partners to provide native plant materials for restoration actions.

- Use prescribed fire to reduce hazardous fuel accumulations that contribute to destructive wildland fire events (e.g., tumbleweed accumulations).

- Use prescribed fire to assist in non-native invasive species control and restoration activities in shrub-steppe plant communities.

Objective 1-7: Protect Unique/Rare Habitats

Throughout the life of the CCP, protect and maintain ~2,500 acres of unique habitats (e.g., cliffs, caves, bluffs, talus, rock outcroppings, dunes).

Unit	Alternative C-1
Columbia River	Conduct inventories, monitoring and research that promotes the protection and conservation of rare/unique habitats and the species they support.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Unique/rare habitats on the Monument include bluffs, cliffs and dunes. In addition, while not rare within the Columbia Basin, the White Bluffs, Umtanum Ridge, Gable Mountain, Rattlesnake Mountain, and Saddle Mountains include rock outcrops that occur infrequently on the Hanford Site. Plant communities dominated by buckwheat and Sandberg's bluegrass most often occupy these basalt outcrops.

Bluffs provide perching, nesting and escape habitat for several bird species on the Monument. The White Bluffs and Umtanum Ridge provide nesting habitat for prairie falcons, red-tailed hawks, cliff swallows, bank swallows, and rough-winged swallows. In the past, Canada geese have used the lower elevations of the White Bluffs for nesting and brooding. Bald eagles use the White Bluffs for roosting. Bluff areas provide habitat for sensitive species (i.e., peregrine falcons) that otherwise may be subject to impacts from frequent or repeated disturbance. Raptors like ferruginous and Swainson's hawks often use cliffs or rock outcrops for breeding.

Dune habitat on the Monument is unique in its association with the surrounding shrub-steppe vegetation type. The uniqueness of the dunes is noted in its vegetation component as well as the geologic formation. Snow buckwheat and Sandberg's bluegrass/cheatgrass communities dominate the large dune areas. Dune fields provide habitat for mule deer, burrowing owls, and coyotes, as well as many transient species, and are very important for maintaining large populations of sagebrush lizards on the Monument.

Specialized habitats on the Monument have not been systematically inventoried. Potentially, these areas have a higher incidence of use by wildlife and greater proportion of rare plants when compared to their general availability on the landscape.

Strategies

- Control public use and access to special habitat areas to reduce or minimize impacts.

- Develop partnerships to research and monitor erosion in special habitat area (especially bluffs). Develop management recommendations based on the research.

- Continue to inventory and control non-native plant species according to the IPSIMP (2003).

- Continue to collect GPS data and continue to add information to spatial databases in the GIS system to document special habitat areas on the Monument.

- Continue to document wildlife species occurrences and important sites associated with specialized habitats (raptor nests, bat roosts, etc.) using GPS to update and add information to the GIS database.

- Identify wildlife resources that need further inventory, monitoring, and/or research. Focus on bats, herptiles and breeding birds.

- Document and monitor rare plants (see the rare plant objective).

Objective 1-8: Protect Rare Plant Populations

Throughout the life of the CCP, maintain and, where possible, expand the populations of endangered, rare and sensitive plant taxa.

Unit	Alternative C-1
Columbia River	Monitor, protect, stabilize and expand by 5%.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

The Hanford Site is clearly one of the premier sites in the Columbia Basin Ecoregion for rare plants. A total of 127 populations/occurrences of thirty rare plant taxa are now documented on the Hanford Site. Survey efforts during 1994 and 1995 identified seven rare plant species associated with the riverine emergent wetlands found at various places along the Hanford Reach (Caplow 2003, Caplow and Beck 1996, Soll and Soper 1996). This is a tremendous amount of rare plants—both in terms of species richness and abundance—to occur in an area the size of the Hanford Site.

Rare plant populations are vulnerable to direct physical destruction of plants and to loss and degradation of habitat. It is likely that both the thirty rare plant taxa and the seventeen unusual taxa on the Hanford Site were previously more widespread in the lower Columbia Basin. Since

1943, however, the lower Columbia Basin has undergone significant shifts in land use. Population growth, large-scale irrigation projects, conversion of shrub-steppe to orchards and fields, continued livestock grazing, and increases in noxious weeds have significantly reduced and/or degraded available habitat for many plants of conservation concern throughout the lower Columbia Basin. Riverine emergent wetlands, and their associated rare plant species, have been severely reduced along the Columbia River system, which has been mostly impounded by hydroelectric dams (Caplow and Beck 1996, Downs et al. 1993). As these trends continue, the importance of the Hanford Site, an island of biodiversity, will be essential for the conservation of these species.

Botanical inventory should be an on-going process, as rare plant populations change over time. Little is known about the biology, ecology and appropriate management for the thirty currently identified taxa of rare plants of the Hanford Site. Many of these species are diminutive desert annuals that present unique challenges for effective protection and management. Other species are extremely rare endemics that could face extinction without proper monitoring and management to maintain or enhance the viability of their populations. A priority for inventory, monitoring, protection and management of these species should be based on the rarity and threats to these plant populations. Recommendations from the biodiversity inventory and the 1999 and 2003 analysis should guide future work on rare plants (Soll et al. 1999).

Strategies

- Continue on-going partnerships for monitoring of Umtanum desert buckwheat, White Bluffs bladder-pod, and persistent sepal yellowcress.

- Conduct additional inventories in areas not yet surveyed for rare plant species.

- Continue to inventory and control non-native plant species using IMP techniques according to the IPSIMP (2003).

- Consider rare plant locations and conduct site specific surveys when planning management and recreation activities, public access, and other actions.

- Prevent wildland fire, when possible, and limit size of wildland fires. Use MIST and resource advisors on scene to limit impacts to rare plant populations.

- Develop propagation techniques for the most rare species to be prepared for reintroduction if populations go below thresholds to be designed.

- Support partnerships and grants for research, monitoring and further inventory of rare plants. The following additional species should be given a high priority for monitoring: rosy calyptridium, loeflingia, white eatonella, desert evening primrose, and Hoover's desert parsley.

- Actively seek additional funding through partnerships and grants to research and monitor rare plant populations.

- Continue to collect GPS data and continue to add information to spatial databases in the GIS system to track locations of rare plant species on the Monument.

- Continue to support efforts to re-introduce northern wormwood in appropriate habitats.

Objective 1-9: Protect Microbotic Crust

Throughout the life of the CCP, protect and, where possible, expand microbiotic crusts[62] *and associated species (mosses, lichens, fungi, algae, liverworts, cyanobacteria, etc.), providing for a mosaic of microbiotic communities in various seral stages.*

Unit	Alternative C-1
Columbia River	Inventory/protect/research/expand where feasible.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Protection of relic (undisturbed) sites as ecological reference areas is important, as these sites provide baseline comparisons for ecological potential and future scientific research. The Monument is a classic example of a relic site that can provide important information on biological soil crusts. However, on the Monument, no complete inventory of crusts has been conducted. Past studies have identified some of the common species that exist in the soil crust, but more inventorying and monitoring needs to be conducted to generate complete maps of where crust exists, its current condition, and its relationship to different vegetative communities.

Microbiotic crust is extremely sensitive to disturbance and can take decades or longer to recover. While total protection from disturbance is often the easiest way to maintain or improve biological soil crusts, this is not often possible.[63] Proactive management is needed to prevent

[62] Also referred to as biological soil crust and cryptogamic crust.

[63] There are many factors to consider in the management of soil communities, including disturbance type, intensity, timing, frequency, duration and/or extent.

unnaturally large and/or frequent fires in areas where fuel build-up or annual grass invasions have occurred. Such management actions may include preventing annual plant invasions through the IPSIMP, prescribing fire to prevent fuel build-up, and/or restricting public use activities to roads and trails. Once a site has burned, evaluation is needed to determine whether recovery will occur naturally or if revegetation is needed. Many burned sites, particularly those in the Great Basin and Intermountain Regions, require revegetation with native plant species to stop exotic plant invasion, and most techniques require some soil surface disturbance. These restoration strategies are required to limit the irreversible dominance by invasive species (such as cheatgrass), which prevents the return of well-developed biological soil crusts. Once revegetated, protection from grazing and recreational use is often necessary for recovery of the biological soil crust and the vascular plant community. Recovery in these areas can be further facilitated by use of minimal till or no-till drills or other seeding methods that minimize soil surface disturbance and compaction. Emphasis should be placed on restoring the native plant community using local ecotypes, if available.

Strategies

- Minimize any ground disturbing activities and management activities that disturb microbiotic crusts.

- Conduct additional inventories in areas not yet surveyed for microbiotic crusts and in seasons when crust species are likely to be visible.

- Collect GPS data and develop information and spatial databases in the GIS system to track locations and condition of microbiotic crusts on the Monument.

- Continue to inventory and control non-native plant species according to the IPSIMP (2003).

- Consider microbiotic crust locations and conduct site specific surveys when planning management or recreation activities, public access, and other actions.

- Support partnerships and grants for third-party research, monitoring and further inventory of microbiotic crust on Monument lands.

- Actively seek funding, grants and partnerships to conduct research, monitoring and further inventory of microbiotic crust on Monument lands.

- Establish partnerships with private, academic and other agencies to develop restoration techniques and processes for microbiotic crust restoration.

- Prevent wildland fire, when possible, and limit the size of wildland fires. Use MIST and advisors on scene to limit impacts to microbiotic crusts.

- Develop techniques for propagation of crust species to be prepared for re-introduction in areas impacted by major disturbances.

Objective 1-10: Inventory, Monitor Federally Listed Threatened and Endangered, Rare, and Sensitive Species

During the life of the CCP, conduct inventorying and monitoring and identify management-oriented research to promote the conservation, restoration and adaptive management of high-priority wildlife species on the Monument, especially those that are T&E, rare, sensitive (e.g., bald eagles, prairie falcons, Washington ground squirrels), indicator (e.g., sagebrush voles) and/or sagebrush-obligate (e.g., sage grouse, sage sparrows).

Unit	Alternative C-1
Columbia River	Conduct systematic inventories, monitoring and research that promotes conservation and restoration initiatives for T&E, rare and sensitive species.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Based upon the breadth of wildlife and habitat management activities on the Monument, there is a myriad of associated monitoring activities that could be conducted by the biological staff. Inventory and monitoring of listed and sensitive wildlife species in critical to conserving the biological integrity of the Monument. Monitoring can be used to identify trends and to adapt management actions when information indicates a change is required. Inventorying and monitoring is required to assess the effects of management actions, to both prevent any adverse effects to wildlife species and to assess whether Monument objectives are being met. Inventorying and monitoring will be used to develop quantitative measures to evaluate the Monument's progress in meeting goals and objectives.

Strategies

- Evaluate existing research and monitoring data for wildlife to identify scientific information gaps and priority research needs within one year of the CCP being approved.

- Based upon identified gaps in scientific information, conduct habitat inventories, focusing on areas where facilities and public use are concentrated.

- Based upon the identified priority species, prepare an inventory and monitoring plan, associated with the development of a Habitat Management Plan, utilizing standardized protocols that are reasonable and practical considering current and future biological staffing. Priority species will be identified through the Monument Proclamation, bird conservation plans (Partners In Flight, shorebird, and waterfowl plans), FWS trust resources, T&E recovery plans, fishery management plans, and others.

- Prepare an inventory and monitoring plan for high-priority species and habitats to evaluate and refine restoration and management activities.

- Incorporate geo-referenced monitoring data (birds, mammals, fish, and invertebrates) into GIS map coverages. Base future management decisions (e.g., sagebrush restoration, IPM, fire suppression) upon spatial analyses of monitoring data considering vegetation, soils and wildlife.

- Create a relational database system to store and manage monitoring data. Where applicable, utilize the NWRS Refuge Lands GIS database to store information regarding wildlife and habitat management actions (management prescriptions) along with the monitoring data.

Objective 1-11: Restoration of Lithosol Habitat

On Monument lands along ridge lines (e.g., Rattlesnake Mountain) degraded by historic uses (e.g., settlers, military, grazing, DOE operations and facilities), wildfire events, and invasive species, restore to the extent possible native bunchgrasses, forbs, mosses and lichens that support lithosol-associated species (e.g., short-horned lizard., rosy balsamroot).

Unit	Alternative C-1
Columbia River	0
Rattlesnake	200
Ringold	0
Saddle Mountain	40
Wahluke	0
Total	***240***

Rationale

The crest of Rattlesnake Mountain supports high-quality, low-growing lithosol communities on its shallow, rocky soil. Likewise, the highest rare plant densities occur on ridge lines within the Monument. Existing facilities on many of the ridge lines present ongoing hazards to wildlife

that use these areas. Facilities include power transmission lines; roads; commercial telecommunications facilities such as antennae, satellite dishes, and structures; old buildings from the Manhattan Project era; an observatory; and weather monitoring equipment. The facilities attract non-native species (e.g., European starlings, Norway rats) which can impact local populations of native wildlife that occur on the ridge lines, either through competition for resources, nesting sites, and food resources, or by direct predation (e.g., rats eat bird eggs). Further, guy wires and tall structures present a collision hazard to birds during daily activities and during migration. Birds frequently use the ridge lines due to thermal air currents and wind availability. Finally, tall structures can provide perch sites for predators that may not normally occur on ridge lines. Structures that can be used as perch sites by predators (even if not actually used by predators) may still cause certain species to avoid these areas (e.g., sage grouse). Restoring these areas is important for protecting the biological integrity of the Monument.

Additionally, objectives related to the cultural resources and traditions and visual resources of the Monument are directly associated with this objective to restore the lithosol communities of prominent ridge lines.

Strategies

- Require revegetation with native plants characteristic of lithosol communities.
- Collect native seed from lithosol/ridge-line areas to ensure ecological compatibility and increase success of revegetation.
- Work with the DOE to decommission and demolish all facilities not subject to valid existing rights on Rattlesnake Mountain, excluding the observatory (see the next strategy), to restore lithosol habitat (see also Cultural Resources Goal 5 and Aesthetics Goal 8).
- Remove the observatory.[64]

Objective 1-12: Integrated Pest Management

Implement the IPSIMP to address treatment methods, inventorying and monitoring for existing invasive plants, and minimize new non-native introductions and conditions that favor their establishment and spread. Annually treat 5,000-18,000 acres on the Monument infested with noxious, invasive and/or non-native species throughout the life of the CCP.

[64] The FWS does not have the authority to remove the observatory. Instead the FWS recommended to the DOE that the observatory be removed. Work is currently underway to remove the observatory and consolidate structures on Rattlesnake Mountain.

Unit	Alternative C-1
Columbia River	Systematically conduct integrated pest management and additional survey and mapping work across Monument lands. Total acres treated varies each year by unit.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	
Total	***Up to 12,000 acres.***

Rationale

Non-native invasive plant species pose one of the most serious threats to the biological integrity and diversity, as well as the scenic values, for which the Monument was established and for which the entire Hanford Site is well known (Soll et al. 1999). Invasive and noxious alien plant species compete against, and reduce habitat available for, rare plant taxa and native plant species in general. Invasive and noxious plants alter ecosystem structure and function, disrupt food chains and other ecosystem characteristics vital to wildlife, and dramatically alter key ecosystem processes, such as hydrology, productivity, nutrient cycling, and the fire regime (Randall 1996, Brooks and Pyke 2001, Mack et al. 2000).

Shrub-steppe ecosystems, such as that represented on the Monument, are highly susceptible to infestation by invasive plant species, especially when disturbed (DiTomaso 2000). The Monument's large size (195,000 acres), as well as the large number of documented or potential invasive plant species, present significant challenges to management of Monument resources. Past and present land use practices—such as farming, ranching, military activities, road building, quarrying and riverflow management—have helped to create conditions favorable for the establishment of many invasive plant species on Monument lands and throughout the Columbia Basin. The introduction and spread of invasive plant species is enhanced by the existence of disturbed lands and corridors (Mack et al. 2000). Potential corridors for the migration of invasive species into and within the Monument include:

- Forty-seven miles of the Columbia River.
- Forty-seven miles of active irrigation canals and wasteways and more than 1,000 acres of associated impoundments.
- More than fifty miles of state highway and more than 180 miles of paved and unpaved secondary roads in widely varying condition.
- More than twenty miles of power line corridors and associated access roads.

Certain trends may make invasive species even more of a problem in the future than they are at present. New invasive species may be expected to arrive within the coming years as technology and commerce continue to reduce barriers to plant migrations (McNeely 2001, Mack et al. 2000). At the same time, increased public use, recurrent wildfires, power line development and maintenance, the slumping of the White Bluffs, and other disturbances continually create new habitats for invasive species to colonize.

IPM employs a practical, economical and scientifically based combination of biological, physical, cultural and chemical control methods. IPM emphasizes exploration of a variety of methods in order to identify a method, or combination of methods, that is effective and reduces or eliminates the need for chemical pesticides. IPM is a balanced approach that considers hazard to the environment, efficacy, costs and vulnerability of the pest.

Strategies

- Continue to identify, inventory, prioritize, treat, and monitor non-native, invasive plant species according to the IPSIMP (2008). Additional detail can be found in there.

- Promptly initiate non-native invasive plant species treatments through emergency stabilization and rehabilitation actions following wildland fires and other major land disturbances.

- Utilize GPS technology to map treatments, conduct effectiveness monitoring, and map new weed infestations as discovered.

- Ensure non-native invasive treatments are followed by native plantings, where practical, to restore native cover and maintain long-term noxious and invasive plant control.

Objective 1-13: Elk Management

Over the life of the CCP, where feasible and compatible with Monument purposes, coordinate with the DOE, WDFW and area tribes to implement actions that will assist in achieving and maintaining herd objectives and population goals for the Rattlesnake Hills Elk Herd.

Unit	Alternative C-1
Columbia River	In cooperation with the DOE, WDFW and area tribes, monitor the Rattlesnake Hills Elk Herd as well as develop and implement a long-term elk management plan in support of the objectives and based upon best available science. Implement management strategies as needed to assist with herd management objectives.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

The FWS has been actively monitoring the Rattlesnake Hills Elk Herd population since 2001. Recent inventories (winter 2007 post-harvest) estimate the herd to be approximately 639 animals (an approximate 56:67 sex ratio of bulls to cows), with an average over the last four years of 632 elk. This is above the WDFW's post-harvest goal of 350 animals identified in the Rattlesnake Hills Elk Herd Management Plan. The Monument has committed to assist the WDFW in reducing the herd until that herd goal is met. At that time, the target will be re-evaluated for its appropriateness within the context of a long-term elk management plan.

Strategies

- Coordinate with the WDFW to develop the goals for desired future condition of the herd (sex ratios, productivity, etc.).
- Initiate studies to evaluate potential impacts to Monument resources associated with elk use at various populations levels.
- Conduct, in partnership with the WDFW, annual monitoring of the elk herd to determine herd size and composition.
- Meet annually with neighboring landowners.

Goal 2: Conserve and restore the communities of fish and other aquatic and riparian-dependent plant and animal species native to the Hanford Reach National Monument.

Objective 2-1: Fish and Aquatic Habitat

For the life of the CCP, and to the extent possible, protect and maintain riffles, gravel bars, oxbow ponds, and backwater sloughs that provide important habitat for native fish; especially spawning and rearing areas for fall Chinook salmon, white sturgeon, and steelhead in the Hanford Reach of the Columbia River. Protect and maintain habitat areas for other aquatic species (e.g., mussels, invertebrates) that represent the characteristic native faunal communities of the Columbia River.

Unit	Alternative C-1
Columbia River	Protect and maintain fish and other native aquatic fauna and their associated aquatic habitats along the Hanford Reach of the Columbia River.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

The Hanford Reach encompasses the last non-tidal, free-flowing segment of the Columbia River in the United States. However, water flow is regulated by upstream dams for production of hydropower, resulting in potential daily water fluctuations of up to twelve feet. Water flows and flow management affect fish habitat for spawning and rearing in the Hanford Reach. Both seasonal and daily flow fluctuations have impacts on fisheries in the Hanford Reach. Fluctuations have resulted in stranding or entrapment and mortality of juvenile anadromous and resident fish species (see Section 3.10.1.5 in the full CCP/EIS). Fluctuations may also contribute to siltation and degrade habitat for fish in a variety of ways. Forty-four species of fish have been documented in the Hanford Reach, including salmonid stocks. Specifically, 80% of all mainstem Columbia River spawning fall Chinook salmon breed in the Hanford Reach. This economically and culturally significant stock is a principle component of the international Pacific Salmon Treaty between the United States and Canada. Upper Columbia River spring Chinook salmon, as well as middle and upper Columbia River steelhead (which are a federally listed species), use the Hanford Reach during migration. Additionally, breeding populations of white surgeon inhabit the Hanford Reach. Although there are multiple jurisdictions and management agencies along this portion of the Columbia River, the Monument has a responsibility to maintain the Hanford Reach under the Wild and Scenic Rivers Act, Improvement Act, Fish and Wildlife Coordination Act, and other legislation and regulations to the extent possible.

Strategies

- Develop partnerships with other agencies that have interest and jurisdiction on the Columbia River for fish habitat and fisheries management. Partnerships may include ACOE, BOR, BPA, CRITFC, DOE, FWS-Fisheries, FWS-Ecological Services, Grant County PUD, National Oceanic and Atmospheric Administration (NOAA)-Fisheries, WDFW, WDNR, and other agencies and entities.

- Continue to cooperate with other agencies and follow monitoring efforts to document and quantify fall Chinook salmon spawning and rearing in the Hanford Reach.

- Develop partnerships to monitor white sturgeon and to identify and protect important spawning areas in the Hanford Reach. Continue to work with the FWS Columbia River Fisheries Office on documentation and evaluation of habitat for sturgeon using a 2-D hydrodynamic model of the Hanford Reach.

- Foster partnerships to protect important spawning areas for fall Chinook salmon. Continue work with the FWS Columbia River Fisheries Office on documentation and evaluation of spawning areas for fall Chinook. Attempt to quantify the effects of water level manipulation and variation from hydropower generation on resident and anadromous fish habitat and aquatic invertebrates. Quantify the mortality of juvenile fall Chinook salmon from stranding and entrapment that results from water level fluctuations.

- Continue to develop partnerships to conduct inventories, monitoring and research related to: water fluctuation effects on sedimentation of backwater areas; impacts to wildlife including nesting aquatic migratory birds (e.g., herons, gulls, Canada geese, land birds), other native fishes (e.g., Pacific lamprey, sand roller, prickly sculpin), and mammals (e.g., deer, mink, beaver, otter); and impacts to rare plants (e.g., persistentsepal yellowcress).

- Continue to develop partnerships to collect further information and support additional research on native fishes and use of specialized habitats in the river.

- Continue to inventory and control non-native plant species according to the IPSIMP, (especially tamarisk, phragmites, purple loosestrife, and black locust).

- Continue to develop partnerships to additional inventories on native species of concern within the Columbia River (e.g., mussels, bivalves, macro-invertebrates).

Objective 2-2: Islands

Protect and, where appropriate and possible, restore high-quality habitats (i.e., cobble, cobble with sparse grass, dune, shrub, scattered trees) to provide habitat for migratory and resident birds, rare plants, mammals and amphibians.

Unit	Alternative C-1
Columbia River	Restore twenty acres of island habitat annually.

Rationale

There are nineteen islands located in the Columbia River upstream of Richland, Washington, that are included within the scope of this plan. This includes six islands currently assigned to the McNary National Wildlife Refuge.

Islands vary in soil type and vegetation and range from narrow cobble beaches to extensive dune habitats, further increasing habitat complexity in the River Corridor Unit. Characteristic shoreline vegetation on the islands includes willow, poplar, Russian olive, and mulberry.[65] Plant species occurring on the island interior include buckwheat, lupine, mugwort, thickspike wheatgrass, giant wildrye, yarrow and cheatgrass. Several areas along the south shore and islands of the river support significant occurrences of Columbia Basin low-elevation riparian wetlands. Although not all of these sites are pristine, such wetlands are of statewide conservation importance as most comparable sites have been permanently flooded by reservoirs.

Islands provide important nesting and foraging habitat and escape cover for many species of migratory and resident birds, including waterfowl (e.g., ducks and geese), migratory water birds (e.g., grebes and loons), colonial water birds (e.g., herons and egrets), shorebirds (e.g., sandpipers), and songbirds (e.g., sparrows). Islands, bluffs and sandbars along the Hanford Reach are important for a variety of nesting birds, including swallows, falcons, owls, geese, gulls, terns and water birds, as well as wintering habitat for a variety of species. Mule and white-tailed deer also use the islands during fawning as protection from coyotes. During the fall and winter, ducks (mallards, pintails, ring-necked, canvas backs, buffleheads, goldeneyes) and Canada geese rest on the shorelines and islands along the Hanford Reach. Maintaining the integrity and native diversity of the islands is important for managing the unique natural resources of the Monument.

Strategies

- Develop partnerships to research, monitor and develop management recommendations to address slumping, siltation of cobble, and erosion of islands.

- Continue to inventory and control non-native plant species using IPM strategies according to the IPSIMP.

- Continue to partner with others to monitor rare plant populations on islands (see the Rare Plants objective).

- Continue to partner with others to re-introduce rare plants on islands (see Rare Plants objective).

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[65] Before regulation of river flows by dams, trees were not found along river shoreline habitat, with the exception of small willows.

- Inventory and monitor species of concern (colonial nesting species, heron colonies, shorebirds, waterfowl, bald eagles) on the islands and within the riverine/riparian zone (see the Riverine Wetlands and Riparian Areas objective).

- Identify strategies to maintain diverse plant associations to protect island integrity, reduce siltation, and provide a wide-range of riverine habitat that benefits many wildlife species.

Objective 2-3: Irrigation Run-off Aquatic Habitats

In appropriate areas surrounding irrigation wasteways and artificial seeps (e.g., Saddle Mountian Lake, WB-10 ponds): 1) enhance riparian habitat characterized by a mosaic of native shrubby thickets with patches of deciduous trees and grass/forb-dominated plants; and 2) enhance emergent wetland habitat characterized by native bullrush, cattails and wetland emergent species.

Unit	Alternative C-1
Wahluke	Annually planned restoration.

Rationale

There are no natural springs or lakes on the Wahluke Slope; however, irrigation run-off has created several large, artificial wetlands that diversify the habitats available to wildlife in this area. Although artificial, they can provide valuable wildlife habitat, especially for amphibians, birds and bats in an otherwise arid landscape. This artificial "community type" includes lake shores, riparian and wetlands on the Wahluke Slope that have been converted from shrub-steppe due to accumulated run-off from off-site irrigated agriculture.[66] These communities are typically dominated by non-native species such as tamarisk and Russian olive, but also support native willows, common cattail, and black cottonwood.

The SCBID maintains the irrigation return canals that create and supply water to Saddle Mountain Lake and the WB-10 Ponds. The BOR maintains a valid existing right to operate these water systems. Because this water will likely remain a feature on the Monument over the life of this CCP, and because there is currently established riparian and wetland vegetation in this area, the best use of this area is to improve the currently established riparian and wetland habitat. Non-native species (Russian olive, phragmites, tamarisk, carp, etc.) should be removed and replaced with riparian and wetland plant species native to the Columbia Basin.

[66] The majority of impacted shrub-steppe habitat on the Monument is just south and five miles south of State Route 24 on the eastern end of the site and around Saddle Mountain Lake on the western end.

Strategies

- Control carp populations that impact wetland submergent and emergent vegetation and important waterfowl habitat; implement methods to prevent carp from entering the intake that supplies irrigation return flows.

- Continue to inventory and control non-native plant species according to the IPSIMP—especially phragmites, tamarisk, and purple loosestrife—and replace with native species (willow, currant, etc.).

- Evaluate habitat conditions for sensitive resources (e.g., nesting aquatic birds such as grebes).

- Make habitat improvements to benefit aquatic birds if necessary.

- Evaluate habitat conditions for waterfowl, particularly wintering waterfowl, and make habitat improvements if necessary.

Objective 2-4: Natural Springs, Seeps and Vernal Pools

Throughout the life of the CCP, protect, and where possible, enhance all natural springs, seeps and vernal pool areas on the Monument by maintaining high-quality native vegetation and allowing natural processes to function.

Unit	Alternative C-1
Columbia River	Protect and enhance all natural springs, seeps and vernal pools.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Several springs are found on the slopes of the Rattlesnake Hills along the western edge of the Monument (DOE 1988). Rattlesnake and Snively Springs form small surface streams; water discharged from Rattlesnake Springs flows down Dry Creek for about 1.6 miles before disappearing into the ground. While these springs are small, they are an extremely valuable resource, providing water sources for a variety of wildlife in arid portions of the Monument and allowing the growth of trees for songbird and raptor use as nest sites, sanctuary and foraging perches. The 24 Command Fire of 2000 negatively impacted many shrubs and trees associated

with streams and springs on the ALE; however, these species are recovering rapidly. Small interrupted streams, such as those flowing from Rattlesnake and Snively Springs, contain diverse biotic communities and are extremely productive (Cushing and Wolf 1984). The riparian community surrounding springs are characterized by diverse shrubs and trees that include a substantial component of, or dominance by, willows. Desert springs support extensive riparian areas that provide breeding habitat for flycatchers, warblers, orioles and other neo-tropical migrants (e.g., Bullock's oriole, yellow warbler, yellow breasted chat).

TNC of Washington, in its Biodiversity Inventory and Analysis of the Hanford Site 1997 Annual Report (Hall 1998), documented an alkaline spring and vernal pools at the east end of Umtanum Ridge. Biologically and ecologically interesting, three previously undocumented clusters of approximately twenty vernal pools have been noted. Vernal pools in Washington are little known or studied, and their occurrence on Hanford is significant. Additional inventorying and documentation of vernal pool areas is also important due to their uniqueness both regionally and within the state. Each cluster contains one or more rare plant species. Maintaining these unique vegetation communities and the habitat that they provide is critical to Monument management.

Strategies

- Conduct additional inventories, monitoring and research of vegetative communities and wildlife associated with natural springs.

- Conduct additional inventories in areas not yet surveyed for vernal pools and associated unique species.

- Continue to inventory and control non-native plant species according to the IPSIMP.

- Carefully manage public access into areas with natural springs, seeps, or vernal pools.

- Prevent wildland fire, when possible, and limit size of wildland fires. Use MIST and resource advisors on scene to limit impacts to natural springs.

- Monitor water quality in springs in order to maintain the character of the spring areas.

- Monitor the springs' relationship to wildlife use (e.g., deer browse, elk use) to determine if wildlife populations are affecting succession in the springs and to determine if any management action (restoration, exclosures, etc.) are necessary to protect character of springs, seeps, or vernal pools.

- If necessary, conduct restoration (native plantings) in areas where disturbance has altered the natural succession of riparian vegetation around springs and seeps.

Objective 2-5: Seasonal Wetlands

During the life of the CCP, create and maintain approximately 320 acres of seasonal wetland on the Ringold Unit, characterized by 20% cover of annual moist-soil species, 15% cover of native emergents for migratory and aquatic birds, and flooded with ≤18 inches of water from October to March.

Unit	Alternative C-1
Ringold	Restore 320 acres.[1]
[1] Contingent upon having partnership and funding from outside of the agency.	

Rationale

Extensive hillside seepage of both natural springs and irrigation water occurs within the Ringold Unit in the southeast portion of the Monument adjacent to the WDFW Ringold National Fish Hatchery. As this perennial supply provides a continuous source of water to some established wetland vegetation in this area, improvement of existing wetland areas would increase the quality and quantity of wildlife habitat. The former wetland impoundment on the Ringold Unit adjacent to the agricultural field on the Columbia River no longer functions as a result of a washed out levee. Because water levels cannot be maintained in this wetland, it has been infested by invasive species (e.g., knapweed). If restored, this wetland has the capability to provide habitat that supports Monument Proclamation species, including migrating and wintering aquatic migratory birds.

Specifically, the Monument Proclamation identifies management for the following waterfowl species that could benefit from this restoration effort—mallards, green-winged teal, pintails, goldeneyes, gadwalls, and buffleheads. Restoration of the wetland area would be an effective way to control the invasive species that have infested this disturbed site. Constructing a series of dikes and ponds would allow for manipulation of the water levels to provide a range of seasonal and permanent ponds for a variety of wildlife species.

Because this is a small area, and restoration costs could be restrictive under most alternatives, this development may receive a lower priority than other shrub-steppe habitat restoration needs. However, if partnerships were created to conduct this work, and funding was available, it may become a more feasible priority.

Strategies

- Seek public and private support by developing partnerships with, for example, Ducks Unlimited, Intermountain West Joint Venture, WDFW, BOR, SCBID, county weed boards, and Pheasants Forever to restore this area to wetland habitat.

- Design water control structures to restore the wetland and permit the passage and/or avoid entrapment of anadromous and other native fish species.

- Repair and/or install water control structures, construct water control dikes, and contour the land area to restore the wetland.

- Work with the BOR to obtain rights to use return flows (March to October) to manage the wetland.

Objective 2-6: Riverine Wetlands and Riparian Areas

Protect and restore the riparian structure, function and native species composition (willows, bullrush, etc.) in existing areas that provide for riparian vegetation along the Columbia River's backwater sloughs, oxbow ponds, and islands for migratory birds (wintering waterfowl, bald eagles, shorebirds, breeding songbirds (Bullock's orioles, yellow warblers, song sparrows, etc.)), colonial waterbirds (great blue herons, great egrets, etc.), native insect diversity, and rare plants.

Unit	Alternative C-1
Columbia River	Inventory, protect, maintain and improve riverine and riparian habitats, where appropriate, within the Hanford Reach of the Columbia River.
Ringold	
Wahluke	

Rationale

The Hanford Reach encompasses the last non-tidal, free-flowing segment of the Columbia River in the United States. The riparian/wetland communities along the Hanford Reach are some of the least represented habitats in this river system and elsewhere within the Columbia Basin. The Hanford Reach: 1) provides important stop-over habitat for migratory land and waterbirds; 2) is wintering habitat for bald eagles, white pelicans, and many waterfowl species, such as mallards, green-winged teal, pintails, goldeneyes and gadwalls; 3) provides important nesting and breeding habitat for shorebirds, waterfowl, and other aquatic birds; and 4) is a designated Important Bird Area (IBA). Comprised of the Columbia River and the near-shore environment, the IBA extends approximately 1/4-mile inland from the river between the Vernita Bridge and the Ringold Fish Hatchery.

Backwater areas and sloughs often form in the lee of cobble bars where silt has been deposited; this silt provides for wetland communities. The largest wetland systems are associated with the most developed cobble bars. Other, smaller wetlands are scattered throughout the north shore. This habitat system is thought to be rare elsewhere along the Columbia River, but may have been common before the extensive construction of hydroelectric dams (Downs et al. 1994). These

systems are rich in species diversity, both within and between sites. Dominant species include common spikerush, needle spikerush, alkali bulrush, western lilaeopsis, broadleaf cattail, and various rushes. On the Monument, this plant community type is often relatively pristine. Conserving and protecting these areas is important to the preservation of Monument Proclamation resources.

Strategies

- Inventory plant species composition of riparian areas in the Columbia River corridor and determine the composition of native and non-native species.

- Install permanent vegetation monitoring plots in representative areas to track changes in riparian and wetland vegetation composition. Re-monitor plots every five years to track changes in species composition.

- Continue to document current vegetation types using GPS to update and add information to the GIS database.

- Continue to inventory and control non-native plant species according to the IPSIMP.

- Inventory and document the location of rare plants. Conduct specific inventories when planning management activities, public access, recreation activities, and other developments (see the Rare Plants objective).

- Inventory mature trees that are important heron colony sites, bald eagle roosts, or raptor nest sites. Conduct habitat evaluations to determine if mature trees are limiting, and conduct restoration if mature trees are not being replaced.

- Conduct wildlife inventories for species of concern (herons, colonial nesting species, shorebirds, waterfowl, bald eagles). Gather information on their abundance, seasonal use, breeding/nesting, population trends, and habitat requirements, using this information to improve management.

- Continue to document wildlife species occurrences using GPS to update and add information to the GIS database.

- Contribute Monument-specific information on species of concern to regional efforts to conserve species and determine the importance of the Hanford Reach to local/regional/state populations for wildlife species of concern.

- Provide law enforcement services for public use of river areas in order to protect and prevent disturbance of important wildlife areas through seasonal restrictions or targeted area closures.

- Maintain a seasonal winter closure of the Hanford Reach area (and White Bluffs Boat Launch), November through March annually, to allow a sanctuary for wintering waterfowl.

Objective 2-7: Riparian Shoreline Area Restoration

Along the Columbia River shoreline and islands, protect, manage and restore up to 1,166 acres of riparian habitat in the appropriate mosaic of native riparian plant communities and seral stages associated with the Columbia River. Ensure that riparian habitat supports riparian-dependent species (e.g., wintering waterfowl, bald eagles), breeding songbirds (Bullock's orioles, yellow warblers, song sparrows, etc.), colonial waterbirds (great blue herons, great egrets, etc.), native insect diversity, and rare plants. Priority areas for riparian restoration will be identified based upon the following factors:

- *Areas where restoration activities will have the potential to be successful, based on soil characteristics, elevation, aspect, presence of remnant native species, and essential riparian components (e.g., willows).*

- *Areas where restoration can improve habitat for, and use by, high-priority, riparian-dependent wildlife species, especially those that are endangered, threatened, rare, or sensitive (e.g., bald eagles).*

- *Areas affected by ground-disturbing activities required for operations and maintenance of the FWS or other agencies that have valid existing rights on Monument lands.*[67]

- *Areas that occur in between areas of high-quality habitats or vegetation communities where restoration activities could increase size of remnant patches, reduce habitat fragmentation, and increase habitat connectivity on and/or adjacent to the Monument.*[68]

- *Areas that have been treated for invasive plant species, where priority is given to those areas close to valuable biological resources. These areas should be restored to native plants to prevent future invasion of non-native species into high-quality areas.*[69]

- *Areas highly affected by non-native plant species (i.e., salt cedar, Russian olive, Russian knapweed, etc.) with low native plant species abundance and diversity (areas where non-native species exceed 20% of the total vegetative cover).*

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[67] Other agencies may have responsibilities to mitigate habitat disturbed through management activities.

[68] This may include being away from public access in order to allow restoration to be undisturbed.

[69] Ibid.

- *Areas affected by previous land uses—such as old farm fields, plowed areas, grazed areas, and areas of former miliary activity—that currently have a low abundance and diversity of native plant species (as long as these areas are not part of historical sites).*

Unit	Alternative C-1
Columbia River	822
Rattlesnake	44
Ringold	156
Wahluke	143
Total	***1,166 acres***

Rationale

The Hanford Reach extends from the upper end of the McNary Reservoir to the Priest Rapids Dam and contains significant riparian habitat which is otherwise rare within the Columbia River system (NPS 1994). The riparian/wetland communities along the Hanford Reach are also rare elsewhere within the Columbia Basin as a result of hydropower development. The Hanford Reach and associated riparian zones provide habitat for numerous wildlife and plant species, including remnant habitat for aquatic organisms that were widespread before much of the Columbia River system was converted to reservoirs. The current riparian vegetation communities of the Hanford Reach are generally characterized by diverse shrubs and trees that include a substantial component of, or dominance by, willows.

Although the Hanford Reach is ostensibly free-flowing, changes in its hydrology from upstream dams have likely altered some riparian communities and substrates. For example, much of the substrate previously mapped as sand (ACOE 1976) is now cobble. Thus, some communities may reflect a transient state. Some vegetation present within the river corridor is different than what would be historically present in a natural river setting. Tree species were not historically prevalent; natural flood flows annually scoured the river's shorelines, thereby reducing the potential for tree establishment or survival. Likewise, naturally occurring native species are not as abundant on shorelines due to daily fluctuations of river levels through hydropower generation activities. As a result of the loss of riparian habitat types along the rest of the river, and because of the value of riparian areas as wildlife habitat, conserving and protecting these vegetation types are an important aspect of Monument management.

Strategies

- Continue to document, map and refine the current GIS data base on vegetation condition on the Monument.

- Continue to inventory and control non-native plant species according to the IPSIMP.

- In riparian zones highly affected by non-native species, treat non-natives and then restore/re-vegetate the area using native species characteristic of the Columbia River system.

- Annually conduct planting and seeding restoration activities on priority plant communities to improve the cover and distribution of native understory and overstory species. Consider the needs of priority wildlife species, including colonial nesting birds (e.g., ring-billed gulls), riparian songbirds (e.g., yellow warblers), wintering waterfowl, and bald eagles.

- Reestablish native riparian communities by controlling non-natives (e.g., Russian olive, black locust) and conducting plantings using native species cuttings, seedling transplants, or other nursery-grown plant materials.

Objective 2-8: Inventory and Monitor Habitats

Over the life of the CCP, identify and develop inventory/monitoring protocols, conduct high-priority inventories and monitoring, and identify management-oriented research to promote the conservation, restoration and adaptive management of shrub-steppe, grassland, riparian, aquatic and other habitats (e.g., cliffs, vernal pools, dunes, microbiotic crusts, lithosols).

Unit	Alternative C-1
Columbia River	Conduct systematic inventories, monitoring and research that promotes conservation and restoration initiatives for habitats and identifies potential impacts from public use, fire, etc.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Based upon the breadth of wildlife and habitat management activities on the Monument, there is a myriad of associated monitoring activities that could be conducted by the biological staff. Inventorying and monitoring will be part of habitat objectives for shrub-steppe, grasslands, riparian/riverine, springs, seeps, vernal pools, and lithosols. Inventory and monitoring is required to assess the effects of management actions, to both prevent any adverse effects to Monument Resources, but also to assess whether Monument objectives are being met. Monitoring can be used to identify trends and to adapt management actions when information indicates a change is required. Inventory and monitoring will show where the Monument has made progress and can be used to develop quantitative measures to evaluate the Monument's performance in meeting planned goals and objectives.

Strategies

- Evaluate existing research and monitoring data for each habitat type (shrub-steppe, grassland, riparian, aquatic, and unique habitats) to identify scientific information gaps and priority research needs within one year of the CCP being approved.

- Conduct habitat inventories, focusing on areas where facilities and use are concentrated.

- Prepare an inventory and monitoring plan for high-priority species and habitats to evaluate and refine restoration and management activities.

- Incorporate geo-referenced monitoring data (birds, mammals, fish, and invertebrates) into the GIS map coverages. Base future management decisions (e.g., sagebrush restoration, IPM, fire suppression) upon spatial analyses of monitoring data, considering vegetation, soils and wildlife, where possible.

Goal 3: Enhance Monument resources by establishing and maintaining connectivity with neighboring habitats.

Objective 3-1: Connectivity

Promote connectivity of the Monument shrub-steppe/grassland habitats with adjacent lands (e.g., BOR Scattered Tract Lands, WDFW Crab Creek Wildlife Management Area, Columbia National Wildlife Refuge, Eagle Lakes, Yakima Training Center, Yakama Indian Reservation, and WDFW lands) to benefit associated wildlife species (e.g., loggerhead shrikes, sage grouse, sage sparrows, Brewer's sparrows). Connectivity on a larger landscape scale is essential to promote recovery of declining shrub-steppe obligate species (e.g., sage grouse, burrowing owls, curlews, pygmy rabbits, ground squirrels).

Unit	Alternative C-1
Columbia River	Restoration actions strengthen connectivity through planned management actions.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Although modified by recent and historic fires, invasive species, and historic grazing, several of the shrub-steppe plant communities (e.g., big sagebrush/bluebunch wheatgrass and bitterbrush/Indian ricegrass) found on the Monument are regionally significant. A major management issue regarding shrub-steppe is the restoration and connection of communities on the Monument with those on adjacent lands, thereby improving ecosystem functionality and supporting shrub-steppe obligate species.

Strategies

- Establish working groups of interested agencies, governments and private entities to identify habitats and species with a high potential to benefit from connectivity within areas outside the Monument within one year of the CCP being approved.

- Coordinate with partners to identify conservation and funding strategies for protection of connected habitat within three years of the CCP being approved.

- Meet annually with adjacent landowners, other agencies, tribes, sportsmen and environmental groups to discuss common habitat/wildlife management objectives and future possibilities.

- Continue to participate in the planning process and forums of other agencies and governments to achieve protection of Monument resources.

- Maintain and promote intra- and interagency coordination to protect and improve connectivity of shrub-steppe habitat.

Goal 4: Protect the distinctive geological and paleontological resources of the Monument.

Objective 4-1: Geologic Resource Location

Within five years of the CCP being adopted, begin a comprehensive mapping of the unique, rare, or exemplary geological resources of the Monument, with a target of at least five percent of total Monument acreage inventoried annually.

Unit	Alternative C-1
Columbia River	Inventory 8% of lands annually; prioritize areas based on an annual assessment of threats.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

See Objective 4.2 below.

Strategies

- Contract with universities or consultants to conduct a literature review and field assessment of geological resources. (See also Research Goal)
- Conduct inventories of geological resources using existing staff.
- Add information/data regarding geological resources to the GIS database.
- Seek partnerships for Ice Age Floods features surveying, cataloging and interpretation.
- Use MIST and resource advisors to limit impact to geological resources from wildfire events.

Objective 4-2: Paleontologic Resource Location

Within five years of the CCP being adopted, begin a comprehensive mapping of the paleontological resources of the Monument, with a target of at least one percent of total Monument acreage inventoried annually.

Unit	Alternative C-1
Columbia River	Inventory 2% of Monument lands annually; areas to be prioritized based on an annual assessment of threats.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

The Monument has a rich geological and paleontological background ". . . with dramatic landscapes that reveal the creative forces of tectonic, volcanic, and erosive power" (Monument Proclamation). The Monument Proclamation also notes that the Monument ". . . contains significant geological and paleontological objects." The "objects" specifically mentioned in the Monument Proclamation include the White Bluffs; fossilized remnants of rhinoceros, camel, mastodon and other animals; and the Hanford Dune Field. Equally as important, although not specifically mentioned, are the visible remnants of the Ice Age Floods, such as glacial erratics, berg mounds, and ripple marks. The sand dunes themselves are comprised of sand carried in on the massive floods that covered this area; wind subsequently shaped these depositions into the dune fields on the Hanford Site.

While much is known about Central Hanford's geological and paleontological resources, the majority of the Monument remains unmapped. In order to fully protect these resources, and provide public access to them, a thorough mapping of known geologic/paleontologic phenomenon will be necessary, as well as the identification of as yet unknown resources.

Strategies

- Contract with universities or consultants to conduct a literature review and field assessment of paleontological resources. (See also Research Goal)
- Add information/data regarding paleo resources to GIS database.
- Use MIST and resource advisors to limit impact to paleontological resources from wildfire events.

Objective 4-3: Threat Abatement

Throughout the life of the CCP, protect, or minimize the destruction of, the unique, rare or exemplary geological and paleontological resources of the Monument.

Unit	Alternative C-1
Columbia River	Identify and address at least one threat annually.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

As noted in Objectives 4-1 and 4-2, the Monument has a number of striking geological and paleontological resources, especially the signature White Bluffs along the Columbia River. While many of the threats to these resources were eliminated with the creation of the Monument, both internal and external concerns do remain, including erosion following fire, landslides aggravated by irrigation waters, inadvertent disturbance through environmental cleanup, looting, destruction of stabilizing vegetation through trespass, and other forces. Once resources are identified through Objectives 4-1 and 4-2, all known and potential threats to those resources need to be identified, and corrective steps taken to eliminate or lessen those threats. Corrective actions might include signs, education, increased patrols, new or modified regulations, routing of visitors away from sensitive resources, planting of vegetation, etc. The exact threat abatement strategy will be dependent upon the type and location of the resource, the known threats, and a host of other factors.

Strategies

- Identify threats and develop protection strategies for distinctive geological and paleontological resources within three years of the inventory being completed.

- Through the USGS, conduct a congressionally funded assessment of the cause of sloughing of the bluffs along the Columbia River.

- Within one year of the USGS White Bluffs sloughing study being completed, implement feasible recommendations that protect the integrity of the White Bluffs.

- Develop cooperative partnerships to mitigate island and shoreline erosion within one year of the White Bluffs study being completed.

Goal 5: Protect and acknowledge the Native American, settler, atomic and Cold War histories of the Monument to ensure present and future generations recognize the significance of the area's past, incorporating a balance of views.

Objective 5-1: Cultural/Historical Management Plan

Develop and begin implementing a cultural resource management plan with stakeholder and tribal involvement within three years of the CCP being adopted.[70]

Unit	Alternative C-1
Columbia River	Develop a Cultural Resources Management Plan.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

The Monument is rich in the evidence of Native Americans who used these lands for millennia and the Euro-American settlers that came later. Some research has been done by the DOE and others regarding the identification of existing cultural resource sites on the Monument. However, these studies were mostly project specific, and large areas of the Monument have not been surveyed. The sources are fragmented, and research needs to be conducted to assimilate these diverse sources of information. The background research on what cultural resources are currently documented on the Monument will serve as the basis for the Cultural Resources Management Plan. The management plan will also address protocols for cultural resource surveys, protection, tribal consultation, monitoring, inadvertent discovery, and other issues of concern.

Strategies

- Form a cooperative planning team for cultural resources with tribal and other governmental partners.
- Identify and evaluate existing cultural resource inventories and studies for validity and reliability.
- Incorporate components of the DOE's Cultural Resources Management Plan as appropriate.

[70] The DOE is primarily responsible for cultural resource issues until the FWS develops its own plan. However, that plan would only apply to FWS-managed lands unless adopted by the DOE. Until a management plan is developed, the FWS will comply with all applicable laws (e.g., NHPA, Native American Graves Protection and Repatriation Act), federal regulations, and FWS policies.

Objective 5-2: Oral History Program

Develop and implement an ongoing oral history program on settlement and use of the Monument.

Unit	Alternative C-1
Columbia River	Develop an oral history program.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

The Monument has inherited a historic legacy that has not been appropriately recorded. Due to the events of 1943 and the eviction of the Native Americans and other residents of the Hanford Reach area, much of the local history prior to the establishment of the Hanford Site has been lost. Former residents that have direct knowledge of pre-1943 events are today at least sixty-five years of age. It is a priority that a program be established to record oral histories before any more recollections are irrevocably lost. The importance of oral histories has been recognized by many tribes, and some oral histories are being collected. Future interpretive and educational programs and exhibits would benefit greatly from the addition of this information, as well as cultural resource management. Many former residents are very anxious to share the events of their lives in the Hanford area, and many have family heirlooms and artifacts that they wish to donate for future display.[71] A data base of this information should be developed, recorded and preserved as soon as possible.

Strategies

- Work with partners to create a data base detailing recorded oral histories, historical archives, and available antiquities.

- Record oral histories from Native Americans and long-time residents and incorporate these into interpretation and education programs.

- Seek out local residents that lived in the Hanford area prior to 1943, including participants of the Hanford/ White Bluffs Annual Reunion.

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[71] The annual Hanford/White Bluffs reunion provides a perfect opportunity to record stories and descriptions of life along the Hanford Reach prior to the establishment of the Hanford Site.

- Apply for grants to assist with funding to obtain oral histories.

Objective 5-3: Cultural Resource Surveys and Inventories

Conduct cultural resource surveys on the Monument for emergency stabilization, project work, research, and data acquisition.

Unit	Alternative C-1
Columbia River	Complete Section 106 compliance and an additional 750 acres/year.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Cultural resources constitute an important component of the Monument Proclamation and are one of the chief reasons the Monument was created. However, while much is known about the physical and spiritual resources in Central Hanford, much less is known about the Monument itself. Prior to a comprehensive management plan being developed, and fully effective protection strategies being implemented, inventories of the Monument's cultural resources must be initiated.

Cultural resource surveys mandated by Section 106 of the NHPA will be conducted prior to any ground-disturbing activities on the Monument. Alternative C-1 calls for at least some additional inventory work to be conducted, with the areas to be inventoried annually being prioritized according to other needs. For example, areas near sites that have been identified for that year as having additional public use or construction being done will receive priority.

Since Monument lands have traditionally been managed by a variety of federal, state, local and tribal entities, it is realistic to promote and actively foster cooperative efforts toward the inventorying, monitoring and protection programs for cultural resources. This will benefit the resource by providing more oversight of cultural programs and increased sharing of inventory data. It would add an important, enhanced presence on the Monument to deter theft and vandalism. Agreements between the varied stakeholders would help to solidify trust and support cooperative research and protection efforts.

Strategies

- Using GIS overlays, identify data base gaps to determine areas for additional surveys as indicated in each alternative.

- Prioritize annual cultural resource inventories to aid in filling data gaps, focusing on facility development and public use patterns.

- Develop agreements and implement inventorying, monitoring and protection programs for cultural resources between the FWS, other agencies and tribes within five years of the CCP being adopted.

Objective 5-4: National Register of Historic Sites

Inspect five to fifteen National Register of Historic Listed and Eligible Properties (National Register) eligible archaeological sites and historic structures semi-annually.

Unit	Alternative C-1
Columbia River	Inspect ten sites/year.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Since many historic properties have been removed over time, those that remain—including buildings, structures and historic and prehistoric archeological sites—should be evaluated for listing on the National Register. If eligible, these sites should be monitored and efforts made to protect and stabilize them as historic properties.

Strategies

- Identify and evaluate sites eligible for listing on the National Register.

- Prioritize sites in terms of significance and risk analysis.

- Take corrective action to protect and stabilize as appropriate.

- Develop partnerships to assist with monitoring and implementation of protective actions.

Objective 5-5: Traditional Cultural Properties[72]

Assist the DOE in the evaluation of potential Traditional Cultural Properties in collaboration and consultation with affected tribes within five years of the CCP being adopted.

Unit	Alternative C-1
Columbia River	Assist in the evaluation of potential TCPs.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Tribal governments have a strong interest in maintaining the integrity of their TCPs, which have both religious and subsistence significance. It is important to management efforts on the Monument that these properties be identified and evaluated. This should be accomplished in coordination with designated representatives of the tribes who can best identify the sites and speak as to their significance. A monitoring program should be established in cooperation with tribal representatives to guarantee continued sustainability.

Strategies

- Work with tribes to identify TCPs.
- Prepare and implement monitoring and management plans for eligible and designated TCPs.

Objective 5-6: Cultural Resource Protection

Develop and implement a protection plan for cultural resource sites at risk for potential damage through erosion and vandalism within one year of the CCP being adopted.

[72] The DOE has completed a National Register Determination of Eligibility for *Laliik* (Rattlesnake Mountain) to identify its potential as a TCP, determining that it is eligible under National Register criteria. The Washington State Historic Preservation Office has concurred with this determination.

Unit	Alternative C-1
Columbia River	Develop a Cultural Resource Protection Plan.[73]
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

There are many cultural resources on the Monument, identified or not, that are at risk of damage and/or loss from a variety of sources. An example is the erosion of Locke Island, a culturally rich site, caused by severe slumping of the White Bluffs;[74] erosion of Locke Island is the subject of a new report that came out in 2006 (Bjornstad 2006b). Vandalism of cultural resources is another threat that has negative impacts on both cultural resources and relations with the tribes. Once destroyed, these resources are irretrievable, hence the need for implementation of a strategy for protection within a one year time frame.

Strategies

- Identify and prioritize cultural resources at risk.
- Identify sources of potential damage (i.e., erosion, White Bluffs slumping, visitor activities, vandalism).
- Develop plans with cooperative partners (i.e., tribes, USGS, DOE, BPA, Grant County PUD) to mitigate damage to cultural resources where possible.

Objective 5-7: Recovered Cultural Resources

In coordination with tribes, establish policies and procedures for recovered artifacts and inadvertent discovery of human remains within two years of the CCP being adopted.

[73] Or adopt one being developed by the DOE as discussed earlier.

[74] Stabilization of the island and/or bluffs would require a major undertaking involving several agencies and tribal governments.

Unit	Alternative C-1
Columbia River	Establish recovery policies.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Presently, any and all artifacts that are discovered during resource inventories and management activities are left in place, their locations GPS recorded, data collected, and entered into a data-base. No policies or procedures exist for recovering and cataloging artifacts. Further, no policies exist for the return of artifacts that may have been collected from the Monument prior to its establishment. It is hoped that in the future some of these artifacts may be donated back for scientific study and display, where appropriate, hence the need for established protocols.

Many areas of the Monument were used as burial grounds for Native Americans. The discovery of human remains will be managed and repatriated in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA). Policies need to be established that will properly protect these remains if inadvertently discovered or exposed.

Strategies

- Develop a plan for the inadvertent discovery and repatriation of human remains with affected tribes and implement it by developing Memorandums of Understanding (MOUs) with tribes.

- Implement education programs for Monument staff and volunteers on the proper handling and reporting of discoveries and donations.

Goal 6: Provide a rich variety of educational and interpretive opportunities for visitors to gain an appreciation, knowledge and understanding of the Monument, compatible with resource protection.

Objective 6-1: Interpretive Planning

Within two years of the CCP being adopted, develop and implement a multi-disciplinary interpretive plan, incorporating a variety of interpretive and educational opportunities to appeal to a broad spectrum of interests, age groups, and learning styles and abilities.

Unit	Alternative C-1
Columbia River	Complete an Interpretive Plan.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

The Improvement Act identifies wildlife interpretation and environmental education as two of the six primary wildlife-dependent recreational opportunities to be implemented at national wildlife refuges. The creation of a long-range, multi-disciplinary interpretive plan is essential for the integrated development of interpretive and educational facilities, materials and programs. These should reflect consistency in design, function and placement across the Monument. They should incorporate themes identified as unique to the Monument's habitat, wildlife and heritage and contain content that is easily understood by the visiting public.

Strategies

- Form an interpretive planning team that reflects the varied interests and talents of the regional constituencies.
- Identify goals and objectives of the Monument's interpretive program.
- Identify overarching themes unique to the Monument.
- Identify potential placement locations of interpretive facilities.
- Map sensitive resources at proposed interpretive sites and determine and implement mitigation measures to reduce the impacts of site development.
- During the plan development and review periods, seek the input of local, state and tribal governments; valid existing rights holders; outdoor recreation interests; outfitters and guides; and all other interested parties.

Objective 6-2: Interpretive Sites

Create ten to twenty interpretive sites over the duration of the CCP, potentially including a Horn Rapids site, beginning within two years of the completion of the Interpretive Plan.

Unit	Alternative C-1
Columbia River	4 sites.
Rattlesnake	2 sites.
Ringold	2 sites.
Saddle Mountain	1 site.
Wahluke	4 sites.
Total	***13 sites.***

Rationale

For many visitors, interpretive sites are the only contact they will have for Monument information. Signing is crucial to enhance the visitor's enjoyment and understanding of the Monument's resources and heritage; it creates a positive and memorable experience. It is also the foremost way to promote the agency's message and management philosophies. Interpretive signing is a cost-effective means of conveying information to the visitor.

The north portion of the Monument is fairly remote. As visitation increases, a satellite visitor contact station would benefit those entering the Monument from the north. Size and services to be offered would be driven by visitor responses to survey questions.

Strategies

- Identify and prioritize potential sites for their interpretive value, significance and ease of access.
- Perform habitat inventories with GIS and on-the-ground surveys to avoid sensitive natural and cultural resources.
- Identify single and/or multiple themes to be addressed at each site.
- Incorporate Monument visual design standards and guidelines in designing sign panels, framing, construction materials, ground preparation, and landscaping.
- Include multi-lingual signing as appropriate.
- Coordinate site locations with other agencies where appropriate.

Objective 6-3: Interpretive Trails

Over the life of the CCP, create two to six interpretive trails.

Unit	Alternative C-1
Columbia River	1 trails.
Rattlesnake	
Ringold	1 trail.
Saddle Mountain	
Wahluke	2 trails.
Total	***4 trails.***

[1] This table portrays a reasonably foreseeable scenario for trail locations; this could change with implementation depending upon resource inventories.

Rationale

Interpretive trails are a popular component to educational facilities and will serve dual purposes on the Monument. They provide visitors with a designated route of travel to view and learn about the Monument's unique resources, as well as providing protection for sensitive resources through proper routing and construction techniques. Visitors will be encouraged to stay on the trail and interpretive messages will educate them as to why. Interpretive trails will also be planned and established in conjunction with the development of wildlife viewpoints, observation decks, and/or photography blinds. Interpretive trails will be designed to be easily traversed by all age groups.

Strategies

- Identify and prioritize potential sites for interpretive value and significance.
- Perform habitat inventories with GIS and surveys to avoid sensitive natural and cultural resources.
- Identify interpretive themes appropriate for each trail.
- Incorporate Monument visual design standards and guidelines for parking areas, trailheads and interpretive signing.
- Design trail surfaces to meet FWS and Americans With Disabilities Act standards and to avoid erosion.

Objective 6-4: Recreational Use Education

Within one year of the CCP being adopted, develop and distribute educational materials on proper recreational use practices for the protection of Monument resources.

Unit	Alternative C-1
Columbia River	Develop educational materials.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

All interpretive messages will have a component that addresses sensitive resources and proper recreational use practices. In addition, specific informational materials will be prepared and distributed describing Monument rules and regulations, seasons of use, and visitor safety. Proper preparation for travel in desert and river environments will be addressed, as will methods the visiting public can use to lessen their impact to sensitive resources.

Strategies

- Incorporate information on proper use practices into signing at each interpretive site and trail.
- Prepare and distribute fact sheets addressing general rules and regulations, special use restrictions, and seasonal closures at appropriate locations (points of entrance, orientation kiosks, trailheads, etc.).
- Provide information about sensitive resources and their protection at the appropriate interpretive sites.
- Provide multi-lingual materials as appropriate.

Objective 6-5: Environmental Education

Within two to six years of the CCP being adopted, develop and implement a multi-disciplinary environmental education program with curricula aligned with national and state educational standards.

Unit	Alternative C-1
Columbia River	Full program within 5 years.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Environmental education is identified by the Improvement Act as a priority program for national wildlife refuges. On the Monument audiences will primarily be students at all levels. All K-12 programs must be aligned with state and national education standards. This is necessary for administrator approval of proposed field trips and programs. An outdoor facility could be designed to accommodate classes doing hands-on investigative learning; a site on the Ringold Unit is proposed as it would be most convenient for regional schools. Programs will also be designed and presented at the indoor classrooms at the Hanford Reach National Monument Heritage and Visitor Center (Visitor Center). For example, curricula highlighting the Columbia River, spawning salmon, and the shrub-steppe environment will be acquired and/or prepared and evaluated. The FWS would investigate school offerings and requirements to provide for service-learning projects and to include programs focusing on at-risk students.

Strategies

- Prepare curricula that address Monument resources, such as the Columbia River, spawning salmon and the shrub-steppe environment.
- Align K-12 programs with state and national education standards.
- Designate an area in the Ringold unit as an outdoor classroom for hands-on activities.
- Survey the needs and interests of local teachers for program subject material.
- Post environmental education program offerings on an education page on the Monument's web site.

Objective 6-6: Interpretive Programs and Special Events

Offer interpretive and educational programs and special events, both on and off site.

Unit	Alternative C-1
Columbia River	2/year on site; 8/year off site.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

The FWS promotes several "special events" annually that the Monument could participate in (i.e., National Migratory Bird Day, National Fishing Week, Earth Day, Refuge Week, etc.). Special events can be a huge draw if planned properly. The Monument would benefit from the positive exposure created by hosting a special event (e.g., an event during Earth Science Week). For example, the spring Rattlesnake Mountain and Wildflower Tour (Kennewick Community Education) has been very popular. Partnerships with special interest groups would reduce the workload on staff. New programs would be created as needed, featuring Monument resources, management actions, step-down plan development, and restoration activities.

Heritage tourism initiatives are being developed by various federal, state and local agencies as well as regional special interest groups. The Monument's interpretation and education program would benefit by becoming a cooperative partner in these efforts. The Monument and adjacent DOE lands are rich in history, and efforts such as preservation of the B Reactor are examples of where agencies and special interest groups would benefit each other through partnerships.

Strategies

- Design and facilitate special event interpretive programs.
- Seek outside funding to assist with special event costs.
- Solicit participation from local special interest groups (i.e., environmental organizations, sportsman's groups, community colleges).
- Align programs with national FWS special events.
- Solicit interest groups and trained docents to assist with Monument presentations.
- Create several interpretive programs with different themes.

Goal 7: Provide access and opportunities for high-quality recreation compatible with resource protection.

Objective 7-1: Visitor Services Plan

Develop and implement a Visitor Services Plan within two to five years of the CCP being adopted.

Unit	Alternative C-1
Columbia River	Complete a plan within 3 years.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

A Visitor Services Plan is needed to provide detailed direction (e.g., siting trails, parking areas, restroom facilities, signs) for implementing the CCP. The plan will support natural and cultural resources management by integrating visitor use in a manner that is compatible with resource protection, while also supporting visitor understanding and appreciation of these resources. Plan components will: 1) include objectives and strategies to welcome and orient visitors; 2) provide quality hunting, fishing, wildlife observation, wildlife photography, environmental education, interpretation and other appropriate recreational opportunities (see related Objectives under Goals 6 and 7); and 3) direct communication, outreach and partnership efforts.

A monitoring component will be a critical part of the plan. Too many visitors, or visitor use in fragile locations, has the potential to cause unacceptable impacts to natural and cultural resources. Likewise, crowding and other social impacts degrade the quality of visitor experiences. Monitoring will provide objective data on the type and extent of visitor impacts to natural and cultural resources and on the quality of visitor experience. Such data will be valuable for decision makers, as well as visitors seeking to understand and minimize impacts.

Strategies

- Develop a Visitor Services Plan to concentrate visitor use and place visitor facilities along the perimeter of the Monument.

- Develop an outreach component within the Visitor Services Plan to enhance public understanding and appreciation of the NWRS mission and Monument resource values and teach visitors techniques they can use to minimize impacts and enhance experiences.

- Develop a monitoring component in the plan to assess visitor satisfaction, recreational demand, and the impacts of recreational activities on natural and cultural resources.

- During plan development and review periods, seek the input of local, state and tribal governments; valid existing rights holders; and other interested parties.

Objective 7-2: Commercial Guide Permit System

Institute a permit system for commercial outfitters and guides operating on Monument lands within two years of the CCP being adopted.

Unit	Alternative C-1
Columbia River	Develop and implement a commercial guide permit system.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Commercial guides and outfitters can be valuable partners with the FWS in providing recreation, education and interpretive services for visitors who may not otherwise have the means to participate in these activities. By policy, it is the FWS's responsibility to oversee and permit all commercial activities occurring within national wildlife refuge boundaries. A plan is needed to address aspects of commercial uses such as legal compliance, visitor safety, quality of visitor experience, potential competition for use areas between outfitters and public recreationists, and minimizing impacts to Monument resources.

Strategies

- Develop a comprehensive list of all outfitters and guides operating on the Monument.

- Initiate outreach to commercial outfitters and guides and other interested parties to explain permitting requirements and identify issues, opportunities and concerns related to these activities on the Monument.

- Develop a plan to manage commercial uses on the Monument. Within the plan, include commercial outfitter protocols for reporting visitor use, fee schedules, and performance evaluation.

- Hold public meetings to explain the permit system requirements and to seek feedback proposed system.

Objective 7-3: Columbia River Surface Use

Within two to five years of the CCP being adopted, seek partnerships/cooperative management agreements with those agencies with jurisdiction on the Columbia River to determine mutually agreeable surface use regulations.

Unit	Alternative C-1
Columbia River	Develop partnerships within three years.

Rationale

The Columbia River is the main focus of visitor use on the Monument. The Hanford Reach is a local and regional destination for waterfowl hunters and salmon, steelhead, sturgeon and bass anglers. Canoeing and kayaking is growing in popularity. Demand for commercial boat tour services is increasing. With various local, state and federal agencies having management authority over the riverbed, water column, shorelines, islands, and recreational activities on the river, there are many regulations in effect with no single source providing public information or enforcement. To ensure public safety, resource protection, and quality of visitor experience, ideally, those agencies with jurisdiction of the Hanford Reach would develop a coordinated approach for developing, dispersing and enforcing mutually agreed upon regulations.

Strategies

- Through partnerships where appropriate, provide public information related to Hanford Reach visitor information, including rules and regulations.

- Create an interagency forum with those agencies with jurisdiction on the Hanford Reach to address public safety, resource protection, information dispersal, commercial outfitting and guiding, and enforcement.

- Where deemed advantageous to the public and to management efficiency, seek to enter into partnerships for management, information dispersal, and law enforcement on the Hanford Reach.

Objective 7-4: Hunting Plan[75]

Within two years of the CCP being adopted, revise the Hunting Plan to provide for high-quality hunting opportunities on the Monument in accordance with—to the extent practicable—WDFW laws, regulations and management plans.

Unit	Alternative C-1 (Acres Open To Hunting)[1]
Columbia River	3,920
Rattlesnake[2]	0
Ringold	3,120
Saddle Mountain	24,055
Wahluke	40,006
Total	***71,101***

[1] This includes the total acres open to some form of hunting, but not necessarily all species or methods.
[2] The Rattlesnake Unit would be closed to sport hunting.

Rationale

Hunting is identified as a priority public use by the Improvement Act, when it is compatible with national wildlife refuge purposes. Public input during the EIS scoping period identified hunting-related issues that included access, commercial guides, horses, public safety, facilities, weapon and species restrictions, and the quality of information available on hunting opportunities. A Hunting Plan that addresses these issues and establishes guidelines for hunting on the Monument is an important component of the overall Visitor Services Plan (see Objective 7-1).

Strategies

- Within the Hunting Plan, consider options for management of the existing goose pit blinds, including a permit system, removal, installation of new blinds, or requiring use of temporary blinds.

- Within the Hunting Plan, consider establishing special hunt programs for youth, disabled and master hunters.

- Within the Hunting Plan, assess the need for hunting retrieval and safety zones on the Monument.

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[75] As noted previously, a Sport Hunting Plan was developed and implemented while this CCP was in draft in response to a lawsuit filed by the Fund For Animals. That plan only considers no hunting and the status quo. In order to implement the preferred alternative, the Sport Hunting Plan will need to be revised.

- Distribute the draft (revised) Hunting Plan for review by agencies, user groups, and interested persons.

- In conformance with FWS policy, phase out the put-and-take ring-necked pheasant stocking program within two years.[76]

- Work cooperatively with the WDFW to enforce state hunting laws and Monument-specific regulations.

- Seek to develop partnerships with hunting interests to assist with design, development and maintenance of hunting-related facilities.

Objective 7-5: Fishing Plan

Within two to five years of the CCP being adopted, develop a Fishing Plan that provides for high-quality opportunities on the Monument in accordance with—to the extent practicable—WDFW fishing laws, regulations and management plans.

Unit	Alternative C-1
Columbia River	Create a Fishing Plan within 3 years.
Ringold	
Wahluke	

Rationale

Fishing is identified as a priority public use by the Improvement Act, as long as it is compatible with national wildlife refuge purposes. Fishing is the most popular visitor activity that occurring on the Monument, contributing 67% of total annual visitor days; the fall Chinook salmon run is a regionally important recreation attraction. Public input during the EIS scoping period identified fishing-related issues to address that included facility needs, access, crowding, public health and safety, commercial outfitting and guiding, and tournaments. A Fishing Plan that addresses these issues and establishes guidelines for sport fishing on the Monument is an important component of the overall Visitor Services Plan (see Objective 7-1).

[76] FWS policy does not allow the stocking of non-native species. There would be no removal of remaining pheasants, and non-native species that do not cause significant negative impacts to the Monument would be allowed to remain (e.g., chukars, Hungarian (gray) partridges).

Strategies

- Coordinate with agencies with jurisdictional authority on Monument waters in developing the Fishing Plan.

- Distribute the draft Fishing Plan for review by agencies, user groups, and interested persons.

- Seek to develop partnerships with fishing groups to assist with design, development and maintenance of fishing-related facilities.

Objective 7-6: Wildlife Observation and Photography

Provide additional wildlife observation and photography opportunities within ten years of the CCP being adopted, targeting major habitats and key wildlife species.

Unit	Alternative C-1
Columbia River	Create up to 8 wildlife observation sites and up to two photography sites within 10 years.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Wildlife observation and photography are identified by the Improvement Act as priority public uses, as long as they are compatible with national wildlife refuge purposes. With its diverse habitats and abundance of plant and animal species, the Monument offers excellent potential to provide high-quality wildlife observation and photography opportunities. The Monument's ability to provide these opportunities can be expanded through partnership efforts with local and regional interest groups.

Strategies

- Identify potential sites for wildlife observation and photography across the Monument's key habitats, including riparian/riverine, upland shrub-steppe, grassland, dune and cliff/lithosol areas, considering siting factors such as public safety, resource protection needs, quality of experience, existing access, and infrastructure needs.

- Provide diverse access options, including disabled, foot, automobile, watercraft, horseback and bicycle. Consider the potential to incorporate sites along auto tour routes, non-motorized trails, and water trails.

- Use staff or volunteers to conduct wildlife observation and photography programs, tours and/or workshops on the Monument, factoring in the needs of diverse audiences and physical abilities. Seek partnerships and volunteer assistance from organizations such as National Audubon Society, Native Plant Society, TNC, Richland Rod and Gun Club, Washington State University, etc.

- Enhance the existing interpretive wayside on Highway 240 to interpret the elk herd and other topics, such as the ecological importance of ALE— connectivity, other wildlife use of the ALE, insect diversity, ongoing research, cultural resources, and other topics.

- Cooperate in the development of a potential National Audubon Society-sponsored Great Birding Trail segment on the Monument.

Objective 7-7: Hiking

Provide high-quality hiking opportunities on the Monument and linked into off-site trail systems that are compatible with resource protection.

Unit	Alternative C-1 (Acres)[1]
Columbia River	16,917; open 1-2 trails in sand dunes.
Rattlesnake	Open 1 trail.
Ringold	3,120
Saddle Mountain	24,055
Wahluke	57,747
Total	***101,739*** ***1-2 trails on Rattlesnake***

[1] Opportunities in open areas may include cross country hiking, trail-use only, or a combination of each. Please note that these are acres ***potentially*** open to hiking. Many areas noted as 'open' on the maps may only have certain areas open, or openings may be seasonal.

Rationale

While hiking is not a priority public use of the NWRS, it does support uses such as wildlife observation, photography, environmental education, and interpretation, which may be priority uses of a particular refuge. Carefully planned hiking routes and/or hiking areas, together with use stipulations, can minimize impacts while providing high-quality opportunities to experience

and learn about the Monument. Identifying parameters for hiking—such as resource protection needs, seasonal restrictions, group size limitations, facilities, and visitor information needs—would be an important component of the Visitor Services Plan (See Objective 7-1).

Strategies

- Identify hiking routes—and explore opportunities to connect Monument trails with off-site trails—that explore interpretive, educational and wildlife observation opportunities; include in the Visitor Services Plan.

- Seek to develop partnerships with local hiking groups to assist with design, development and care of trails and facilities.

Objective 7-8: Equestrian Plan

Within two to five years of the CCP being adopted, develop an Equestrian Plan that provides for high-quality equestrian opportunities compatible with resource protection.

Unit	Alternative C-1[1]
Columbia River	Open, limited to select roads and trails; establish plan in 3 years.
Ringold	
Saddle Mountain	
Wahluke	
[1] The Rattlesnake Unit is closed to horses under all alternatives.	

Rationale

While equestrian use is not a priority public use of the NWRS, it does support uses such as wildlife observation, photography, environmental education, and interpretation, which may be priority uses of a particular refuge. Locally, there are few areas available for equestrian use. User groups have been responsible and forthcoming with volunteer assistance to self-police their activities and help maintain use areas. Carefully planned equestrian routes and use stipulations can minimize impacts, while providing high-quality opportunities to experience and learn about the Monument. An Equestrian Plan that addresses travel routes, resource protection needs, seasonal restrictions, group size limitations, facilities, and visitor information needs would be an important component of the overall Visitor Services Plan (see Objective 7-1).

Strategies

- Develop an Equestrian Plan that addresses travel routes, infrastructure needs, public safety, resource protection, seasonal restrictions, party size limits, and quality of experience.

- Within the Equestrian Plan, explore interpretive, educational and wildlife observation opportunities associated with trails.

- Seek partnerships with local equestrian groups to assist with design, development and maintenance of trails and facilities.

Objective 7-9: Boat Launches

Provide boat launch facilities to facilitate access to and from the Hanford Reach of the Columbia River.

Unit	Alternative C-1
Vernita Area	Developed launch.
White Bluffs	Improve current launch.
Ringold	Developed launch in 3 years.

Rationale

As identified in public scoping for the EIS, boat access to the Hanford Reach is a key element in facilitating river-related recreation opportunities in the Monument. The number and type of boat access facilities provided will play an important role in shaping the type of recreational experiences on the Columbia River and Monument. For example, numerous access points may result in increased use with resultant crowding, increased wildlife disturbance, and loss of solitude opportunities. Fewer access points may preserve solitude, yet result in fewer visitors to experience, learn about, and appreciate the Hanford Reach. The number and type of boat accesses across the alternatives varies with alternative themes, described early in this chapter.

Vernita Area

The area north and west of the Vernita Bridge, currently administered by the WDFW under a lease agreement with the DOE, is the most intensively used site on the Monument, receiving heavy seasonal use from anglers willing to trailer over rocky terrain and launch from unimproved shoreline areas. Native American tribes have voiced concerns over degradation of sensitive natural and cultural resources in this area from vehicle travel, day use, camping, improper sanitation practices, and boat launching activities. The WDFW has focused on

developing a boat launch in the Vernita Bridge area for decades, and input received during public scoping reflects visitor demand for an improved launch; there is a need to provide a designated area for river access, day use, and overnight use somewhere in the vicinity of the Vernita Bridge to protect resources and to meet visitor demand. However, there may be more suitable locations for such use upstream of the Vernita Bridge. An inventory could identify other suitable locations so that the best option can be selected for this important visitor access location. See Objective 7-11 for additional management strategies for the Vernita Bridge area.

White Bluffs

(See also the rationale for Objective 7-1.) Located in the central section of the Hanford Reach, the White Bluffs Boat Launch is predominantly used by sport fishermen during salmon and sturgeon seasons. The launch has traditionally been closed from winter through spring to provide waterfowl resting areas. However, since wintering waterfowl have typically migrated from the area by April, the launch could be opened earlier each year with no detrimental effect. Under Alternative C-1, the boat launch will remain open, and improvements planned in the future. In addition, it is likely some sort of user capacity, based on parking, will need to be implemented to protect resources, provide for law enforcement, and ensure a quality experience.

Ringold

Located adjacent to the Monument's southern boundary, the Ringold Fish Hatchery plays an important role in providing visitor access to the Hanford Reach. The hatchery is located on BOR land which is leased to the WDFW. With a primitive boat launch, day overnight, and shoreline use areas, this site receives thousands of visits annually, primarily fishing-related. Because this site is located adjacent to the Monument, has easy access from a paved county road, and is already somewhat hardened, it would be a logical location to work in partnership to provide improved boat launch facilities. (See Objective 7-11 for additional management strategies for the Ringold area.)

Strategies

- Coordinate with the DOE and WDFW to curtail cross-country vehicle travel near the Vernita Bridge.

- Based on factors such as public safety, resource sensitivity, and site suitability, determine the most suitable site for public river access at the Vernita Bridge or upstream. If a site is found that is more suitable than the existing use area, work to secure public access and provide visitor facilities commensurate with the final CCP direction. Once access and facilities are in place, close and rehabilitate the existing site.

- Coordinate with the DOE and WDFW to seek outside funding and partners to develop a boat launch in the Vernita area.

- Explore funding options for a Ringold boat launch with the WDFW, BOR, Washington Interagency Committee for Outdoor Recreation, and other sources.

- Work cooperatively with the Northwest Water Trail partnership to include the Hanford Reach as a segment within the Columbia River Water Trail.

Objective 7-10: Camping[77]

Over the life of the CCP, seek to provide camping opportunities on the Monument.

Unit	Alternative C-1[1]
Columbia River	Phase out unapproved camping activities at Vernita. Develop 3-6 boat-in campsites within 6 years.
Ringold	Create semi-developed camping within 3 years.
[1] Several of these actions are dependent upon other agencies and/or organizations. Phasing out camping at Vernita will involve the DOE. Campgrounds at Vernita and Ringold might require the cooperation and assistance of the BOR, DOE, WDFW, Grant Count PUD, etc.	

Rationale

Public scoping indicated a strong demand for camping opportunities on the Monument. While camping is not a priority public use of the NWRS, it can support uses such as wildlife observation, photography, environmental education, and interpretation, which may be priority uses of a particular refuge. However, based on the recently finalized FWS appropriate uses policy, camping has been determined to be an inappropriate use on the Monument, other than to protect the safety of floatboaters.

Vernita Area

The Vernita Bridge Unit, currently administered by the WDFW under a lease agreement with the DOE, is the most intensively used site on the Monument, receiving heavy seasonal use from anglers willing to trailer over rocky terrain, launch boats, and camp along unimproved shoreline areas. Although the DOE lease prohibits camping, visitors appear to camp in this area year-round. Native American tribes have voiced concerns over degradation of sensitive natural and cultural resources in this area from vehicle travel, day use, camping, improper sanitation practices, and boat launching activities. Demand for a designated area for river access, day use,

[77] See Appendix G for the compatibility determination for camping. The FWS has determined that all camping, other than for non-motorized floatboating, is not an appropriate use of the Monument. Floatboat camping has been determined to be appropriate for public safety reasons.

and overnight use somewhere in the vicinity of the Vernita Bridge was identified during public scoping for the EIS. However, there may be more suitable locations for such use upstream of the Vernita Bridge, and as noted, most camping has been determined to be an inappropriate use on the Monument. An inventory could identify other suitable locations so that the best option can be selected for this important visitor access location. (See Objective 7-10 for additional management strategies for the Vernita Bridge area.)

Non-Motorized Boat Camping

Non-motorized boating (e.g., canoeing, kayaking) is currently constrained due to the distance between access points and restrictions on overnight use in the Monument. Non-motorized boating supports priority public uses such as wildlife observation, wildlife photography, interpretation and education. Scoping indicated a strong demand for camping opportunities somewhere in the middle of the Hanford Reach, allowing visitors to safety float the entire stretch in a two-day trip. Motorized boats do not have these time and safety constraints.

Ringold

Located adjacent to the Monument's southern boundary, the Ringold Fish Hatchery is situated on BOR land which is leased to the WDFW. A small, undeveloped camping area serves anglers and currently provides the first available camping opportunity for non-motorized boaters seeking to float the Hanford Reach from upstream launches. Because this site is located adjacent to the Monument, has easy access from a paved county road, and is already somewhat hardened, it would be a logical location to work in partnership to provide improved boat launch facilities. (See Objective 7-10 for additional management strategies for the Ringold area.)

Strategies

- Coordinate with the DOE and WDFW to assist with enforcement of the existing day use only requirement in the Vernita Bridge area.

- Coordinate with the DOE and WDFW to curtail cross-country vehicle travel in the Vernita Bridge Unit.

- Considering factors such as public safety, resource sensitivity, and site suitability, determine the most suitable site for public river access in the immediate vicinity of the Vernita Bridge or upstream. If a suitable site is found, secure public access and provide visitor facilities commensurate with the final CCP direction at the new site. Once new facilities are in place, close and rehabilitate the existing site.

- Coordinate with the DOE, EPA, WDOE and WSDOT to evaluate the River Corridor Unit, roughly between the White Bluffs Boat Launch and the Ringold Fish Hatchery, for areas that would be appropriate for boat-in campsite locations.

Objective 7-11: General Public Access

Modify historic public access and use patterns to best protect Monument resources while providing additional opportunities for compatible uses.

Unit	Alternative C-1
Columbia River	Enforce closure south and west of Vernita Bridge.[1]
Rattlesnake	Establish 1 trail.
Ringold	Close little-used parking lots.
Wahluke	Open 28,321 additional acres.[2]
[1] This would require action by the DOE.	

Rationale

The existing public use areas on today's Monument lands has evolved over the decades as byproducts of changing DOE operational needs, without consideration of resource suitability, visitor impacts, quality of visitor experience, or management efficiency. This has resulted in some situations where recreation activities are concentrated in and around fragile resources, while other areas more suitable for recreation activities are closed. The strategies address this situation by identifying options for closing some areas and opening new areas to public access. The strategies under any particular alternative coincide with the management theme of that alternative, as described earlier in this Chapter.

Recreational use can have significant impacts to island resources. Impacts on wildlife resources from shoreline activities—especially those that extend above the mean high-water mark—include disturbance of colonial nesters (especially during pre-nesting when birds can be disturbed from nesting, as well as later when there are young flightless birds); destruction of bank swallow nesting sites; disturbance to breeding waterfowl; and interruption of foraging and resting activities by a wide range of raptors, passerines, wading birds, waterfowl and mammals. Other impacts include the spread of invasive weeds, unsanitary waste, littering and illegal collecting. The public use closure is proposed due to sensitive island resources, the costs required to ensure resource protection, and the ready availability of other opportunities elsewhere in the Monument and surrounding areas.

Strategies

- Monitor visitor use patterns in the Ringold Unit and identify unused parking lots for closure.

- Following resource inventories, identify one or more potential foot trail corridors in the Rattlesnake Unit.

- Provide signing and vehicle parking areas as needed to facilitate non-motorized public access to additional acreage in the Wahluke Unit.[78]

- Coordinate Rattlesnake Unit access planning and implementation with the DOE, Energy Northwest, BPA and Benton County PUD to address public safety and security issues.

- Install signing, conduct public outreach, and provide enforcement to maintain the existing closure south and west of the Vernita Bridge.[79]

- Discontinue allowing dogs on the Monument, outside of leashed dogs in parking lots and retrieving dogs during hunting seasons. Provide visitors with information on off-Monument locations allowing dogs.

- Close the Hanford (already closed) and McNary Islands to recreational use to protect sensitive natural and cultural resources.

Goal 8: Protect the natural visual character and promote the opportunity to experience solitude on the Monument.

Objective 8-1: Visual Resources Plan

Develop a Visual Resources Management Plan for the Monument.

Unit	Alternative C-1
Columbia River	Develop a Visual Resources Management Plan within 5 years.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

[78] This action would be dependent upon the DOE lifting or resizing the Hanford exclusion zone.

[79] This would be a DOE action.

Rationale

The Monument's scenic landscapes provide a striking backdrop for many visitor activities. Input received during public scoping for the EIS and planning workshops called for protecting and maintaining the integrity of these scenic landscapes. Completion of a comprehensive visual resources inventory, followed by development of sensitivity classes and associated standards and guidelines, would provide managers with a valuable tool for protecting these resources.

Strategies

- Build from the existing key observation points inventory to complete a visual resources inventory of the Monument, placing each acre in the Monument into a sensitivity class. Provide the draft inventory to affected agencies and governments on the Monument to increase their understanding of the project and to seek their comments.

- Work with agencies to develop design standards and guidelines for structures, utilities and activities taking place on the Monument.

- Seek cooperation from those agencies carrying out projects or activities on the Monument to bring their structures, utilities and activities into compliance with the established standards and guidelines.

- Participate in planning for off-site projects to minimize any potential negative impacts to the Monument's visual resources.

Objective 8-2: Light and Noise Standards

Develop light and noise standards for the Monument.

Unit	Alternative C-1
Columbia River	Develop light and noise standards within 5 years.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Noise and light pollution can disturb wildlife and degrade the quality of visitor experiences. Standards to minimize noise and light pollution overall, and to minimize the effects of ongoing

activities on sensitive habitats and recreational opportunities, would benefit both wildlife and Monument visitors.

Strategies

- Identify sources of noise and light that impact the Monument and identify abatement strategies for each source.
- Identify wildlife species and associated habitats that are vulnerable to noise and light disturbance and factor in abatement strategies accordingly.
- Identify recreation activities and associated locations that are sensitive to noise and light disturbance and factor in abatement strategies accordingly.
- Develop an outreach and education plan to inform Monument visitors, other agencies, and individuals conducting activities on the Monument of issues associated with noise and light pollution and seek their assistance in minimizing impacts to the Monument.
- Participate in planning for off-site projects, seeking to minimize any potential negative impacts related to noise and light pollution.

Objective 8-3: Solitude

Manage for solitude opportunities in select areas on the Monument.

Unit	Alternative C-1
Columbia River	The areas to promote and protect solitude will need to be determined. The wilderness inventory will be used as a starting point.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

The Monument currently offers excellent opportunities for visitors to experience solitude. Solitude was identified as an important resource during public scoping for the EIS. In future years, as visitation to the Monument increases, solitude opportunities could become degraded without careful planning and implementation of protective management actions.

Strategies

- Identify areas that will be managed for solitude, giving special consideration to areas with wilderness characteristics.

- Identify indicators to monitor whether solitude opportunities are being achieved, such as group encounter rates, noise and the number of visual intrusions. Establish indicator thresholds and subsequent management actions when thresholds are exceeded.

- Inform visitors about typical visitor use patterns on the Monument to allow those seeking solitude to best plan their visit.

- Consider management strategies to enhance solitude opportunities, such as parking lot size limits, group size limits, permits, concentration of visitor facilities along roads, seeking to limit Monument overflights, etc.

Goal 9: Facilitate research compatible with resource protection, emphasizing research that contributes to management goals of the Monument.

Objective 9-1: Research

Over the life of the CCP: 1) develop standards and protocols to support existing, and encourage new, research with other agencies (e.g., DOE, WDFW, USGS), universities, and non-profit and other organizations; 2) gather scientific information to facilitate management of Monument resources; and 3) gather scientific information for the general advancement of science.

Unit	Alternative C-1
Columbia River	Utilizing partnerships and cooperative working groups, implement strategic research activities on the Monument within one year of the CCP being adopted.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Research is critical for protecting Monument resources, determining natural resource components and their interactions, and understanding the consequences of management actions on the parts and the whole. Research is also critical for the general advancement of science and scientific inquiry. The Monument and surrounding area have been recognized as a premier location to conduct research due to the character of the environment and, in some areas, lack of human disturbance over decades. Because the Monument was a buffer surrounding the nuclear facilities on Central Hanford, it has been relatively free from human disturbance (e.g., agricultural activities) since the 1940s. The Monument contains one of the largest areas of undisturbed shrub-steppe habitat within the Columbia Basin. Because public access and use was limited, it offers unique opportunities for a variety of ecologically based research and monitoring. (The ALE Unit has been designated a NERP, an RNA, and an IBA for Washington State.)

The Monument was established under the provisions of the Antiquities Act of 1906 to conserve a unique and biologically diverse landscape encompassing an array of scientific and historic objects. Conducting research into these scientific and historic objects will ensure that the FWS and others will manage the Monument to achieve the specific purposes for which the Monument was established and help fulfill the mission of the NWRS.

Strategies

- Establish research operations, access and equipment maintenance protocols for research on the Monument.

- Within one year of the CCP being adopted, develop research project and prioritization standards with the goal of Monument resource protection.

- Form an interagency advisory group that includes scientific and academic interests to assist with the review of research proposals.

- Conduct an annual review of research results and adapt management accordingly.

- Request researchers incorporate a public outreach/ education component into their activities.

- Develop a dissemination network/system to share findings of research conducted on or for the Monument.

- Coordinate with the DOE to ensure that research projects under their approval do not impact important wildlife and habitat resources. Continue to support DOE research projects that are compatible with Monument purposes.

- Inventory and evaluate all residual research plots to determine their feasibility for removal.

- Work cooperatively with researchers and other agencies for the removal of obsolete research equipment and facilities.

Goal 10: Establish and maintain a cooperative fire management program that protects facilities, resources and neighbors and fulfills natural resource management objectives.

Objective 10-1: Fire Plan

Within five years of the CCP being adopted, review and revise the existing Fire Management Plan, retaining, improving, or expanding on its capabilities to protect the Monument's resources and assist in local fire management.[80]

Unit	Alternative C-1
Columbia River	Revise the existing Fire Management Plan within five years of the CCP being adopted.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

Although a natural part of the Monument's ecosystems, fire can also be the biggest threat to those ecosystems. The natural fire regime has been replaced by one that has a higher frequency rate due to human causes and one that is augmented or altered by invasive species, such as cheatgrass which dries out earlier in the year than native bunchgrasses, lengthening the fire season. Likewise, the natural landscape surrounding the Monument has been replaced by one of private property, highly susceptible to fire damage. An effective Fire Management Plan is crucial to the long-term conservation of Monument resources and the protection of private property. The existing plan, while sufficient, will require revision as a new CCP is implemented,

[80] A revised Fire Plan was completed in the spring of 2009.

new techniques in fire management are developed, and new understandings about fire in the landscape are realized.

Strategies

- Use prescribed fire to accomplish resource management objectives.
- Develop a fire prevention and education program component.
- Suppress fires to the smallest acreage that is feasible for fire fighter and public safety and resource protection.
- Integrate fire management into all Monument programs.
- Identify capital needs for fire management facilities.
- Reduce hazardous fuels on the Monument by appropriate means, such as prescribed fire, mechanical and/or chemical treatments to protect natural, cultural, scenic and recreational resources.
- Promptly mitigate impacts of wildland fires that threaten life, property and critical natural and cultural resources.

Objective 10-2: Firefighting

Expand the firefighting capability of the Monument.

Unit	Alternative C-1
Columbia River	Increase the Monument's firefighting capability.
Rattlesnake	
Ringold	
Saddle Mountain	
Wahluke	

Rationale

As noted, fire is arguably the biggest threat to Monument resources. Having adequate resources available to contain and extinguish large fires is critical to the long-term preservation of natural, cultural and recreational resources.

Strategies

- Increase existing firefighting personnel by 50%.
- Increase the number of fire engines and other equipment by 50%.
- Increase the cache of firefighting equipment to a sufficient size for the personnel on staff to be able to fight at least two major fires per year.
- Review, update and execute cooperative agreements, including, at a minimum, an annual meeting to discuss the capabilities of each partner.

Appendices

Appendix A – Glossary & Abbreviations

ABC: American Bird Conservancy.

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

ACOE: (United States) Army Corps of Engineers.

ADA: Americans with Disabilities Act.

ADT: Average Daily Traffic.

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

AEC: (United States) Atomic Energy Commission.

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

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

AHPA: Archeological and Historic Preservation Act.

ALE: Fitzner-Eberhardt Arid Lands Ecology Reserve.

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

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

Archeological Resource: Material remains of past human life or activities, including (but not limited to), pottery, basketry, bottles, weapons, tools, structures, and graves, or any portion of

the foregoing items, as well as the physical site or context in which it is found. (Source: Considering Cultural Resources)

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

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

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

BCR: Bird Conservation Region.

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

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

BLM: (United States) Bureau of Land Management.

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

BOR: (United States) Bureau of Reclamation.

B.P.: Before Present.

BPA: (United States) Bonneville Power Administration.

CalTech: California Institute of Technology (Irvine).

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

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

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

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

CCT: Confederated Tribes of the Colville Reservation.

CD: Compatibility Determination.

Census Bureau: (United States) Census Bureau.

CEQ: (United States) Council on Environmental Quality.

CERCLA: Comprehensive Environmental Response, Compensation & Liability Act.

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

CFR: Code of Federal Regulations.

CIC: (Washington State University) Consolidated Information Center.

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

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

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

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

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

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

Council: Northwest Power and Conservation Council.

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

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

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

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

CRITFC: Columbia River Intertribal Fish Commission.

Cryptobiotic Crust: See Microbiotic Crust.

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

CTUIR: Confederated Tribes of the Umatilla Indian Reservation.

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

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

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

dB: Decibel.

DOA: (United States) Department of the Army.

DOD: (United States) Department of Defense.

DOE: (United States) Department of Energy.

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

DOI: (United States) Department of the Interior.

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

ECPA: Electric Consumers Protection Act.

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

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

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

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

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

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

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

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

EO: Executive Order.

EPA: (United States) Environmental Protection Agency.

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

Equestrian: Relating to horses or horseback riding.

ESA: Endangered Species Act.

ESU: Evolutionary Significant Unit.

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

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

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

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

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

FAA: (United States) Federal Aviation Administration.

FAC: Hanford Reach National Monument Federal Advisory Committee.

FACA: Federal Advisory Committee Act.

Fauna: The animals of a specified region or time.

FERC: Federal Energy Regulatory Commission.

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

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

Flora: The plants of a specified region or time.

FLPMA: Federal Land Policy and Management Act.

FONSI: Finding Of No Significant Impact.

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

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

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

FR: Federal Register.

FTE: Full Time Equivalent.

FWS: (United States) Fish and Wildlife Service.

FY: Fiscal Year.

GCEDC: Grant County Economic Development Council.

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

GMA: (Washington State) Growth Management Act.

GMU: (Washington State) Game Management Unit.

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

GPL: Gravitation Physics Laboratory.

GPS: Global Positioning System.

HAB: Hanford Advisory Board.

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

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

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

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

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

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

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

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

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

HMS: Hanford Meteorology Station.

HNRTC: Hanford Natural Resource Trustee Council.

HSS: Highways of Statewide Significance.

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

Hz: Hertz.

IBA: Important Bird Area.

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

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

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

Negligible: Resources would not be affected, or the effects would be at or near the lowest level of detection. Resource conditions would not change or would be so

slight that there would not be of any measurable or perceptible consequence to a population, plant community, cultural resource, recreation opportunity or visitor experience.

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

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

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

Time and duration of impacts have been defined as:

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

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

IMPLAN: Impact Analysis for Planning.

Improvement Act: National Wildlife Refuge System Improvement Act.

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

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

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

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

IPSIMP: Integrated Plant Species Inventory and Management Plan.

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

ISTEA: Intermodal Surface Transportation Efficiency Act.

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

KV: Kilovolt.

LIGO: Laser Interferometer Gravitational Wave Observatory.

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

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

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

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

MCAS: Mid-Columbia Archaeological Society.

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

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

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

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

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

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

MIT: Massachusetts Institute of Technology.

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

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

Monitoring: Tracking changes of selected parameters over time.

Monument: Hanford Reach National Monument.

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

MOU: Memorandum of Understanding.

mph: Miles Per Hour.

NABCI: North American Bird Conservation Initiative.

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

NAS: National Audubon Society.

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

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

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

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

NEPA: National Environmental Policy Act.

NERP: National Environmental Research Park.

NGO: Non-Government Organization.

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

NHS: National Highway System.

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

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

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

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

NPDES: National Pollutant Discharge Elimination System.

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

NPS: (United States) National Park Service.

NRHP: National Register of Historic Places.

NWI: National Wetlands Inventory.

NWR: National Wildlife Refuge.

NWRS: National Wildlife Refuge System.

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

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

Objective: A concise statement of what we want to achieve, how much we want to achieve, when and where we want to achieve it, and who is responsible for the work. Objectives derive from goals and provide the basis for determining strategies, monitoring refuge accomplishments,

and evaluating the success of strategies. Objectives should be attainable, time-specific, and measurable. ((Source: Draft FWS Manual 601 FW 4)

ODFW: Oregon Department of Fish and Wildlife.

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

ORV: Off-Road Vehicle.

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

OSHA: Occupational Safety and Health Administration.

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

PALS: Partners for Arid Lands Stewardship.

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

PCB: Polychlorinated Biphenyl.

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

PHS: Priority Habitats and Species.

PIF: Partners in Flight.

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

Plateau: Columbia Plateau Physiographic Province.

PMU: (Washington State) Population Management Unit.

PNCA: Pacific Northwest Coordination Agreement.

PNNL: Pacific Northwest National Laboratory.

POC: Points of Contact.

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

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

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

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

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

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

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

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

PRISM: Program for Regional and International Shorebird Monitoring.

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

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

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

PUD: Public Utilities District.

PUP: Pesticide Use Proposal.

Purposes of the Monument: The purposes specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a national wildlife refuge or refuge subunit. (Source: Draft FWS Manual 601 FW 4)

PWC: Personal Watercraft.

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

RCRA: Resource Conservation and Recovery Act.

RCW: Revised Code of Washington.

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

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

RMIS: (National Wildlife) Refuge Management Information System.

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

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

ROD: Record of Decision.

RONS: Refuge Operating Needs System.

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

SCBID: South Columbia Basin Irrigation District.

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

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

SEPA: (Washington) State Environmental Policy Act.

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

SHPO: (Washington) State Historic Preservation Officer.

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

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

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

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

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

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

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

SUP: Special Use Permit.

T&E Species: Threatened and Endangered Species.

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

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

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

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

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

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

TNC: The Nature Conservancy.

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

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

TRIDEC: Tri-City Industrial Development Council.

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

USC: United States Code.

USDA: United States Department of Agriculture.

USFS: United States Forest Service.

USGS: United States Geological Survey.

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

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

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

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

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

WAC: Washington Administrative Code.

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

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

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

WDFW: Washington Department of Fish and Wildlife.

WDNR: Washington Department of Natural Resources.

WDOE: Washington Department of Ecology.

WDPR: Washington Department of Parks and Recreation.

Wetlands: Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. (Source: Draft FWS Manual 601 FW 4)

WHR: Washington Heritage Register.

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

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

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

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

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

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

WNHP: Washington Natural Heritage Program.

WOFM: Washington Office of Financial Management.

WPPSS: Washington Public Power Supply System.

WRIA: Water Resource Inventory Area.

WSDOT: Washington State Department of Transportation.

WSU: Washington State University.

WTP: Washington Transportation Plan.

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

YCC: Youth Conservation Corps.

Appendix B – 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[81]

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

THE ANTIQUITIES ACT

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

A. Objects of Historic or Scientific Interest

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

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

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

[81] 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.

species. The loss of other spawning grounds on the Columbia and its tributaries has increased the importance of the Hanford Reach for fisheries.

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

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

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

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

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

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

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

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

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

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

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

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

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

LEGAL EFFECTS OF THE PROCLAMATION

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

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

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

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

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

Sixth, nothing in the proclamation interferes with the operation and maintenance by the Bureau of Reclamation (BOR) of existing Columbia Basin Reclamation Project facilities located within

the monument; however, the monument designation precludes new agricultural irrigation within the boundaries.

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

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

ADMINISTRATION OF THE MONUMENT

A. Management of the Monument

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

The DOE manages the Hanford site pursuant to the Atomic Energy Act of 1954, as amended, and applicable Public Land Orders. The BLM manages public lands pursuant to its organic

authorities, primarily the Federal Land Policy and Management Act of 1976 (FLPMA), 43 U.S.C. § 1702 et seq. The BOR holds lands for the Columbia Basin Project Act under that project's authorizing statute, at 16 U.S.C. § 835c, as amended. The FWS manages lands under its management jurisdiction pursuant to the National Wildlife Refuge System Administration Act, 16 U.S.C. § 668dd-ee, and in accordance with agreements with the DOE.

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

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

1. Hazardous waste clean-up and restoration

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

2. Agricultural activities

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

3. Recreation, hunting, fishing and similar activities

Much of the monument has been off limits to recreation and public access. However, wildlife dependent recreation (hunting, fishing, environmental education, wildlife observation,

interpretation, and photography) does occur on the Wahluke Wildlife Recreation Unit on the Wahluke Slope. Such recreation would generally not be affected except where (1) the land managing agency, through processes required by existing law, identifies places where such uses ought to be restricted or prohibited as necessary to protect the federal lands and resources, including the objects protected by the monument designation; or (2) where the agency finds a clear threat from such a use to the federal lands and resources, including the objects protected by the monument designation, and the circumstances call for swift protective action. Such uses remain subject to applicable laws and regulations, and therefore remain subject to regulation and limitation under such provisions for reasons other than establishment of the monument.

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

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

5. Access

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

6. Mineral activities

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

7. Indian rights

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

8. Hydroelectric operations

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

9. Bonneville Power Administration

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

Appendix C – 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 D – Permit to Operate A National Wildlife Refuge[82]

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

FOURTH AMENDEMENT TO THE WAHLUKE SLOPE PERMIT

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

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

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

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

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

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

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

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

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

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

THEREFORE, DOE-RL and FWS agree as follows:

1.0 DEFINITIONS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2.0 AUTHORITIES:

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

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

3.0 OBJECTIVES:

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

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

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

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

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

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

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

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

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

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

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

4.0 FWS RESPONSIBILITIES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

5.0 DOE-RL RESPONSIBILITIES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6.0 PROGRAM FUNDING:

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

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

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

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

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

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

7.0 INTERAGENCY INTEGRATED MANAGEMENT ARRANGEMENTS:

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

8.0 PUBLIC INFORMATION COORDINATION:

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

point of contact to coordinate the release of information to the public pertaining to the Refuge.

9.0 AMENDMENT AND TERMINATION:

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

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

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

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

10.0 EFFECTIVE DATE AND EXTENSIONS:

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

11.0 OTHER PROVISIONS:

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

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

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

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

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

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

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

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

Signature: _____

Name: KEITH KLEIN

Date: June 14, 2001

U.S. Fish and Wildlife
Pacific Regional Director

Signature: _____

Name: ANNIE BADGLEY

Date: June 14, 2001

Appendix E – Record Of Decision

U.S. Department of the Interior, Fish and Wildlife Service

Record of Decision

for the

Hanford Reach National Monument
Comprehensive Conservation Plan and Final Environmental Impact Statement

Adams, Benton, Franklin and Grant Counties, Washington

Through this Record of Decision (ROD), the U.S. Fish and Wildlife Service (FWS) selects a Comprehensive Conservation Plan (CCP) for the Hanford Reach National Monument (Monument). Brief summaries of the alternatives considered, the public involvement process, and the reasons for selecting Alternative C-1 for implementation, as it is written in the final CCP and Environmental Impact Statement (EIS), are included in this ROD. The CCP will provide guidance for managing and conserving the Monument's natural, cultural, recreational, and aesthetic resources and public use activities during the next 15 years.

Alternatives Considered

The FWS evaluated six alternatives (A through F) in the draft CCP/EIS, including a No Action Alternative (Alternative A) as required under the Council on Environmental Quality's regulations (40 CFR 1500-1508).

Two additional alternatives—Alternatives B-1 and C-1—were included in the final CCP/EIS for the following reasons.

- In the time period between the draft and final CCP/EIS, the FWS developed a Sport Hunting Opening Package for the Monument in response to a lawsuit. In the Sport Hunting Opening Package, the FWS identified eliminating hunting from the Monument as a reasonable alternative. To be consistent with the Sport Hunting Opening Package, the FWS included the option of eliminating hunting on the Monument as part of Alternative B-1.

- Based on comments received on the draft CCP/EIS from Native American tribes, other agencies, special interests, and the public regarding limiting extremes in both providing and controlling public uses, the FWS developed Alternative C-1.

The eight alternatives considered in the final CCP/EIS—Alternatives A, B, B-1, C, C-1, D, E, and F—are described briefly on the following pages. Additional detail is provided in Section 2.10 of the final CCP/EIS.

Monument Uses and Activities Common to all Alternatives

The uses and activities common to all alternatives include:

- Every unit could be open for permitted research.
- Every unit could support Monument-led tours, educational classes, and events, by permit.
- Wildlife population control may be implemented on any unit.
- The FWS will work with partners to provide appropriate visitor use enhancements, such as waterfowl hunting and photography blinds, interpretive sites, and nature trails.
- Auto tour routes could be established, incorporating existing state and county roads.

Alternative A (No Action)

Alternative A assumes no change from existing management practices. Current management practices would be continued in accordance with the Monument Proclamation's mandates to conserve and protect biological, geological, paleontological, and cultural resources. Conservation activities would involve resource inventorying and monitoring, habitat restoration, invasive species control, fire protection, fire rehabilitation, and maintenance of existing facilities. Land use designations in place when the Monument was established would be maintained.

Public access for recreational, interpretive, and educational purposes would continue to be allowed year-round in designated areas but restricted in areas with sensitive resources. Limited interpretive and educational programs would be presented on request, depending on staff availability.

Because it represents no change from existing practices, Alternative A provides a baseline for evaluating impacts that could occur with implementation of the other alternatives.

Alternative B

Alternative B emphasizes the restoration of native plants and animals in upland, riparian, and aquatic habitats. Compared to the other alternatives, Alternative B would provide the greatest emphasis on the conservation, protection, and monitoring of the biological, geological, paleontological, and cultural resources described in the Monument Proclamation. Increased

opportunities for restoration-based research of the native landscape and habitat for species of concern would be promoted, and information sharing between partners and researchers would be encouraged.

Public access for day-use recreation, interpretation, and education would continue to be allowed year-round in designated areas. Compared to Alternatives A, C, C-1, D, and E, Alternatives B and B-1 would employ a greater degree of management controls and use restrictions to ensure resource protection. (The permit system in Alternative F would employ the greatest degree of control over visitors.)

Visitor facilities would be developed only in areas of the Monument deemed appropriate and only after a comprehensive inventory of the Monument resources is conducted and areas with sensitive resources are identified. Interpretation and education programs would be provided; however, fewer people would be served than are planned for in Alternatives C, C-1, D, E, and F.

Alternative B-1

Alternative B-1 is identical to Alternative B, except no hunting would be allowed anywhere on the Monument. This alternative was developed due to a lawsuit challenging the expansion of hunting opportunities on a number of national wildlife refuges across the country.

Like Alternative B, Alternative B-1 emphasizes the restoration of native plants and animals in upland, riparian, and aquatic habitats. Like Alternative B, B-1would provide the greatest emphasis on the conservation, protection, and monitoring of the biological, geological, paleontological, and cultural resources described in the Monument Proclamation. Alternative B-1 goes one step further in protecting resources by prohibiting recreational and sport hunting of wildlife, although hunting could be allowed when needed to control wildlife populations, both to manage for a healthy population and to protect other resources from damage.

Alternative C

The focus of Alternative C is on protecting and conserving the biological, geological, paleontological, and cultural resources described in the Monument Proclamation by creating and maintaining extensive areas free of facility development. This alternative would serve conservation, restoration, protection, and recreation purposes by maintaining large natural landscapes, protecting sensitive resources, and providing opportunities for solitude.

The facilities and access points proposed in Alternative C would be concentrated together to minimize overall impacts to the Monument and to provide economies of scale in management and maintenance. Public access points and recreational facilities would be planned and developed along highways and in perimeter areas of the Monument. Certain existing facilities and infrastructure within the Monument would be relocated or removed. Vehicle access into the Monument's interior would be limited; however, much of the Monument would be open to foot

and other non-motorized access. Facilities, such as the boat-in campsites along the Hanford Reach, would be developed after inventories of resources are conducted and areas with sensitive resources are identified. The interpretation and education programs under Alternative C would serve more people than Alternatives A, B, and F, but fewer than Alternatives D and E.

Alternative C-1 (Preferred Alternative)

Alternative C-1 was developed in response to comments received on the draft CCP. Most commenters cautioned against either allowing too much public use on the Monument or controlling public use too tightly. Alternative C-1 would provide a high level of resource protection while permitting a wide range of public access and uses.

Like Alternative C, the focus of Alternative C-1 is on protecting and conserving the biological, geological, paleontological, and cultural resources described in the Monument Proclamation by creating and maintaining extensive areas within the Monument free of facility development. However, Alternative C-1 does not go as far in maintaining these open areas, nor does it significantly remove existing facilities to create open areas like Alternative C does (e.g., Alternative C-1 does not close the White Bluffs Boat Launch).

Like Alternative C, new facilities and access points would be concentrated under Alternative C-1 to minimize impacts to the Monument and to provide economies of scale in management and maintenance. Vehicle access into the interior of the Monument would be limited primarily to what currently exists; however, much of the Monument would be open to non-motorized access.

Facilities provided for in this alternative, such as the boat-in campsites along the Hanford Reach, would be developed after inventories of resources are conducted and areas with sensitive resources are identified. Interpretation and education programs would serve greater numbers of people than Alternatives A, B, B-1, and F, but fewer than Alternatives C, D, and E.

Alternative D

Alternative D would provide the greatest degree of public access, recreational opportunities, and facilities development. The conservation, protection, and monitoring of the natural and cultural resources described in the Monument Proclamation would still be the primary priority; however, more time, effort, and resources would be devoted to public use, leaving fewer resources for restoration activities, in comparison to other alternatives. Resource inventories, identification of sensitive areas, and restoration activities would be concentrated in the areas of highest public use. Resource protection, restoration research, and monitoring would focus on the impacts created from recreational activities.

Public access sites and facilities would be developed throughout the Monument to a greater extent than under Alternatives A, B, B-1, C, C-1, and F, but access would still be restricted to areas with the most biologically and culturally sensitive resources. Visitor facilities would

include improved boat launches, auto tour routes, and campgrounds. This alternative would offer more interpretation and education programs than in any other alternative.

Alternative E

Alternative E was formulated by the Hanford Reach National Monument Federal Planning Advisory Committee during a workshop held June 16-17, 2004. It provides an alternate public-use-emphasis alternative to Alternative D.

Alternative E would also provide a high degree of public access and facilities development through the combination of elements from Alternatives C and D. The underlying open space concept of Alternative C is maintained through the concentration of facilities in perimeter areas; however, access and areas open to the public more closely resemble Alternative D. The conservation, protection, and monitoring of biological, geological, paleontological, and cultural resources described in the Monument Proclamation remains the top priority; however, like Alternative D, substantial effort and resources would be devoted to public use, likely decreasing the resources and attention available to restoration activities in comparison to other alternatives.

Resource inventories, identification of sensitive areas, and restoration activities would be concentrated in the areas of highest public use. Resource protection, restoration research, and monitoring would focus on the impacts created from recreational activities.

Public access points and facilities would be developed in perimeter areas of the Monument to a greater extent than under Alternatives A, B, B-1, and F, and access would be restricted from areas with the most sensitive resources. Visitor facilities would include improved boat launches and campgrounds. More interpretation and education programs would be available than in other alternatives, with the exception of Alternative D.

Alternative F

The Confederated Tribes of the Umatilla Indian Reservation developed this alternative using Alternative B as the basis for management emphasis and public access. Public use would be controlled through a permit system, with some areas requiring use fees to help fund Monument programs. Permits would have the additional benefit of enhancing evacuation efforts in the event of an emergency on the Hanford Site. Permits may also act as a deterrent to natural and cultural resource vandalism and looting.

While similar to Alternative B, a slight increase in areas open to public access would be provided under Alternative F. The one significant difference is the addition of a public access permit system, with the possible establishment of fee areas. Interpretation and education programs would be provided; however, fewer people would be served than under Alternatives C, C-1, D, and E.

Preferred Alternative

The preferred alternative is the alternative which the agency believes would fulfill its statutory mission and responsibilities, giving consideration to environmental, social, economic, technical, and other factors. All alternatives meet the Monument's primary purposes and the mission of the National Wildlife Refuge System (NWRS); therefore, each alternative has the potential to be selected as the final CCP. Alternative C-1 has been identified as the preferred alternative because it best achieves Monument Proclamation mandates, fulfills FWS missions and purposes, is consistent with principles of sound wildlife management, and facilitates priority public uses compatible with the Monument's purposes and the NWRS mission.

Key details of the preferred alternative include:

- Hiking and Trail Configuration – Under full implementation of Alternative C-1,up to 100 miles of designated hiking trails, including one in the ALE (an area currently closed to all public use), will be established.

- Hunting – Under Alternative C-1, an additional 8,985 acres of land could be opened for a variety of hunting opportunities (67,245 acres total).

- Wildlife Observation and Photography – Under Alternative C-1, 13 education/ interpretive sites and four interpretive trails will be established, all of which could double as observation and photography facilities. In addition, there are two sites planned specifically for photography and eight for wildlife observation.

- Environmental Education – The environmental education program will be expanded and improved to serve 5,000 students annually. There will be increased field trip support, teacher training, and site-specific materials and curriculum developed. Under full implementation of Alternative C-1, an outdoor classroom will be established on the Monument, and docent-led activities on the Arid Lands Ecology Area (ALE) will open a unique educational opportunity for area students.

- Public Use Expansion – Currently, 68,379 acres of the Monument are open to some form of general public access and/or use. Under Alternative C-1, 94,564 acres would be open to public use. This includes potentially opening 8,985 acres to a variety of hunting opportunities (big game, upland game bird, and waterfowl hunting). Opening additional lands to public use must be approved by the Department of Energy (DOE).

- Habitat Restoration – Under Alternative C-1, ongoing fire restoration actions would continue, 3,000 acres of upland habitat would be restored annually, and nearly 1,200 acres of riparian/wetland habitat would be restored over the 15-year period covered by the CCP. These lands have been impacted by past agricultural practices, fires, military and DOE uses, and recreational activities. These restoration activities are in addition to the planned annual treatment of 13,000 acres for invasive species.

- Cultural Resources – The Monument has an extensive range of Native American and Euro-American cultural resources, covering both physical resources and traditional use of the landscape. Alternative C-1 provides for development of new policies, procedures, and stepdown plans to protect these resources. It also expands inventorying Monument lands for cultural resources under Alternative C-1 by 750 acres per year. The cultural resources section of Alternative C-1 goes a step further than other sections by identifying stakeholders to be involved in developing plans and procedures.

Environmentally Preferable Alternative

The concept of the "environmentally preferable alternative" (40 CFR 1505.2(b)) is different from the preferred alternative, although in some cases one alternative may serve as both. The environmentally preferred alternative is generally the one that causes the least damage to the environment and best protects natural and cultural resources. The alternative which causes the least damage to the biological and physical environment and best protects, preserves, and enhances natural resources in the Monument's final CCP/EIS is Alternative B-1.

Public Involvement and Comments Received

Thorough public involvement has been incorporated throughout the planning process in numerous ways. In the course of developing the CCP and completing the EIS, the FWS contacted a number of federal, state, and local agencies to gather information, solicit input on the issues of concern, and invite their continued involvement as cooperating agencies. Due to the high level of interest by area tribal governments, the FWS provided for tribal participation on the cooperating agency team as consulting governments. Fifteen agencies and/or governments elected to become cooperating agencies or consulting governments, including the city of Richland; Adams, Benton, and Grant Counties; Washington Departments of Ecology, Fish and Wildlife, and Natural Resources; U.S. Army Corps of Engineers; Bonneville Power Administration; Bureau of Reclamation; Department of Energy; Federal Highway Administration; Confederated Tribes of the Umatilla Indian Reservation; Nez Perce Tribe; and Yakama Indian Nation.

In January of 2001, the Secretary of the Interior chartered the Hanford Reach National Monument Federal Planning Advisory Committee (FAC), subject to the guidelines and provisions of the Federal Advisory Committee Act (41 CFR Parts 101-6 and 102-3). The FAC was created to provide local advice to the FWS and DOE on development of the CCP/EIS for the Monument. The 13-member FAC was comprised of representatives from state government, county government, city government, Native American tribes, public utilities, economic development interests, the environmental community, outdoor recreation interests, education providers, the public-at-large, and three members representing the scientific community. The FAC held 20 meetings between June 2001 and January 2005, which were used to formulate advice for the FWS and DOE regarding CCP/EIS-related topics such as public involvement strategies, planning issues, vision, goals, objectives, alternatives, and special issues, including

White Bluffs slumping and elk population management. Each meeting was open to the public, and public comments were documented. Meeting dates were published in the *Federal Register* and sent to local and regional media outlets prior to each meeting. Committee records are available to the public at Washington State University's Tri-Cities Campus library in the DOE Reading Room and through the Monument's website.

Throughout the planning process, and in accordance with FWS and NEPA procedures, the FWS consulted with the four federally recognized Native American tribes in the area—the Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Colville Indian Reservation, Nez Perce Tribe, and Yakama Indian Nation. In addition, the FWS consulted with the Wanapum Band; the Wanapum historically occupied lands within the Monument and maintain traditional connections to it to this day. The FWS initiated consultation on the CCP with all of the tribes in a March 2002 letter inviting participation in the CCP/EIS planning process. Consultations continued on a regular basis and included over 50 individual meetings with the tribes.

The FWS began the public scoping period by publishing a Notice of Intent to prepare the CCP/EIS in the *Federal Register* on June 12, 2002. The initial 90-day comment period was extended by 30 days to end October 12, 2002. During that time, FWS staff members accepted official comments as follows.

- Oral comments were captured on flipcharts at the scoping meetings.
- Emails or letters sent to the FWS Regional (Portland, Oregon) or Monument Offices were collected and documented.
- Completed worksheets from a planning workbook were collected and documented.
- Telephone calls to the Monument Office were documented.
- Completed comment sheets included in Planning Update #1 were collected and documented.

All comments gathered during public scoping were recorded and summarized in a Public Scoping Report, which is available on the Monument's website. During the 120-day scoping period, four public scoping meetings and one Monument open house were held in Mattawa, Richland, Seattle, and Yakima, Washington.

The FWS also solicited public input and provided public outreach throughout the CCP process in several ways. The FWS provided approximately 60 public presentations highlighting the CCP/EIS project. Tours of the Monument were organized for numerous interested organizations and individuals. Resource reviews were conducted on the Monument for visitor services, wildlife and habitat, cultural resources, and geological and paleontological resources. The Washington Department of Fish and Wildlife and FWS hosted a workshop on April 5-6, 2004,

in Prosser, Washington, to address elk management issues with tribal representatives, county commissioners, the DOE, environmental groups, fish and wildlife professionals, and local farmers and ranchers. The FWS conducted three two-day public planning workshops that brought together a diverse group of interests to develop drafts of the Monument's vision statement, goals, preliminary management alternatives, and preliminary management objectives. The FWS also distributed five planning updates to individuals, agencies, and organizations on the Monument's mailing list, which grew from 800 entries to 1,300 entries by the end of the public comment period.

The FWS released the draft CCP/EIS on December 6, 2006, for an 80-day public review and comment period ending February 23, 2007. As the result of requests for extensions from the Yakama Nation and Lower Columbia Basin Audubon Society, the comment period was extended for an additional 15 days, ending March 10, 2007. During the 95-day comment period, the FWS received 308 timely comment communications. The overwhelming majority of comments focused on four main themes—Boat Launches, Horseback Use, Hunting on Islands, and the Observatory on Rattlesnake Mountain—which were used to organize the comments. A fifth category, "Other," was included to capture all other comments not fitting the main topics. Additional, minor themes were identified within each of the five main topics.

During the comment period, the FWS held four public open houses to answer questions from the public and to listen to concerns, comments, and ideas. The open houses were held in Mattawa, Pasco, Richland, and Sunnyside.

Decision

The FWS has selected Alternative C-1, the Preferred Alternative, for implementation as specified in the final CCP/EIS as the Monument's CCP. Alternative C-1 is the most effective alternative for addressing the key issues identified during the planning process and will best achieve the purposes and goals of the Monument, as well as the goals of the NWRS. Implementation of the CCP will occur over the next 15 years. This decision includes adopting the stipulations and mitigation measures referenced in the Measures to Minimize Environmental Harm section.

Factors Considered in Making the Decision

In reaching this decision, the FWS reviewed and considered the impacts identified in Chapter 4 of the draft and final CCP/EIS; results of the various studies and surveys conducted in conjunction with the draft and final CCP/EIS; relevant issues, concerns, and opportunities presented by agencies, organizations, and individuals throughout the planning process, including comments on the draft and final CCP/EIS; and other relevant factors, including the purposes for which the Monument was established and statutory and regulatory guidance. For the following reasons, Alternative C-1 was selected for implementation:

- Alternative C-1 is based on a proven land management approach that protects resources while allowing for public use and enjoyment of protected lands. This management approach will cluster public use and associated facilities in select perimeter areas and existing travel corridors and utilize large interior areas for passive, primitive recreational use. This approach will prove to be effective for protecting and restoring natural and cultural resources. Through economies of scale, created by concentrating facilities in a select few areas, implementing it will be cost effective.

- Implementing Alternative C-1 will improve management of the Monument by creating five management units with geographic, resource, and infrastructure characteristics which allow the FWS to effectively protect natural and cultural resources and administer public use programs.

- Implementing Alternative C-1 will provide an achievable balance of opportunities for all six wildlife-dependent priority public uses (hunting, fishing, wildlife observation and photography, and environmental education and interpretation), while providing sufficient protection and sanctuary areas for fish, wildlife, and habitat. Access to various habitats will still be provided, and additional trails will be developed over time. Alternative C-1 will greatly enhance the quality of the environmental education program and triple the number of students currently served by the program. In addition, other public use facilities will be expanded and improved.

- Implementing Alternative C-1 will respond to issues identified by various publics and incorporate well-established principles of landscape planning, while protecting the resources identified in the Monument Proclamation.

- Implementing Alternative C-1 will provide a substantial degree of wildlife and habitat protection from human-caused disturbance and minimize conflicts among the various user groups. Adequate sanctuary for fish and wildlife will be ensured through hunting exclosures;[83] seasonal closures; maintaining the Rattlesnake Unit closure; clearly defined and enforced hunting area boundaries; and developing a trail and infrastructure configuration that minimizes habitat fragmentation. In addition, all public uses will be monitored to help assess disturbance effects on wildlife and habitat.

- Implementing Alternative C-1 will best achieve Monument Proclamation mandates and fulfill the FWS mission, is consistent with principles of sound wildlife management, and facilitates priority public uses compatible with the Monument's purposes and the FWS mission.

- Implementing Alternative C-1 will incorporate several components addressing a variety of resource needs, including wildlife sanctuary, habitat restoration and protection,

[83] These are areas where hunting is not allowed, but other public uses are. For example, while not open to hunting, the west end of the Wahluke Unit will be open to hiking, wildlife observation, and other passive public uses.

research promotion, and priority public uses. The unique combination of these components will contribute to achieving the Monument's vision, purposes, and goals. Alternative C-1 will better prepare the Monument to respond to changing conditions within a rapidly growing area of the state. It will strengthen fish, wildlife, habitat, and public use monitoring. It is the best alternative for ensuring that the Monument can make the greatest contribution to meeting fish, wildlife, and habitat needs within the Columbia River Basin.

The FWS did not select Alternative B-1, the environmentally preferable alternative, for implementation because, as described above, Alternative C-1 best achieves natural and cultural resource protection and conservation goals while facilitating priority public uses compatible with the Monument's purposes, the Monument Proclamation, and the NWRS mission.

Measures to Minimize Environmental Harm

Public concerns, potential impacts, and measures or stipulations to mitigate those impacts are addressed in the final CCP/EIS. All practicable measures to avoid or minimize environmental harm that could result from implementation of Alternative C-1 have been identified and incorporated into Chapter 2 (Goals, Objectives, and Strategies), Chapter 4 (Environmental Impacts, including best management practices to avoid or mitigate impacts) and Appendix I (Compatibility Determinations) of the final CCP/EIS. The stipulations identified in the Compatibility Determinations in Appendix I ensure that public and other uses are compatible with the NWRS mission and the Monument's purposes. The stipulations and other mitigation measures identified for Alternative C-1 in Chapters 2 and 4 are adopted by the FWS in this ROD and will be implemented by Monument staff members and volunteers.

Findings Required by Other Laws and Executive Orders

The proposed action complies with all federal laws and executive orders related to the Monument's CCP planning process. A Compliance Statement has been prepared which explains how the selected alternative complies with the requirements of the National Wildlife Refuge System Administration Act, as amended (16 U.S.C. 688dd-688ee); the National Environmental Policy Act (42 U.S.C. 4321 et seq.); the Endangered Species Act (16 U.S.C. 1531-1544, 87 Stat. 884); the National Historic Preservation Act (16 U.S.C. 470-470b, 470c-470n); the Wild and Scenic Rivers Act (Public Law 90-542) and associated study legislation (Public Laws 100-605 and 104-333, Section 404); the Monument Proclamation (Presidential Proclamation 7319 of June 9, 2000); Executive Order 12898, Environmental Justice; Executive Order 11988, Floodplain Management; Executive Order 11990, Protection of Wetlands; Executive Order 12372, Intergovernmental Review; Executive Order 13186, Protection of Migratory Birds; and Executive Order 13175, Consultation and Coordination with Indian Tribal Governments.

For Further Information

For further information, contact the Mid-Columbia River National Wildlife Refuge Complex, 64 Maple Street, Burbank, Washington 99323, telephone number (509) 546-8300. Copies of the final CCP/EIS and this ROD may be obtained at the Monument or viewed at public libraries within Kennewick, Pasco, and Richland (the Tri-Cities), Washington. The documents are also available for viewing and downloading online at hanford.fws.gov.

/s/ Ren Lohoefener	September 24, 2008
Regional Director, Pacific Region	Date

Appendix F – Appropriate Monument Uses

Public uses on national wildlife refuges are considered 'closed' until specifically opened. Opening such uses is a two-part process. First, the proposed use must be determined to be an "appropriate use" of the refuge. Second, if a use is found to be appropriate, then it must be found to be compatible with the purposes of the refuge (see Appendix I) in order to be allowed. Compatibility determinations do not need to be developed for uses found to be not appropriate.

Under the FWS Appropriate Refuges Uses policy (601 FW 1), there are nine categories of refuge uses and activities which are found to be appropriate or otherwise exempt from the requirement for evaluation of appropriateness. These are:

1) Situations where the FWS does not have adequate jurisdiction to prohibit a use.

2) The exercise of reserved rights, treaty rights by Native Americans, or other situations where legal mandates state FWS-NWRS must allow certain uses.

3) Refuge management activities, not including refuge management "economic" activities (see 603 FW 2.6 N.).

4) Wildlife-dependent public uses—hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

5) The take of fish and wildlife regulated by a state (e.g., through fishing, hunting, and trapping).

6) Authorized military activities that directly benefit refuge purposes.

7) Uses which have already been described in a refuge CCP or step-down management plan approved after October 9, 1997.

8) Uses which contribute to fulfilling the NWRS mission, or refuge purpose(s), goals, or objectives which are described in a refuge management plan approved after October 9, 1997.

9) State fish and wildlife agency activities which have been documented to directly contribute to achievement of refuge purpose(s), goals, and the NWRS mission; are addressed in a CCP or formal agreement; or are approved under national policy.

This appendix provides the FWS's appropriateness review for uses identified by some portion of the public as being desirable on the Monument. With few exceptions (below), the refuge manager must decide if a new or existing use is appropriate. In assessing whether a secondary

use is appropriate, the refuge manager must evaluate the following ten factors (the letters correspond to the evaluation criteria in the Appropriate Uses form):

a) Does the FWS have jurisdiction over the use? If the FWS does not have jurisdiction over the use or the area where the use would occur, then there is no authority to consider the use.

b) Does the use comply with all applicable laws and regulations? The proposed use must be consistent with all applicable laws and regulations (e.g., federal, state, tribal and local). Uses prohibited by law are not appropriate.

c) Is the use consistent with applicable Executive Orders and Department and FWS policies? If the proposed use conflicts with an applicable Executive Order or Department or Service policy, the use is not appropriate.

d) Is the use consistent with public safety? If the proposed use creates an unreasonable level of risk to visitors or staff, or if the use requires staff to take unusual safety precautions to assure the safety of the public or refuge staff, the use is not appropriate.

e) Is the use consistent with refuge goals and objectives in an approved management plan or other document? Refuge goals and objectives are designed to guide management toward achieving refuge purpose(s). Goals and objectives for the Monument are defined in Chapter 2 of the CCP.[84] If the proposed use, either itself or in combination with other uses or activities, conflicts with a refuge goal, objective, or management strategy, the use is generally not appropriate.

f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed? If the use was already considered and rejected as not appropriate, then it should not further unless circumstances or conditions have changed significantly.

g) For uses other than wildlife-dependent recreational uses, is the use manageable with available budget and staff? If a proposed use diverts management efforts or resources away from proper, reasonable management of a refuge activity or wildlife-dependent recreational use, the use is generally not appropriate.

h) Will the use be manageable in the future within existing resources? If the use would lead to recurring requests for the same or similar activities that will be difficult to manage in the future, then the use is not appropriate.

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[84] Refuges may also rely on goals and objectives found in comprehensive management plans or refuge master plans developed prior to passage of the Improvement Act, as long as these goals and objectives comply with the tenets and directives of the Improvement Act.

i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to those resources? If not, then the use will generally not be further considered.

j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality, compatible, wildlife-dependent recreation into the future? If not, the use is generally not further considered.

If an existing use is found to be not appropriate, the refuge manager must eliminate or modify the use as expeditiously as practicable. If a proposed new use is not appropriate, the refuge manager must deny the use (601 FW 1.3).

Rationale

As Monument staff developed the Appropriate Uses findings, it became apparent that the assumptions and ideas that went into the process should be documented. The following is not a full representation of the hours of discussions and research that went into the appropriateness use evaluation process, but it does identify the key concepts involved in the findings.

1) The most common or traditional application of the use was addressed. For example, geocaching typically involves the leaving or taking of an item as part of the activity. Participants in field dog trials in the area like to use horses. Etc. These common uses will be addressed individually below.

2) The answer to Decision Criteria E was, in all instances, "no." This was based on the fact that the Monument designation is a recent event, and as such, it has never had an "approved" management plan. However, the fact that the Monument does not yet have an approved management plan was not a factor in making appropriateness findings for the Monument.

3) Several activities were broken into different parts for the sake of clarity. For example, camping, when considered as a whole, was not an appropriate use of the Monument with the current resources available. However, limited camping along the river to ensure public safety is possible with existing or reasonably foreseeable resources. Splitting these activities into two different appropriate use analyses provided for a clear picture of what was appropriate and possible.

4) The analysis for biking on roads was limited to roads directly under the control, management and maintenance of the FWS. County and state roads (e.g., State Route 24), even though within the Monument, were not considered as part of the appropriateness evaluation as the FWS does not have jurisdiction over these roads.

5) Biking on specially constructed and/or designated trails was determined not be an appropriate use due to the Monument Proclamation and accompanying implementation paper from the White House. Those documents ". . . prohibits motorized and mechanized vehicle travel off road . . .." The FWS has interpreted this to include trails; that is, trail use is considered an "off road" use. This is consistent with final rules established by the USFS on November 9, 2005 (FR 70, 216, pages 68263-91; 36 CFR Parts 212, 251, 261 and 295), whereby a road is defined as "a motor vehicle route over 50 inches wide" and a trail is "a route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail." The FWS may dually designate some existing roads as trails, in which case, biking on the 'trail' would be allowed.

6) Camping—other than for floatboating—was defined as needing at least minimal facilities and maintenance, such as sanitation, fire protection, site hardening, garbage removal, and toilet pumping. The appropriate use analysis was based on these minimum facilities and not on specialized facilities, such as recreational vehicle hookups, showers, etc.

7) Floatboat camping was defined on a pack-it-in, pack-it-out basis with no open flames allowed. All camping would be at a minimum number of defined and hardened sites distributed through a lottery system.

8) The analysis for field dog trials was based on past activities on the Monument. These previous field dog trials involved camping, the use of horses, cooking, and overnight horse tie-ups.

9) As mentioned, geocaching was defined as the taking or leaving of objects, which is inconsistent with FWS policy.

10) Hang gliding is not consistent with airspace restrictions over the Hanford Site.

11) The cost to repair damage from cross-country horseback use (see the compatibility determination for horseback riding) was determined to be unmanageable with current staff and budgetary resources.

12) Since the use of the observatory on the Monument is not within the jurisdiction of the FWS at this time, it was not evaluated for appropriateness. Should jurisdiction change in the future, the use will be reassessed for its appropriateness. The FWS has addressed the observatory in a variety of sections throughout the CCP (e.g., 2.10.2.11 Objective 1-11: Restoration of Lithosol Habitat).

Finding of Appropriateness of a Use on the Monument[85]

Refuge Name: Hanford Reach National Monument

Use: Biking, FWS-Managed Public Roads

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[86]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[85] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[86] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate ___ **Appropriate** X

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[87]

Refuge Name: Hanford Reach National Monument

Use: Biking, Trails

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?	✓	
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[88]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?	✓	
(h) Is the use manageable in the future with existing resources?	✓	
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[87] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[88] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ___

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[89]

Refuge Name: Hanford Reach National Monument

Use: Camping, Floatboat

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[90]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[89] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[90] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate ___ **Appropriate** X

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[91]

Refuge Name: Hanford Reach National Monument

Use: Camping, Other Than Floatboating

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[92]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?	✓	
(h) Is the use manageable in the future with existing resources?	✓	
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[91] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[92] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ___

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[93]

Refuge Name: Hanford Reach National Monument

Use: Dog Walking

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[94]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?	✓	

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[93] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[94] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ___

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[95]

Refuge Name: Hanford Reach National Monument

Use: Drainage Pipeline

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?	✓	
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[96]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?	✓	

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[95] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[96] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes X **No** ____

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ____

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[97]

Refuge Name: Hanford Reach National Monument

Use: Field Dog Trials

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[98]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?	✓	
(h) Is the use manageable in the future with existing resources?	✓	
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[97] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[98] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ___

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[99]

Refuge Name: Hanford Reach National Monument

Use: Geocaching

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?	✓	
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?	✓	
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[100]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[99] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[100] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ___

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[101]

Refuge Name: Hanford Reach National Monument

Use: Hang Gliding

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?	✓	
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?	✓	
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[102]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?	✓	

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[101] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[102] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ___

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[103]

Refuge Name: Hanford Reach National Monument

Use: Foot Travel (Hiking, Jogging)

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[104]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[103] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[104] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate ___ **Appropriate** X

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[105]

Refuge Name: Hanford Reach National Monument

Use: Horseback Riding, Roads and Designated Trails

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[106]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[105] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[106] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate ___ **Appropriate** X

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[107]

Refuge Name: Hanford Reach National Monument

Use: Horseback Riding, Cross-country

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[108]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?	✓	
(h) Is the use manageable in the future with existing resources?	✓	
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[107] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[108] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate X **Appropriate** ___

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Finding of Appropriateness of a Use on the Monument[109]

Refuge Name: Hanford Reach National Monument

Use: Research and Management Studies

Decision Criteria	NO	YES
(a) Do we have jurisdiction over the use?		✓
(b) Does the use comply with applicable laws and regulations (federal, state, tribal and local)?		✓
(c) Is the use consistent with applicable Executive Orders and Departmental and FWS policies?		✓
(d) Is the use consistent with public safety?		✓
(e) Is the use consistent with goals and objectives in an approved management plan or other document?[110]	✓	
(f) Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?		✓
(g) Will this be manageable in the future with available budget and staff?		✓
(h) Is the use manageable in the future with existing resources?		✓
(I) Does the use contribute to the public's understanding and appreciation of the Monument's natural or cultural resources, or is the use beneficial to those resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see Section 1.6D of 603 FW 1 for a description), compatible, wildlife-dependent recreation into the future?		✓

Where the FWS does not have jurisdiction over the use (i.e., "no" to (a)), there is no need to evaluate the use further as the FWS cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (i.e., "no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above (i.e., (e) - (j)), the FWS will ***generally*** not allow the use.

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[109] This form is not required for wildlife-dependent recreational uses, take regulated by the state of Washington, or uses already described in a CCP or step-down management plan approved after October 9, 1997.

[110] The Monument was created in June of 2000 and has never had a management plan. This CCP will be the Monument's first management plan, so this standard is not really applicable at this point.

If indicated, the Monument Manager has consulted with the state fish and wildlife agencies.

Yes ___ **No** X

When the Monument Manager finds the use appropriate based on sound professional judgement, the Monument Manager must justify the use in writing on an attached sheet and obtain the Refuge Supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is the proposed use is:

Not Appropriate ___ **Appropriate** X

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

If found to be **Not Appropriate**, the Monument Manager does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside of the CCP process, the Refuge Supervisor must sign concurrence.

If found to be **Appropriate**, the Refuge Supervisor must sign concurrence.

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

A Compatibility Determination is required before the use may be allowed.

Appendix G – Compatibility Determinations

Compatibility determinations must be completed for all recreational uses, or other uses of the Monument by the public or other non-Monument entity. This includes actions the FWS might take associated with a particular recreational use or other general public use, including any economic activity (e.g., commercial guiding) proposed for the Monument. The Monument Manager and the FWS's Regional Chief must determine that the activity is a "compatible use." That is, it is a wildlife-dependent recreational use, or other use of the Monument that, based on sound professional judgment, will not materially interfere with, or detract from, the mission of the NWRS or the purposes of the Monument. The compatibility determination itself is simply the written determination by the Monument Manager and Regional Chief signifying that the use is or is not a compatible use.

In determining what is a compatible use, the Refuge Administration Act relies on the "sound professional judgment" of the person authorized to make the decision.[111] Compatibility determinations are inherently complex and require the Monument Manager to consider their field experiences and knowledge of the Monument's resources, particularly its biological resources, and make conclusions that are consistent with principles of sound fish and wildlife management and administration, available scientific information, and applicable laws.

The Monument Manager must also consider the extent to which available resources (funding, personnel and facilities) are adequate to develop, manage and maintain the proposed use so as to ensure compatibility. The Monument Manager must make reasonable efforts to ensure that the lack of resources is not an obstacle to permitting otherwise compatible wildlife-dependent recreational uses (hunting, fishing, wildlife observation and photography, and environmental education and interpretation). If reasonable efforts do not yield adequate resources to develop, manage and maintain the wildlife-dependent recreational use, the use will not be compatible because the FWS will lack the administrative means to ensure proper management of the public activity on the Monument.

Since permitting uses of the Monument is a determination vested by law to the FWS, under no circumstances (except emergency provisions necessary to protect the health and safety of the public or any fish or wildlife population) may a use be authorized which is not determined to be compatible with the purposes of the Monument and/or the NWRS.

On the pages that follow, seven compatibility determinations are completed for the Monument. Others will be completed as need dictates. It should be noted that the activities of foot travel and

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[111] 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.

biking (see Appendix I, Appropriate Uses) are included in the compatibility determination for wildlife observation, photography, environmental education, and interpretation.

Compatibility Determination – Camping For Floatboaters

Use

Camping for Floatboaters

Refuge Name

Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument)

Establishing and Acquisition Authorities

The Saddle Mountain National Wildlife Refuge (24,000 acres) was established on November 30, 1971, through a permit with the Department of Energy and under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754).

The Hanford Reach National Monument (195,000 acres), which includes the Saddle Mountain National Wildlife Refuge, was established on June 9, 2000, through Presidential Proclamation 7319 under the authority of the Antiquities Act of 1906.

Refuge Purposes

National wildlife refuges are established ". . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . ." (16 U.S.C. §742f(a)(4)) and also ". . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . ." (16 U.S.C. §42f(b)(1); Fish and Wildlife Act of 1956, 16 U.S.C. §742(a)-754, as amended).

The Monument was established ". . . for the purpose of protecting the objects identified above [riparian, aquatic and upland shrub-steppe habitats; native plant and animal species; free-flowing, non-tidal stretch of the Columbia River; shrub-steppe ecosystems; breeding populations of birds; habitat for migratory birds; mammals; insect populations; geological and paleontological objects; Archaeological and historic information] . . ." (Monument Proclamation 7319, dated June 9, 2000).

National Wildlife Refuge System Mission

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

Description of Use

While not one of the six wildlife dependent public uses listed or identified in the National Wildlife Refuge System Administration Act, as amended (1997), camping can facilitate wildlife observation and photography, but is not necessary to achieve it. Historically, camping has not been allowed on the Monument.

As proposed, camping would only be allowed at three to six established sites along the Hanford Reach of the Columbia River and would be limited to holders of special permits in order to provide for public safety. Traversing the entire Hanford Reach in one day is difficult to accomplish, especially by families or if the frequently strong winds in the area impede travel.

Availability of Resources

The following funding/annual costs would be required to administer and manage floatboat camping as described above.

Activity or Project	*One Time Expense*	*Recurring Expense*
Develop Camping Sites	$50,000	
Signs/Interpretive Panels	$5,000	
Maintenance of Facilities		$10,000
Law Enforcement		$5,000
Monitoring, Administration and Issuing of Permits		$6,000
Totals	**$55,000**	**$21,000**

Anticipated Impacts of the Use

Floatboating (i.e., the use of nonmotorized craft) tends to be less disturbing to most species of wildlife than motorized boating.[112] The effects of nonmotorized boating are anticipated to be similar to that of access for fishing, albeit more transitory in nature; please refer to the discussion of anticipated impacts under the Fishing Compatibility Determination.

The camp sites themselves would have minimal direct impact to the Monument. At most, six delineated sites would be established adjacent to the river that would be no more 400 square feet in order to accommodate two to three tents. Within this area, vegetation would be removed and the soil compacted (hardened). Of greater impact would be the presence of people in a time and place that has not previously seen people. Social trailing will impact soils and vegetation around the site. This could include an increased potential for erosion, soil compaction (Liddle 1975), reduced seed emergence (Cole and Landres 1995), alteration of vegetative structure and composition, and sediment loading (Cole and Marion 1988). Other impacts could result from littering, a failure to follow sanitation regulations (i.e., pack it in, pack it out), and an increased potential for fire.

Human activities at these points can result in direct effects on wildlife through harassment, a form of disturbance that can cause physiological effects, behavioral modifications, or death (Smith and Hunt 1995). Numerous studies have confirmed that the presence of people can cause a variety of disturbance reactions in wildlife, including flushing or displacement (Erwin 1989, Fraser et al 1985, Freddy 1986), heart rate increases (MacArthur et al 1982), altered foraging patterns (Burger and Gochfeld 1991), and even, in some cases, diminished reproductive success (Boyle and Samson 1985).[113] 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

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[112] The U.S. Fish and Wildlife Service does not have jurisdiction over the surface water of the Columbia River and cannot control the activity of floatboating. The agency would only be able to control the associated camping.

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

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).

All of the above potential impacts could be exacerbated by the fact that the presence of people is for an extended period and for periods that have not seen visitors (i.e., overnight); this could also impact different species. In order to mitigate these potential impacts, the implementation of best management practices (e.g., seasonal closures during sensitive life cycles, establishment of sites away from sensitive areas) will be crucial to minimize impacts to natural and cultural resources.[114]

Public Review and Comment

This Compatibility Determination was prepared concurrent with the Monument's CCP/EIS. Open houses were held and written comments were solicited from the public during the scoping period for the Monument's CCP/EIS, during which time this activity solicited considerable interest. However, this Compatibility Determination was not included in the draft CCP/EIS and is being developed in response to comments received during the comment period for the draft CCP/EIS.

Determination

_____ The use is not compatible.

__X__ The use is compatible with the following stipulations.

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

Stipulations Necessary to Ensure Compatibility

- Monitoring will be conducted to insure that high-quality habitat for wildlife feeding, resting, breeding is maintained in the immediate vicinity of designated campsites.
- Camping will be limited to holders of permits issued by the U.S. Fish and Wildlife Service (FWS).
- Camping could be reduced or closed if significant negative impacts to Monument facilities or natural and cultural resources occurs.
- Use is limited to one night per permit holder.
- Participants will be restricted to the designated sites.
- Litter and human waste will be required to be packed out by users.
- No open flames will be allowed.
- All users will be required to acknowledge that they have read and agree to the conditions outlined in a camping brochure, which will be issued with the permit.
- Seasonal or other closures will be implemented, if necessary, to protect natural and cultural resources.

Justification

Floating the Hanford Reach in a nonmotorized boat offers a unique opportunity to experience the Monument and supports the priority public uses of wildlife observation, photography and environmental education. However, due to the length of the Hanford Reach and the limited number of access points and shuttle opportunities, traversing the entire stretch in one day is difficult, especially for families or in high winds. In order to provide this recreational opportunity while protecting public safety means that camping sites must be established. The opportunity to engage in several priority public uses provided through camping would outweigh any anticipated negative impacts associated with implementation of the program.

It should also be noted that, although the typical trip length covers all 46.5 miles of the Hanford Reach, camping would only be allowed at three to six campsites, covering a maximum area of 0.06 acres. Disturbance is anticipated to be higher for an eighth of a mile in each direction, which would cover an area of 60 acres (maximum), and some disturbance is anticipated up to

a quarter mile in each direction, covering an area of 230 acres (maximum).[115] Within the almost 30,000 acres of the River Corridor Unit and the 196,000 acres of the Monument itself, overall impacts would be minor, at most, especially as the impacts would be transitory and limited in time to the hours of camper activity. Given the scale of the activity, the stipulations outlined above, as well as the best management practices identified, potential impacts relative to wildlife/ human interactions will be minimal.

Mandatory 10- or 15-year Re-evaluation Date

Provide month and year for "allowed" uses only.

__X__ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses).

_____ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses).

NEPA Compliance for Refuge Use Decision

_____ Categorical Exclusion without Environmental Action Statement.

_____ Categorical Exclusion and Environmental Action Statement.

_____ Environmental Assessment and Finding of No Significant Impact.

__X__ Environmental Impact Statement and Record of Decision.

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[115] This would likely be an even smaller area as campsites would be located fairly close to each other, thereby having overlapping areas of impact, although the final siting of campsites will be dependent in resource needs.

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Signatures

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

Regional Chief: /s/ Carolyn A. Bohan September 24, 2008
(Signature and Date)

Compatibility Determination – Fishing

Use

Fishing

Refuge Name

Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument)

Establishing and Acquisition Authorities

The Saddle Mountain National Wildlife Refuge (24,000 acres) was established on November 30, 1971, through a permit with the Department of Energy and under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754).

The Hanford Reach National Monument (195,000 acres), which includes the Saddle Mountain National Wildlife Refuge, was established on June 9, 2000, through Presidential Proclamation 7319 under the authority of the Antiquities Act of 1906.

Refuge Purposes

National wildlife refuges are established ". . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . ." (16 U.S.C. §742f(a)(4)) and also ". . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . ." (16 U.S.C. §42f(b)(1); Fish and Wildlife Act of 1956, 16 U.S.C. §742(a)-754, as amended).

The Monument was established ". . . for the purpose of protecting the objects identified above [riparian, aquatic and upland shrub-steppe habitats; native plant and animal species; free-flowing, non-tidal stretch of the Columbia River; shrub-steppe ecosystems; breeding populations of birds; habitat for migratory birds; mammals; insect populations; geological and paleontological objects; Archaeological and historic information] . . ." (Monument Proclamation 7319, dated June 9, 2000).

National Wildlife Refuge System Mission

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

Description of Use

In the NWRS Improvement Act, the United States Congress declared fishing one of six wildlife-dependent public uses of the NWRS. If determined compatible, fishing would become a priority public use for the Monument. Currently, on FWS-administered Monument lands, recreational bank fishing occurs on the east bank of the Columbia River north of the WDFW Ringold Fish Hatchery.[116] 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.[117] Additional user-created trails follow the shoreline in some areas.[118]

Fish caught by Monument visitors include Chinook and chum salmon (seasonally), sturgeon, and resident game fish, including catfish and bass. Although the U.S. Fish and Wildlife Service (FWS) does not closely monitor all fishing on the Monument, we anticipate that use will increase over the next fifteen years.

Availability of Resources

The Monument is open for many public uses other than fishing, including hunting, environmental education and interpretation, wildlife photography, and wildlife observation. The same facilities used for these activities are also useful for fishing. However, access trails, parking lots, signs and other facilities are inadequate, as are staff resources, to enforce regulations and maintain these facilities. The costs outlined in the table below would be required to administer and manage fishing on the Monument.

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[116] 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.

[117] 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.

[118] The Monument would also investigate fishing opportunities for disabled users.

Activity or Project	One Time Expense	Recurring Expense
Law Enforcement		$5,000
Development/Maintenance of Parking & Trails	$10,000	$500
Placement and Maintenance of Signs	$2,000	$500
Outreach, Education, Monitoring	$3,000	$2,000
Development/Maintenance of Accessible Sites	$50,000	$5,000
Totals	***$65,000***	***$13,000***

Anticipated Impacts of the Use

Fishing as a solitary and stationary activity tends to be less disturbing to wildlife than hunting or motorized boating (Tuite et al. 1983). However, there would be disturbance of birds and other wildlife using the open waters where fishing would occur. Fishing activities may influence the composition of bird communities, as well as distribution, abundance, and productivity of waterbirds (Tydeman 1977, Bouffard 1982, Bell and Austin 1985, Bordignon 1985, Edwards and Bell 1985, and Cooke 1987). Anglers often fish in shallow, sheltered bays and creeks that birds prefer, negatively impacting distribution and abundance of waterfowl, grebes, and coots (Cooke 1987). Increases in anglers and associated shoreline activity discouraged waterfowl from using otherwise suitable habitat (Jahn and Hunt 1964). In Britain, anglers displaced waterfowl from their preferred feeding and roosting areas and caused wigeon, green-winged teal, pochard, and mallard to depart from a reservoir prematurely (Jahn and Hunt 1964). Anglers influenced the numbers, behavior, and diurnal distribution of avian scavengers present at sites in Washington, when compared to non-fishing days (Knight et al. 1991). Shoreline activities, such as human noise, would cause some birds to flush and go elsewhere.

Bank fishing allows the anglers direct access to the river, bays and sloughs. Waterbird and waterfowl use of these areas varies seasonally, as does angler presence. Waterfowl are prevalent on the river in the winter, especially when surrounding wetlands freeze, but angler presence is little or none, as is disturbance to waterfowl (see the Hunting Compatibility Determination for impacts to waterfowl). Bald eagle roost sites occur within the bank fishing area, but eagles are more common in winter months when angler presence is low. The nesting period identified in the Bald Eagle Recovery Plan identifies January 1 as the beginning of the nesting season when special protective measures should begin (FWS 1986). As most bank fishing activity takes place outside of bald eagle nesting habitat, adverse impacts are not anticipated. Bank fishing occurs in a slough near a heron rookery near one of the parking areas along the Ringold River Road. Access to the banks of this slough, however, is difficult, and most bank fishing occurs at the opposite end of the slough, away from the rookery. Washington State requires a minimum 900-foot buffer zone to protect colonies from human disturbances (WDFW 2001). Based on the literature, we would expect there to be some disturbance to the rookery during its seasonal use.

In addition, trampling of vegetation and deposition of sewage or other chemicals are expected to commonly occur (Liddle and Scorgie 1980). Disturbance and destruction of riparian vegetation, bank stability, water quality, and littering may result from high levels of bank fishing activities.

By its nature, fishing results in the intentional take of individual fish. Catch and release fishing can also harm individual fish, killing them or reducing their likelihood of long-term survival. Although creel and fishing activity censuses have not been made in this particular area, it is estimated that use will increase and that the WDFW will continue to monitor harvest by anglers and routinely adjust regulations to ensure that overall populations of game species remain healthy into the future. The number of people fishing and any potential impacts will be monitored and access points, areas open/closed to fishing, and seasonal/temporary closures will be considered in coordination with the WDFW.

It is well recognized that fishing can give many people a deeper appreciation of fish and wildlife and a better understanding of the importance of conserving habitat, which ultimately contributes to the NWRS mission. Furthermore, when determined compatible, fishing is one of the six priority public uses on the NWRS.

Public Review and Comment

This Compatibility Determination was prepared concurrent with the Monument's CCP/EIS. Open houses were held and written comments were solicited from the public during the scoping period for the Monument's CCP/EIS. Public review and comment were solicited during the draft CCP/EIS comment period.

Determination

_____ The use is not compatible.

__X__ The use is compatible with the following stipulations.

Stipulations Necessary to Ensure Compatibility

- Monitoring will be conducted to ensure that high-quality habitat for feeding, resting, breeding and thermal protection for waterfowl, waterbirds and other wildlife species is maintained.

- The Monument will provide information on bank fishing and access at appropriate sites and through printed brochures. Information will also include current migratory bird and Monument regulations, as well as maps of closed areas.

- Monument officers will enforce any closed areas and use restrictions.

- All fishing on the Monument would require an appropriate state license and tag and all fishing will be consistent with applicable state regulations.

The Monument will monitor and evaluate the fishing program and users to determine if objectives are being met.

Justification

When determined compatible, fishing is one of the six priority public uses of the NWRS. Providing a quality fishing program contributes to achieving one of the Monument's goals. This program as described was determined to be compatible with the Monument purposes even though jurisdiction where most of the bank fishing would occur (below the mean high water level) lies with the state of Washington. Sufficient restrictions will be placed on fishing to ensure that an adequate amount of high-quality feeding, breeding and resting habitat would be available for migratory birds in relatively undisturbed areas (sanctuaries). Based on monitoring, bank fishing activity may need to be confined to designated areas.

In addition, the majority of waterfowl and bald eagle use near bank fishing areas occurs in the winter and spring months, although a few birds arrive as early as September and October. Since the majority of fishing activity occurs in the spring, summer and fall (through mid-October), disturbance to waterfowl species and eagles is expected to be minimal.

It is anticipated that wildlife, primarily waterbirds, will find sufficient food resources and resting places such that their abundance and use of the Monument will not be measurably lessened, fishing pressure will not cause fish stocks (i.e., forage) to decline, the physiological condition and production of waterfowl and other waterbirds will not be impaired, their behavior and normal activity patterns will not be altered dramatically, and their overall welfare will not be negatively impacted.

Mandatory 10- or 15-year Re-evaluation Date

Provide month and year for "allowed" uses only.

__X__ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses).

_____ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses).

NEPA Compliance for Refuge Use Decision

_____ Categorical Exclusion without Environmental Action Statement.

_____ Categorical Exclusion and Environmental Action Statement.

_____ Environmental Assessment and Finding of No Significant Impact.

__X__ Environmental Impact Statement and Record of Decision.

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Signatures

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

Regional Chief: /s/ Carolyn A. Bohan September 24, 2008
(Signature and Date)

Compatibility Determination – Horseback Riding

Use

Horseback Riding

Refuge Name

Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument)

Establishing and Acquisition Authorities

The Saddle Mountain National Wildlife Refuge (24,000 acres) was established on November 30, 1971, through a permit with the Department of Energy and under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754).

The Hanford Reach National Monument (195,000 acres), which includes the Saddle Mountain National Wildlife Refuge, was established on June 9, 2000, through Presidential Proclamation 7319 under the authority of the Antiquities Act of 1906.

Refuge Purposes

National wildlife refuges are established ". . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . ." (16 U.S.C. §742f(a)(4)) and also ". . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . ." (16 U.S.C. §42f(b)(1); Fish and Wildlife Act of 1956, 16 U.S.C. §742(a)-754, as amended).

The Monument was established ". . . for the purpose of protecting the objects identified above [riparian, aquatic and upland shrub-steppe habitats; native plant and animal species; free-flowing, non-tidal stretch of the Columbia River; shrub-steppe ecosystems; breeding populations of birds; habitat for migratory birds; mammals; insect populations; geological and paleontological objects; Archaeological and historic information] . . ." (Monument Proclamation 7319, dated June 9, 2000).

National Wildlife Refuge System Mission

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

Description of Use

While not one of the six wildlife dependent public uses listed or identified in the National Wildlife Refuge System Administration Act, as amended (1997), horseback riding is an existing use on the Monument that can facilitate wildlife observation, but is not necessary to achieve it. Historically, horseback riding (on roads and cross-country) has occurred on the Ringold, Saddle Mountain, and Wahluke Units.

As proposed, horseback riding would only be allowed on roads open to vehicular travel, designated administrative roads, and designated trails on the Ringold, Saddle Mountain, and Wahluke Units. Presently, most use occurs in the spring and fall months, and it is anticipated that use patterns would be similar if horseback riding is designated as a compatible activity. Currently the Monument has no hard numbers on how many user days can be attributed to this activity; however, use appears to occur only seasonally and infrequently.

Availability of Resources

Costs to appropriately develop horseback riding, included signing, required maintenance and rehabilitation, monitoring, and parking lot improvements, would be moderate. The direct costs for road maintenance would be minimal, with road maintenance and monitoring for other public use activities covering all costs. Base funding is available to cover staff costs.

Activity or Project	One Time Expense	Recurring Expense
Development and Accessibility Improvements	$25,000	$5,000
Maintenance		$25,000
Program Operations/Monitoring		$15,000
Totals	***$25,000***	***$45,000***

Anticipated Impacts of the Use

Impacts related to horseback riding range from exotic plant seed dispersal (Beck 1993, Hammitt and Cole 1987) in horse coats, soil compaction and erosion (Bainbridge 1974, Hendee et al. 1990, Hammitt and Cole 1987), stream sedimentation (Wilson and Seney 1994), trail widening (Whitaker 1978), vegetation trampling (Nagy and Scotter 1974, Weaver and Dale 1978, Whitaker 1978), aesthetic concerns relative to horse manure (Lee 1975), and direct wildlife disturbance (Owen 1973), to direct and indirect conflicts with other recreationists. Exotic plants can also be spread to new sites through forage (e.g., hay brought in to feed horses, which contains seeds of exotic plants) and manure (Beck 1993).

Exotic plant establishment is further facilitated by increased trail disturbance, as many exotic plants gain a competitive advantage in highly disturbed sites. This soil disturbance is often created through soil compaction.[119] Additionally, hoof action tends to dig up and puncture the soil surface (McQuaid-Cook 1978), which causes greater sediment loss than any other form of recreational trail use (Seney and Wilson 1991) and increases the potential for disturbance-tolerant vegetation (e.g., exotic plant) establishment. Vegetation impacts can be much more pronounced than from that of hikers, who tend to flatten vegetation while horses tend to churn up soil, thus cutting plants off at the rootstalk (Whitaker 1978). This can increase the spread of previously established exotics by providing loose, disturbed soil for germination and spreading reproductive plant structures. This impact initially increases exotic plant encroachment with light to moderate trail use and eventually lowers species richness values to near zero with heavy impacts (Hendee et al. 1990).

Trail widening is also a consideration as horses tend to walk on the down slope sides of trails (Whitson 1974). Anticipated results of a wider trail include a much wider area of disturbance and ongoing trail maintenance problems.

Possible biological impacts of horseback riding are disturbance to wildlife and habitat. Wildlife can be affected through the sight and sound of recreationists (Boyle and Sampson 1985). Some of the effects of disturbance to wildlife from recreational activities include changes in foraging behavior; reduction of productivity; abandonment or alteration of breeding territories; alteration of animal distribution; alteration of flight behavior; energy depletion; and disruption of nest and brood rearing attentiveness (Klein 1989, Knight and Skagen 1988).

Wildlife disturbance relative to horseback riding has been poorly studied, with most references using other activities such as hiking and cross-country skiing to infer horseback riding impacts. Only one study identified disturbance tolerance of waterfowl to horseback riders and found that horseback riders could approach geese up to a distance of 150 feet. This is compared to suggested hiking trail distances of 250 feet (Miller et al. 1998) and boat buffers ranging from 250 to 900 feet (depending on type of boat, whether motorized, and species impacted; Burger

[119] 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).

et al. 1999). The 150-foot approach distance offered by Owen (1973) is consistent with observations suggesting that horseback wildlife observers can approach wildlife at closer distances than through other forms of travel. Many wildlife species appear to be habituated to livestock and thus are less likely to flee when approached through this method. However, any form of approach is expected to cause some disturbance, which will vary according to the species affected and the type, level, frequency and duration of disturbance, as well as the time of day or year that it occurs.

In addition to direct impacts to wildlife, habitat can be affected through vegetation trampling, soil compaction and erosion (Cole 1983, 1990). Public use activities can also have adverse impacts on vegetation and soil conditions. Impacts from vegetation trampling can lower species richness, decrease ground cover and density of plant species, increase species diversity through an increase in weedy annuals, and induce changes in species composition (Grabherr 1983, Bright 1986, Bonanno 1992).

The extent of impacts from horseback riding varies. Horseback riding in the spring may contribute to short-term, albeit moderate to severe, disturbances of ground nesting birds. At other times of the year, wildlife would likely not experience significant impacts from disturbance. Impacts to native vegetation would occur from horses as they moved over the landscape and could be extensive depending on the amount of use and the time of year. Noxious weeds could be spread further into shrub-steppe habitat from either on-site weed sources or from horse droppings; vegetation maintenance (noxious weeds and native plants) along roads and trails would be less problematic than treating new or managing existing weed sources out on the landscape. Overall, disturbances along trails and roads and out on the landscape will result in minor impacts to resident wildlife but may have long-term impacts such as noxious weed spread and infestation.

Public Review and Comment

This Compatibility Determination was prepared concurrent with the Monument's CCP/EIS. Open houses were held and written comments were solicited from the public during the scoping period for the Monument's CCP/EIS. Public review and comment were solicited during the draft CCP/EIS comment period.

Determination

_____ The use is not compatible.

__X__ The use is compatible with the following stipulations.

Stipulations Necessary to Ensure Compatibility

At present, horseback riding on the Monument is unmonitored, and the impacts to wildlife and associated habitat are unknown. However, use is relatively low, and most occurs during cooler months when wildlife is not as active or when disturbance is not as likely to be detrimental (i.e., during breeding or nesting seasons). However, as stated by the anticipated impacts described in the previous section, any increased or unrestricted horseback riding could lead to impacts on wildlife resources through exotic seed encroachment, vegetative trampling, erosion, and wildlife disturbance. These impacts would be cumulative with associated impacts from other public use opportunities. Therefore, in order to ensure the compatibility of this use, the following stipulations would be necessary.

- Horseback riding must be restricted to certain areas (e.g., roads open to vehicular travel, administrative roads, dedicated or multi-use trails). In these areas, anticipated impacts are not believed to exceed those already induced by vehicles and foot travel associated with other public use activities.

- Any horseback riding area would be subject to seasonal closures based on the presence of sensitive wildlife populations.

- Horse trailers would be restricted to designated parking areas listed in the Monument brochure and posted on site.

- Horseback riding would be a day-use only.

- Designated horseback riding areas would be signed at both ends and at regular intervals throughout the length of the road/trail. Riders would be required to ride single-file.

- A maximum number of riders per party, day, or season will be established through a step down plan.

- A system to monitor the level of use and vegetation damage and impact along roadsides, designated parking areas, and trails would need to be established.

- The activity could be reduced or closed with the finding of significant negative impacts to Monument facilities or natural and cultural resources.

Justification

While not listed as a primary, wildlife-dependent recreational use under the National Wildlife Refuge System Administration Act, as amended, horseback riding is believed to be a compatible public use under the stipulations outlined in this compatibility determination. The primary reasons for this determination include:

1) Wildlife observation can be an element of horseback riding.

2) Horseback riding allows the U.S. Fish and Wildlife Service (FWS) to reach a target audience that would not be reachable through any other opportunity; horseback riders are potential partners and a potential source of support for the Monument.

3) Impacts associated with horseback riding are not believed to exceed impacts already caused by other public use activities in select areas.

It is understood from the summary of anticipated impacts that many elements of the horseback riding program have the potential to detract from the FWS's ability to achieve Monument purposes. These impacts will be monitored and if they, or any as yet not considered impacts are discovered, this compatibility determination would be reevaluated.

Mandatory 10- or 15-year Re-evaluation Date

Provide month and year for "allowed" uses only.

__X__ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses).

_____ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses).

NEPA Compliance for Refuge Use Decision

_____ Categorical Exclusion without Environmental Action Statement.

_____ Categorical Exclusion and Environmental Action Statement.

_____ Environmental Assessment and Finding of No Significant Impact.

__X__ Environmental Impact Statement and Record of Decision.

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Signatures

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

Regional Chief: /s/ Carolyn A. Bohan September 24, 2008
(Signature and Date)

Compatibility Determination – Hunting

Use

Hunting (Big Game, Waterfowl, and Upland Game Birds)

Refuge Name

Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument)

Establishing and Acquisition Authorities

The Saddle Mountain National Wildlife Refuge (24,000 acres) was established on November 30, 1971, through a permit with the Department of Energy and under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754).

The Hanford Reach National Monument (195,000 acres), which includes the Saddle Mountain National Wildlife Refuge, was established on June 9, 2000, through Presidential Proclamation 7319 under the authority of the Antiquities Act of 1906.

Refuge Purposes

National wildlife refuges are established ". . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . ." (16 U.S.C. §742f(a)(4)) and also ". . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . ." (16 U.S.C. §42f(b)(1); Fish and Wildlife Act of 1956, 16 U.S.C. §742(a)-754, as amended).

The Monument was established ". . . for the purpose of protecting the objects identified above [riparian, aquatic and upland shrub-steppe habitats; native plant and animal species; free-flowing, non-tidal stretch of the Columbia River; shrub-steppe ecosystems; breeding populations of birds; habitat for migratory birds; mammals; insect populations; geological and paleontological objects; Archaeological and historic information] . . ." (Monument Proclamation 7319, dated June 9, 2000).

National Wildlife Refuge System Mission

In the NWRS Improvement Act, the United States Congress declared hunting one of six wildlife-dependent public uses of the NWRS. If determined compatible, hunting would become a priority public use for the Monument.

Description of Use

Hunting on the Ringold, Saddle Mountain and Wahluke Units, shorelines of the Columbia River Islands between river miles 343-351, and shorelines of the Columbia River Corridor[120]

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[121]

- 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

[120] 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.

[121] 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.[122] This potential action was developed in response to the WDFW's request for assistance in cooperative management of the Rattlesnake Hills Elk Herd (see Chapter 3 of the CCP/EIS, Section 3.21.2, for a description of the elk herd).[123] The potential regulated elk hunt would be part of a three-tiered approach to elk management.[124]

Availability of Resources

The Monument requires additional staff and funding to administer the current hunting program. All or portions of the (new) Columbia River Corridor, Ringold, Saddle Mountain, and Wahluke Units have been open to hunting (by the state of Washington) from 1971-1999; these areas have remained open to hunting since the Monument was established. Access trails, parking lots, signs

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[122] 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.

[123] The Rattlesnake Hills Elk Herd population objective is equal to or less than 350 elk (WDFW 2002). The current population estimate is approximately 639 elk, based on 2007 surveys.

[124] 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.

and other facilities are inadequate, as well as are staff resources, to enforce regulations and maintain these facilities. Funding associated with facilities (roads, parking areas, signs, etc.) maintenance are included in other refuge programs requiring the same support.

Position & GS Level	Involvement	FTE	Recurring Expense
Project Leader/Deputy Project Leader (GS 13/14)	Oversight Coordination with the WDFW; Program Management	0.05	$9,000
Wildlife Biologist (GS-11)	Elk Monitoring; Reporting; Hunt Plan Updates; Coordination; Program Management	0.23	$17,750
Law Enforcement (GS-09)	Coordination with WDFW Law Enforcement; Field Monitoring of Hunters	0.33	$21,000
Recreation Planner (GS-11)	Outreach; Briefings	0.20	$18,000
Total Annual FTEs and Cost (Not Including Elk Population Control)		***0.81***	***$65,750***

Anticipated Impacts of the Use

Hunting has given many people a deeper appreciation of wildlife and a better understanding of the importance of wildlife and habitat conservation, which ultimately contributes to the NWRS mission. Furthermore, a goal of the Monument is to provide opportunities for quality wildlife-dependent recreation. By law, hunting is one of the six priority public uses of the NWRS.

Hunting, by its nature, results in the intentional take of individual animals, as well as wounding and disturbance (DeLong 2002). It can also alter behavior (e.g., foraging time), population structure, and distribution patterns of wildlife (Owens 1977, Raveling 1979, White-Robinson 1982, Thomas 1983, Bartelt 1987, Madsen 1985, and Cole and Knight 1990).

Harvest data are reported by hunters to WDFW and season and bag limits are adjusted accordingly to ensure that overall populations of game species remain healthy into the future. While hunter use of these areas has not been closely monitored, we would expect hunter numbers to increase over the next fifteen years. Impacts will be monitored, and, if necessary, additional measures would be developed in coordination with WDFW to protect Monument resources.

Ringold, Saddle Mountain and Wahluke Units

There will be over 67,000 acres available for hunting in these units.[125] 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

[125] Areas in the current Saddle Mountain National Wildlife Refuge (west end of the Wahluke Unit) cannot be opened to any public use until released by the Department of Energy from safety buffer restrictions.

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.[126] 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 were solicited during the draft CCP/EIS comment period.

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[126] 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:

- The existing WDFW waterfowl sanctuary on the Columbia River (from the Vernita Bridge downstream to the wooden power lines, a locally known landscape feature) will be maintained.

- A sanctuary from hunting on the Rattlesnake (except for the potential population control elk hunt) and western end of the Wahluke Units will be maintained.

- Sufficient escape, feeding and resting habitat for wildlife in both open and closed areas will be provided.

- Periodic biological and social monitoring—and evaluation of hunting programs, including feedback from users—will be conducted to determine if objectives are being met.

- All hunting on the Monument would require the appropriate state license and tag and would occur consistent with applicable state regulations.

- Waterfowl hunting would be allowed at the WB-10 Ponds, along the shoreline of the Columbia River between Parking Lots 1 and 7, and below the mean high water level on islands between river miles 343-351.[127]

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[127] Primary jurisdiction below the mean high water mark along Columbia River shorelines within the Monument lies with the state of Washington. Primary jurisdiction within the easement associated with the WB-10 Ponds, Saddle Mountain Lake, and irrigation return wasteways is administered by the Bureau of Reclamation.

- 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. National wildlife refuge hunting programs are designed to provide high-quality experiences. In general, hunting on national wildlife refuges should be superior to that available on other private or public lands, which may require special restrictions (Refuge Manual 8). Measures are often used to ensure quality, including limited hunt days and shell limits and using buffers for public use trails, eliminating the need for seasonal trail closures.

Providing a quality hunting program contributes to achieving one of the Monument's goals. The limited hunt program is proposed on the Monument to provide a quality hunting experience that meets Monument guidelines and policies. This program as described was determined to be compatible, in view of the potential impacts that hunting can have on the FWS's ability to achieve Monument purposes and goals.

It is anticipated that an adequate amount of quality, non-hunted and closed habitat would be available to both hunted and non-hunted wildlife because: 1) some high wildlife use areas will

remain closed; and 2) some high wildlife use areas open to hunting will be hunted infrequently or not at all due to the walking distance required. A program will be implemented to monitor wildlife populations numbers and habitats in both open and closed areas.

It is anticipated that wildlife populations will find sufficient food resources and resting places such that their abundance and use of the Monument will not be measurably lessened from hunting activities. The relatively limited number of individuals expected to be removed from wildlife populations due to hunting will not cause wildlife populations to materially decline, the physiological condition and production of hunted species will not be impaired, their behavior and normal activity patterns will not be altered dramatically, and their overall welfare will not be negatively impacted.

Mandatory 10- or 15-year Re-evaluation Date

Provide month and year for "allowed" uses only.

_____ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses).

_X_ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses).

NEPA Compliance for Refuge Use Decision

_____ Categorical Exclusion without Environmental Action Statement.

_____ 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: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

Regional Chief: /s/ Carolyn A. Bohan September 24, 2008
(Signature and Date)

Compatibility Determination – Research & Management Studies

Use

Research and Management Studies

Refuge Name

Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument)

Establishing and Acquisition Authorities

The Saddle Mountain National Wildlife Refuge (24,000 acres) was established on November 30, 1971, through a permit with the Department of Energy and under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754).

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) is/are issued by the Project Leader. Evaluation criteria and specific provisions for approval of studies includes, but is not limited to, the following list. Future research proposals

will also be subject to these criteria and provisions. This would also apply to any properties acquired in the future within the approved boundary of the Monument.

- Research that contributes to specific Monument management issues is given a higher priority over other research requests.

- Research that conflicts with other ongoing research, monitoring, or management programs will not be granted.

- Research projects that can be accomplished off the Monument are less likely to be approved.

- Research which causes undue disturbance or is intrusive is not likely to be granted.

- The level and type of disturbance will be carefully evaluated when considering a request. Strategies to minimize disturbance through study design, including location, timing, scope, number of permittees, study methods, number of study sites, etc, will be encouraged.

- If staffing or logistics make it impossible for the Monument to monitor the researcher, the permit is likely to be denied.

- If the activity is in a sensitive area, the research request may be denied, depending on the specific circumstances.

- The length of the project will be considered and agreed upon before approval.

- Projects will be reviewed annually.

Special Use Permits would be issued for monitoring and investigations which contribute to the enhancement, protection, preservation, management of native plant and wildlife populations and their habitats, public use, and other important resources, especially as they relate to Monument lands and management activities. Other proposals (e.g., physics research) would be subject to even stricter considerations of the potential impacts to wildlife and its habitats, geological resources, cultural resources, aesthetics and visitor use and enjoyment.

Availability of Resources

The following funding would be required to administer and manage research activities as described above. No special equipment, facilities, or improvements are anticipated. Current budget allocations are sufficient to administer and manage this use.

Activity or Project	*One Time Expense*	*Recurring Expense*
Administration (Evaluation of Applications, Management of Permits, Oversight)		$3,000
Monitoring		$5,000
Totals		**$8,000**

Anticipated Impacts of the Use

Use of the Monument to conduct research will generally benefit public use, plant populations, fish, wildlife and habitat and contribute to the recovery of listed threatened and endangered species. Research investigations would be used to assist in managing Monument habitats to aid in recovery efforts and long-term habitat viability. Specific restoration and habitat management questions would be addressed through research investigations, such as the burrowing owl and pygmy rabbit studies currently being conducted. Additionally, research investigations would address public use impacts on natural resources or conflicts among public uses.

An expected short-term effect of monitoring and research investigations is that Monument management activities would be modified to improve public use and habitat and wildlife populations as a result of new information. Expected long-term and cumulative effects include a growing body of science-based data and knowledge as new/continued monitoring and new/continued research compliments and expands upon previous investigations. This body of data and information would contribute towards the best Monument management possible.

Direct damage or alteration to the habitat from researchers would be minor due to the research proposal evaluation process, Monument monitoring, and stipulations imposed through the Special Use Permit. However, some increase in invasive plants is possible from ground disturbance and/or transportation of source seed on research equipment and personnel. Likewise, there would be the localized and temporary effects resulting in direct impacts of vegetation trampling, collecting of soil and plant samples, or trapping and handling of wildlife. Other potential, but localized and temporary, effects would include wildlife disturbance, which is expected with some research activities, especially where researchers are entering sanctuaries or sensitive islands with colonial nesting birds. Researcher disturbance could result in altering wildlife behavior. However, most effects would be short-term. Only the minimum of samples (e.g., water, soils, vegetative litter, plants, macroinvertebrates) required for identification and/or experimentation and statistical analysis would be permitted. Captured animals would be handled, marked and released in a humane manner with full consideration to animal welfare.

Few long-term and/or secondary effects should be encountered as the evaluation of research proposals would ensure only those with adequate safeguards to avoid/minimize impacts are allowed. Those research activities with potential impacts would be mitigated/minimized through the implementation of sufficient restrictions on the Special Use Permit, study design, and

researcher activities. Monitoring by Monument staff should also avoid or alleviate impacts. There likely will be no cumulative effects associated with other on-going research and management studies.

Public Review and Comment

This Compatibility Determination was prepared concurrent with the Monument's CCP/EIS. Open houses were held and written comments were solicited from the public during the scoping period for the Monument's CCP/EIS. Public review and comment were solicited during the draft CCP/EIS comment period.

Determination

_____ The use is not compatible.

__X__ The use is compatible with the following stipulations.

Stipulations Necessary to Ensure Compatibility

If proposed research methods are evaluated and determined to have potential adverse impacts on wildlife or habitat, then the manager will determine the utility and need of such research to conservation and management of wildlife and habitat. If the need is demonstrated by the research permittee, and accepted by the refuge, then measures to minimize potential impacts (e.g., reduce the numbers of researchers entering an area, restrict research in specified areas) will be developed and included as part of the study design and included on the special use permit. Other stipulations and provisions include:

- The criteria for evaluating a research proposal, outlined in the Description of Use section above, will be used when determining whether a proposed study will be approved on the Monument.

- Special use permits will contain specific terms and conditions that the researcher(s) must follow relative to activity, location, duration, seasonality, etc., to ensure continued compatibility. All refuge rules and regulations (CFR 50) must be followed, unless otherwise exempted in writing by Monument management.

- Sensitive wildlife habitat areas will be avoided unless sufficient protection from research activities (i.e., disturbance, collection, capture and handling) is implemented to limit the area and/or wildlife potentially impacted by the proposed research.

- When and where needed, some areas may be temporarily/seasonally closed to researchers; research can be permitted to resume when impacts to wildlife and habitat are no longer a concern.

- Research activities will be modified to avoid harm to sensitive wildlife and habitat when unforeseen impacts arise, such as a wildfire altering landscape conditions or large declines in a population.

- At any time, Monument staff may accompany the researchers to determine potential impacts.

- Removal of all research equipment is required at the end of the study. Failure to remove research "paraphernalia" will result in a principal investigator not being permitted to conduct future scientific studies on refuge/monument lands.

- The FWS receives a copy of the raw data after the study is completed based upon a final report or published paper.

- For long-term ecological study, status reports at regular reporting intervals are required that present preliminary findings and any issues associated with project implementation. The schedule for interim reports also should be presented in the study proposal.

- Sampling equipment will be cleaned before use on the refuges as well as when transported between study sites to eliminate or reduce the spread of invasive species.

Monument staff will monitor researcher activities for compliance with conditions outlined on the Special Use Permit. A Monument manager may determine that previously approved research and Special Use Permits be terminated:

1) If the researcher is out of compliance with permit conditions;

2) To ensure wildlife and habitat protection; and/or

3) To protect visitor and public safety.

Justification

The Monument was created under the provisions of the Antiquities Act of 1906. Under the Antiquities Act, national monuments can be created for one of two reasons: 1) to protect 'antiquities,' as the title implies; or 2) to provide opportunities for research. The Monument was created under the latter provision. As such, there is an expectation that the Monument provide for research. This is in keeping with the long-standing use of the Hanford Nuclear Site (including the Monument) for research. Under Department of Energy (DOE) management, the

Fitzner-Eberhardt Arid Lands Ecology Area (ALE) was/is designated a Research Natural Area (in 1971 via an agreement between the Departments of Energy and Interior) and a National Environmental Research Park (in 1977 by the U.S. Energy Research and Development Administration, a precursor to the DOE). Over the years and under DOE permit, researchers from prestigious institutions like Battelle and the Pacific Northwest National Laboratory and universities like California-Irvine, California Institute of Technology, Idaho, Massachusetts Institute of Technology, Oregon State, Washington, Washington State, and many others have used what are now Monument lands to advance science.

Monitoring and research investigations are also an important component of adaptive management. Standardized monitoring would be used to ensure data compatibility for comparisons from across the landscape.

Natural resource inventories, monitoring and research are not only provisions of the National Wildlife Refuge Improvement Act, but they are necessary tools to maintain biological integrity, diversity and environmental health, which are also key provisions of the act. Inventories, monitoring and research are intended to improve habitat, wildlife populations, biological integrity, diversity and environmental health, and to monitor public use impacts. Monitoring and research will directly benefit and support Monument goals, objectives and management plans and activities, as well as contribute to recovery of endangered/threatened species.

Wildlife-dependent public uses (wildlife viewing and photography, environmental education and interpretation, fishing and hunting) would also benefit as a result of increased biodiversity, wildlife and native plant populations. Monument staff would ensure research projects contribute to the enhancement, protection, preservation and management of wildlife populations and their habitats, thereby helping the Monument fulfill the purposes for which it was established, the mission of the NWRS, and the need to maintain ecological integrity.

Mandatory 10- or 15-year Re-evaluation Date

Provide month and year for "allowed" uses only.

_____ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses).

__X__ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses).

NEPA Compliance for Refuge Use Decision

_____ Categorical Exclusion without Environmental Action Statement.

_____ Categorical Exclusion and Environmental Action Statement.

_____ Environmental Assessment and Finding of No Significant Impact.

__X__ Environmental Impact Statement and Record of Decision.

Signatures

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

Regional Chief: /s/ Carolyn A. Bohan September 24, 2008
(Signature and Date)

Compatibility Determination – Interpretation, Environmental Education, Wildlife Observation & Photography

Use

Interpretation, Environmental Education, Wildlife Observation, and Photography[128]

Refuge Name

Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument)

Establishing and Acquisition Authorities

The Saddle Mountain National Wildlife Refuge (24,000 acres) was established on November 30, 1971, through a permit with the Department of Energy and under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754).

The Hanford Reach National Monument (195,000 acres), which includes the Saddle Mountain National Wildlife Refuge, was established on June 9, 2000, through Presidential Proclamation 7319 under the authority of the Antiquities Act of 1906.

Refuge Purposes

National wildlife refuges are established ". . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . ." (16 U.S.C. §742f(a)(4)) and also ". . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . ." (16 U.S.C. §42f(b)(1); Fish and Wildlife Act of 1956, 16 U.S.C. §742(a)-754, as amended).

The Monument was established ". . . for the purpose of protecting the objects identified above [riparian, aquatic and upland shrub-steppe habitats; native plant and animal species; free-flowing, non-tidal stretch of the Columbia River; shrub-steppe ecosystems; breeding populations of birds; habitat for migratory birds; mammals; insect populations; geological and paleontological objects; Archaeological and historic information] . . ." (Monument Proclamation 7319, dated June 9, 2000).

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

National Wildlife Refuge System Mission

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

Description of Use

In the NWRS Improvement Act, the United States Congress declared wildlife observation and photography, and environmental education and interpretation as four of six wildlife-dependent public uses of the NWRS. If determined compatible, these four uses would become priority public uses for the Monument. Currently, none of these programs are officially established, but over 20,000 (estimated) people per year participate in these activities on the Monument.

Under the preferred alternative, up to fifteen interpretive sites, four interpretive trails, and eight wildlife observation sites are proposed. Some sites and trails may only be open seasonally to both protect sensitive resources and to take advantage of specific interpretive, viewing, and photographic opportunities (e.g., elk on the Rattlesnake Unit). Other sites and trails will be open year-round but monitored to address any negative impacts. Interpretive points, trails, observation sites, signs, kiosks, etc., will focus on Monument wildlife and habitats, historic features, cultural resources and traditions, restoration, management, geologic resources, and the other special values of the Monument. Since there are currently very limited facilities to support these uses on the Monument, we expect wildlife observation and photography and interpretation to increase over the next fifteen years as facilities are developed.

In support of these activities, cross-country hiking will be allowed in the Ringold, Saddle Mountain, and Wahluke Units. Parking areas will be available that will also serve a trail system to be created.[129] Interpretive panels/informational signs will be installed where needed and appropriate. Interpretive and educational opportunities could be self-guided or lead by Monument staff or docent.

Currently, there is a minimal environmental education program at the Monument. However, existing staff have been able to serve approximately 1,000 students per year through classroom talks and tours or field days on the Monument. With a full-time environmental education staff, more than 5,000 students a year could participate in the Monument's environmental education program. The proposed environmental education program is designed to provide effective resources, tools and training for teaching multi-disciplinary topics related to the Monument such as science, natural and cultural history, conservation, writing and others. Educators would attend a teacher orientation and then design, schedule and run their own field trips on the Monument. Monument staff would provide teacher training, site-specific curricula, materials

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

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.[130] 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

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

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).[131] These studies and others have shown that the severity of the effects depends upon the distance to the disturbance and its duration, frequency, predictability and visibility to wildlife (Knight and Cole 1991).

On the Monument, birds are especially vulnerable and can be impacted from human activities when they are disturbed and flushed from feeding, resting, or nesting areas. Flushing, especially repetitive flushing, can strongly impact habitat use patterns of many birds species. Flushing from an area can cause birds to expend more energy, be deterred from using desirable habitat, affect resting or feeding patterns, increase exposure to predation, or cause abandonment of sites (Smith and Hunt 1995). Migratory birds are observed to be more sensitive than resident species to disturbance (Klein 1989). Herons and shorebirds were observed to be the most easily disturbed (when compared to gulls, terns and ducks) by human activity and flush to distant areas away from people (Burger 1981). A reduced number of shorebirds were found near people who were walking or jogging, and about 50% of flushed birds flew elsewhere (Burger 1981). In addition, the foraging time of sanderlings decreased, and avoidance (e.g., running, flushing) increased as the number of humans within 300 feet increased at a coastal bay refuge on the Atlantic (Burger and Gochfeld 1991).

Nest predation for songbirds (Miller et al. 1998), raptors (Glinski 1976), colonial nesting species (Buckley and Buckley 1978), and waterfowl (Boyle and Samson 1985) tends to increase in areas more frequently visited by people. In addition, for many passerine species, primary song occurrence and consistency can be impacted by a single visitor (Gutzwiller et al. 1994). This could potentially limit the number of breeding pairs of certain passerine species, thus limiting production within Monument riparian habitats (Reijnen and Foppen 1994).

Of the wildlife observation techniques proposed, wildlife photographers tend to have the largest disturbance impacts (Klein 1993, Morton 1995, Dobb 1998). While wildlife observers frequently stop to view species, wildlife photographers are more likely to approach wildlife (Klein 1993). Even slow approach by wildlife photographers tends to have behavioral consequences to wildlife species (Klein 1993). Other compounding factors include the potential for photographers to remain close to wildlife for extended periods of time in an attempt to habituate the wildlife subject to their presence (Dobb 1998) and the tendency of casual photographers, with low-power lenses, to get much closer to their subjects than other activities would require (Morton 1995), including wandering off trails. This usually results in increased disturbance to wildlife and habitat, including trampling of plants. Visitor education programs,

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

monitoring, and law enforcement, coupled with best management practices for facility design would minimize impacts.

The environmental education program would use many existing public facilities, or ones created for other purposes (e.g., parking areas for anglers), including parking areas, trails, interpretive sites, and wildlife observation accommodations. This would help to minimize impacts. Additionally, this activity is considered to be of minor impact due to the stipulations imposed below and through best management practices.

Public Review and Comment

This Compatibility Determination was prepared concurrent with the Monument's CCP/EIS. Open houses were held and written comments were solicited from the public during the scoping period for the Monument's CCP/EIS. Public review and comment were solicited during the draft CCP/EIS comment period.

Determination

_____ The use is not compatible.

__X__ The use is compatible with the following stipulations.

Stipulations Necessary to Ensure Compatibility

- Monitoring will be conducted to insure that high-quality habitat for wildlife feeding, resting, breeding is maintained
- A system to monitor the level of use and vegetation damage and impact along roadsides, designated parking areas, and trails would need to be established.
- Any of these activities could be reduced or closed with the finding of significant negative impacts to Monument facilities or natural and cultural resources.
- Limits will be established for the total number of environmental education groups permitted per day.
- Participants will be restricted to designated trails, sites or facilities as determined by Monument staff. Times and periods of use will also be provided.
- Education groups must provide a sufficient number of adults to supervise the group, as determined by Monument staff.

- Students involved in restoration and monitoring projects must receive some form of training (activity and project-specific) prior to commencement of the activity. This is to ensure their safety while out in the field and to minimize wildlife and habitat disturbance.

- Collection of samples for study (i.e., plants, soils) will be restricted to study areas, and samples must be used on site. Collection will be of materials needed to enhance hands-on learning and investigation and will be designed as part of structured activities and lessons, guided by teachers, and monitored by Monument staff. These activities are an integral part of the education program design and philosophy and their impacts are considered minimal.

Justification

When determined compatible, wildlife observation, photography and environmental education and interpretation become priority public uses of the Monument. Providing opportunities for these activities would contribute toward fulfilling provisions of the National Wildlife Refuge System Administration Act, as amended in 1997, and one of the goals of the Monument. Wildlife observation, photography and interpretation would provide an excellent forum for allowing public access and increasing understanding of Monument resources. The educational possibilities provided by these opportunities would outweigh any anticipated negative impacts associated with implementation of the program. The stipulations outlined above, as well as the best management practices identified, would minimize potential impacts relative to wildlife/ human interactions.

To assist in interpretation and environmental education, the Monument's environmental education program would provide a diversity of environmental education opportunities to students and teachers. These include: 1) facilities, materials and training; 2) access to a variety of Monument habitats; and 3) the ability to observe wildlife and conduct hands-on exploration. The program is intended to foster a better understanding of Monument ecosystems and wildlife resources, and in turn build a public that is more knowledgeable about, and involved in, resource stewardship.

Mandatory 10- or 15-year Re-evaluation Date

Provide month and year for "allowed" uses only.

__X__ Mandatory 15-year re-evaluation date (for wildlife-dependent public uses).

_____ Mandatory 10-year re-evaluation date (for all uses other than wildlife-dependent public uses).

NEPA Compliance for Refuge Use Decision

_____ Categorical Exclusion without Environmental Action Statement.

_____ Categorical Exclusion and Environmental Action Statement.

_____ Environmental Assessment and Finding of No Significant Impact.

__X__ Environmental Impact Statement and Record of Decision.

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Signatures

Monument Project Leader: /s/ Gregory M. Hughes September 24, 2008
(Signature and Date)

Refuge Supervisor: /s/ Forrest W. Cameron September 24, 2008
(Signature and Date)

Regional Chief: /s/ Carolyn A. Bohan September 24, 2008
(Signature and Date)

Appendix H – Monument Staffing Needs

Position	P/T*	Grade	Alt A		Alt B, B-1		Alt C, C-1		Alt D		Alt E		Alt F	
			Fill	Year	Fill	Year	Fill	Year	Fill	Year	Fill	Year	Fill	Year
Project Leader	P	GS-14	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Deputy Project Leader	P	GS-13	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Refuge Operations Specialist	P	GS-9	✓	0	✓	1	✓	1	✓	2	✓	2	✓	1
Supervisory Biologist	P	GS-12	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Wildlife Biologist	P	GS-11	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Wildlife Biologist	P	GS-11			✓	3	✓	3	✓	2	✓	3	✓	3
Wildlife Biologist	P	GS-9	✓	0	✓	5	✓	5					✓	5
Fisheries Biologist	P	GS-11			✓	5	✓	5			✓	5	✓	5
Biological Technician	T	GS-5	✓	0	✓	3	✓	3	✓	2	✓	3	✓	3
Biological Technician	T	GS-5			✓	5	✓	5			✓	5	✓	5
Archeologist**	P	GS-12	✓	4	✓	0	✓	0	✓	0	✓	0	✓	0
Historian	P	GS-9			✓	4	✓	0	✓	0	✓	0	✓	4
Geologist	P	GS-9			✓	7	✓	7			✓	7	✓	7
Tribal Coordinator	P	GS-11			✓	3							✓	3
Cultural Resources Technician	P	GS-9	✓	5	✓	0	✓	0	✓	0	✓	0	✓	0
Cultural Resources Technician	T	GS-7			✓	1							✓	1
Supervisory Outdoor Planner	P	GS-12	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Outdoor Recreation Planner	P	GS-11	✓	1	✓	1	✓	1	✓	1	✓	1	✓	1

Position	P/T*	Grade	Alt A		Alt B, B-1		Alt C, C-1		Alt D		Alt E		Alt F	
			Fill	Year	Fill	Year	Fill	Year	Fill	Year	Fill	Year	Fill	Year
Outdoor Recreation Planner	P	GS-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
Fire Management Officer	P	GS-12	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Asst. Fire Mgt. Officer	P	GS-11			✓	1	✓	1	✓	1	✓	1	✓	1

Position	P/T*	Grade	Alt A		Alt B, B-1		Alt C, C-1		Alt D		Alt E		Alt F	
			Fill	Year	Fill	Year	Fill	Year	Fill	Year	Fill	Year	Fill	Year
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 I – Literature Cited

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