

Chapter 2

Management Alternatives, Goals, and Objectives

2.0 Introduction

Key to management of any national wildlife refuge is a set of management goals and objectives that are unique and specific to that particular refuge's purpose, i.e., the reason for its establishment. Ideally, these goals should be developed in coordination and cooperation with other governments, agencies, organizations and—of greatest importance—the public. The Monument was fortunate in that it had considerable assistance from all of these interests in development of management alternatives, goals and objectives. This assistance came in the form of cooperating agencies, consulting tribal governments, formal scoping, and public workshops. This is described in greater detail in Chapter 5.

2.1 Monument Purposes

The Monument Proclamation specifically lays out the purpose of the Monument—to protect a special landscape and the specific resources mentioned in the Monument 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.

Because the Monument is administered as a component of the NWRS, the legal mandates and policies that apply to any national wildlife refuge also 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.¹⁹

As described in Chapter 1, 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. As noted elsewhere, the Hanford Reach National Monument Proclamation is unusual in its level of detail. Rather than noting only one or two significant resources, as most

¹⁹ 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 Monument and is currently called the Saddle Mountain Unit. When the Monument was created, the Saddle Mountain National Wildlife Refuge was incorporated into the new national monument. Following completion of this CCP, this land base will be part of the new Wahluke Unit.

monument proclamations have historically done, this particular proclamation specific notes the various resources President Clinton deemed nationally significant. The Monument Proclamation specifically mentions:

- The shrub-steppe ecosystem.
- The fifty-one-mile-long Hanford Reach of the Columbia River.
- Fall Chinook salmon spawning areas.
- Sturgeon.
- A diversity of native plant and animal species.
- Rare and sensitive plant species, including Umtanum desert buckwheat and White Bluffs bladderpod.
- Microbiotic crusts.
- Breeding populations of steppe and shrub-steppe dependent birds, including loggerhead shrikes, sage sparrows, sage thrashers, and ferruginous hawks.
- Habitat for migratory birds, as well as resident species, including wintering habitat for bald eagles, white pelicans, and ducks.
- Nesting sites and habitat for rare bird species, including prairie falcons, and important perch sites for raptors such as peregrine falcons.
- Insect species new to science or not previously identified in the state of Washington.
- Significant geological and paleontological resources, such as the White Bluffs and Hanford Dune Field.
- Mammalian fossils of rhinoceros, camel, mastodon and others.
- Important archaeological and historic artifacts from more than 10,000 years of human activity, including prehistoric pit houses, graves, spirit quest monuments, hunting camps, game drive complexes, quarries, and hunting and kill sites, as well as more recent human activity, including homesteads and early towns.

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.

2.2 Monument Goals

Establishing goals for how to manage the Monument is the first step in identifying specific management actions; goals identify and focus management priorities and provide a link between management actions, the Monument Proclamation, legal requirements, and FWS policies and procedures. Goals work towards realizing the Monument's vision (see Section 1.8) 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—must—honor valid existing rights and comply with FWS policies and procedures, the Proclamation, applicable laws, and court decisions.

The Monument's management goals were developed through the cooperation and assistance of many individuals, agencies, tribes and organizations and reflect the basis for a management plan that will benefit the public while protecting the Monument's resources. (See Chapter 5 for a description of the public process.) Following public workshops, internal development,²⁰ assistance from cooperating agencies and consulting governments, and the advice of the FAC, the FWS has identified ten management goals for the Monument.

²⁰ Internal development of goals included an analysis of the Monument's purposes and an examination of the laws and policies related to management of a national wildlife refuge. The development of goals and objectives included an examination of the life-history needs of high-priority species and those identified as a purpose of 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.

2.3 Goals Considered But Addressed By Other Means

In developing the final set of management goals for the Monument, numerous actions identified as potential goals were not included in the ten goals listed above in Section 2.2. Several of these potential goals were combined with other goals, some were determined to be objectives and are addressed as such, and others were determined to be strategies for implementing goals and will be carried forward in subsequent step-down plans. Still other potential goals were determined to be: 1) outside the scope of the CCP; 2) best addressed in subsequent step-down plans; or 3) outside the jurisdiction and responsibilities of the FWS.

Following this critical review process, three potential goals—associated with treaty rights, valid existing rights, and infrastructure—remained to be addressed. These actions were eventually removed as goals under this CCP. Explanation of the rationale for their removal from consideration as goals is merited and is provided in the following subsections.

2.3.1 Treaty Rights

The following action regarding treaty rights was considered as a potential goal.

Honor treaty rights in accordance with DOI and FWS Native American policy.

By definition, a *goal* is something for which one strives but which might not be realized. Goals can be modified as necessary or as management priorities change. It is the position of the FWS that treaty rights must be honored; honoring treaty rights is not voluntary or subject to modification. Treaty rights are a mandate, and as such, surpass the definition of a goal. This is in keeping with the Monument Proclamation, which specifically states: “Nothing in this proclamation shall enlarge or diminish the rights of any Indian tribe.” Therefore, although the action of honoring treaty rights is not considered a goal, the intent of the action will be fully honored under existing treaties, laws, rules and policies.

2.3.2 Valid Existing Rights; Cooperation with Other Jurisdictions, Organizations, and Neighbors

The following actions regarding valid existing rights were considered as a potential goal.

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

The rationale for not identifying a specific goal related to valid existing rights is much the same as for treaty rights: The FWS must honor rights granted under law. The Monument Proclamation is explicit on this point: “The establishment of this monument is subject to valid existing rights.” As such, the FWS will honor valid existing rights.

Likewise, the FWS must not interfere with the legal discharge of statutory responsibilities of other agencies. The FWS must comply with all legal responsibilities and will cooperate with others in their compliance with all relevant laws.

Finally, the FWS fully intends to “enhance relationships and partnerships with community organizations and neighbors furthering management goals.” However, this is an ideal rather than a management goal, albeit an ideal that the FWS fully embraces. The intent of this ideal can best be realized through the implementation of the other, more definitive management goals identified above in Section 2.2. For example, one method of achieving Goal 1, which addresses restoring plants and animals, might be through developing a partnership with the WDFW on protecting adjacent upland habitats through a land conservancy.

2.3.3 Infrastructure

The following action regarding infrastructure was considered as a potential goal.

Provide infrastructure, operations, and maintenance capabilities that are in harmony with Monument purposes.

This potential goal was not identified as a separate goal because infrastructure and maintenance are integral to each and every Monument goal, program and activity. The intent of this action is therefore inherent in all of the other goals.

2.4 Management 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 are derived from the Monument goals (see Section 2.2) and provide a foundation for determining strategies, 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.

There are five properties that pertain to all good objectives. To the extent possible, each objective should be specific, measurable, achievable, results-oriented, and time fixed (SMART). These properties are defined below.

- **Specific.** Clearly worded objectives avoid ambiguity; a clearly worded objective is easy to understand and difficult to misinterpret. Specificity results by identifying what the action is, who will do the action, when and where the action will be done, and why the action is being undertaken.

- **Measurable.** Objectives should contain a measurable element that can be readily monitored to determine success or failure.
- **Achievable.** Objectives, regardless of how measurable or clearly written, must be achievable.
- **Results-oriented.** Objectives should specify an end result.
- **Time-fixed.** Objectives should specify the time period during which they will be achieved.

In developing management objectives for the Monument, the same process and organizations were used as in developing management goals and alternatives (see Sections 2.2 and 2.5). The objectives developed were then used to assist in developing the alternatives, although the process was iterative, and the alternatives helped to refine the objectives. The objectives are defined in Section 2.10 following the discussion of alternatives, the proposed new management units, and how the alternatives would grossly be applied to those management units. The objectives provide the details for the alternatives and their implementation on the land.

2.5 Development of Alternatives

The alternatives development process was an iterative process that began while the planning team developed the Monument vision statement, goals and objectives. The core planning team generated a list of important issues related to the management of the Monument through a collaborative process involving FWS staff, tribes, cooperating agencies, the FAC, and local stakeholders. The general public provided assistance in identifying management issues through a series of scoping meetings that were conducted in Mattawa, Richland, Seattle and Yakima, Washington. All comments submitted through the scoping process were considered in developing the issues to be addressed in the CCP and the goals and objectives to address those issues. (See Chapter 5 for a detailed discussion of the scoping process.)

Once the list of management issues was generated, the planning team described the No Action Alternative (Alternative A). It was important to describe this alternative accurately as it serves as the baseline to which all other alternatives are compared.

Next, a wide range of management actions was developed that would address the identified issues and achieve one or more of the goals for the Monument. These actions were refined during several meetings with the planning team, cooperating agencies, and the FAC, as well as a series of three stakeholder workshops. The planning team then consolidated these actions into logical groupings to form the action alternatives. Many actions are common to more than one

alternative, but the actions included in each alternative reflect a common management approach, as described in detail below.

In developing the alternatives, the FWS made certain assumptions that were common to all alternatives. These common assumptions were:

- ***Landscape-level planning approach.*** The CCP would be developed using a landscape-level planning approach to create 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. The landscape-level approach provides few specific details. Instead, it sets the basis for subsequent step-down management plans, which will address site-specific management actions, including wildlife habitat management, invasive species control, cultural resource protection, visitor use, infrastructure development, and transportation systems.
- ***Identification of project sites.*** No exact project sites or developments described within the range of alternatives would be identified. Projects proposed within this plan are conceptual. For example, under Alternative D, trails would be developed on the Rattlesnake Unit (i.e., ALE/McGee Ranch); however, specific trail locations would not be identified and would depend on natural and cultural resource protection needs.
- ***Fire management.*** Fire management activities would conform to guidelines contained in FWS policy and the approved Fire Management Plan for the Monument.
- ***Treatment of invasive or noxious species.*** Treatment activities would conform to guidelines contained in FWS policy and an approved IPM, which is available for review simultaneous with this draft CCP.
- ***Research in the Monument.*** Research projects would be allowed in the Monument in accordance with valid existing rights provisions, FWS policy guidelines, and Special Use Permit (SUP) provisions.
- ***Regulatory compliance.*** Regardless of the alternative selected, the FWS would be required to follow all pertinent federal legislation, regulations, executive orders, and FWS policies regarding the protection and preservation of natural and cultural resources. The most pertinent laws and regulations pertaining to this management plan and potential operations within the Monument are addressed in Chapter 1. A more complete list of applicable legislation and regulations can be found in Appendices D and E.
- ***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.

- ***Tribal consultation and coordination.*** All appropriate and necessary consultation with tribes would 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 National Historic Preservation Act (NHPA), NEPA and Archaeological Resources Protection Act (ARPA), have specific references for coordination and consultation requirements.

2.6 Alternatives Considered But Eliminated From Further Consideration

The alternatives development process under the NEPA is designed to allow the planning team to consider a wide range of issues and feasible management actions. Actions and alternatives that are infeasible or unsafe, or that impact critical resources, interfere with Proclamation resources, or are incompatible with Monument goals may be considered but eliminated as unreasonable based on a number of variables. During the alternatives development process, the planning team considered the actions detailed below. All of these actions were ultimately eliminated for the reasons provided.

The planning team considered the appropriateness of providing for various recreational activities raised during scoping, including overnight backpacking, dog walking, field dog trials, geocaching, hang gliding, and paragliding. Based on policy guidance for the NWRs, these activities were found to be inappropriate and were dropped from further consideration (see Appendix H).

Equestrian uses were considered throughout the range of alternatives and eliminated from further consideration within the Rattlesnake and Columbia River Units due to sensitivity of resources within the units and the potential impacts of horseback riding on wildlife, soils, shrub-steppe habitat, noxious weed spread, and cultural resources. Equestrian use opportunities on trails are provided across the range of alternatives in the Ringold, Wahluke and Saddle Mountain Units.

The planning team considered the compatibility of allowing hunting of deer, elk, waterfowl and upland birds throughout the range of alternatives. Opportunities for these types of game are provided across the range of alternatives in the Ringold, Wahluke, Columbia River, and Saddle Mountain Units. The DOE has determined that hunting in the Rattlesnake Unit is not consistent with its current mission.²¹

²¹ As the mission of the DOE changes, or as the current ownership situation changes, hunting on the Rattlesnake Unit may be desirable and possible for population management of species. To address this possibility, hunting is included in Alternative C for 42,000 acres of the Rattlesnake Unit to be analyzed in this EIS.

The planning team considered allowing the hunting of wildlife species other than deer, elk, waterfowl and upland game birds—such as cottontail rabbit, cougar, bobcat, coyote, fox, raccoon and crow—which are permitted by state law in other areas of Washington. These activities were not included in the range of alternatives because of conflicts with year-round public safety, resource protection, and existing hunting seasons.²²

A recreational development plan for the south shore of the Columbia River was submitted during the scoping process. This plan called for the development of bicycle and foot trails, increased road access, and railroad development. This proposal was not included as a separate alternative because of security concerns expressed by the DOE; however, many components of the proposal were incorporated into several of the alternatives being considered.

A self-guided auto tour through the Rattlesnake Unit was considered. This option was eliminated from further consideration due to the sensitivity of resources in the Rattlesnake Unit, potential impacts on Monument resources, and the prohibitive costs of bringing existing roads up to auto tour route safety standards.

Lands contained within the former Saddle Mountain Unit have been closed to the public since 1943. Following the issuance of a permit from the AEC assigning a management role to the FWS in 1971, this area has remained closed to comply with a safety buffer zone established by the DOE for activities on the south side of the Columbia River. It is foreseeable that these lands may be opened to the public within the life of the CCP. Public scoping showed a desire to have these lands opened. Various levels of public use have been addressed through the range of alternatives, but a complete opening of all lands within this area was eliminated from further analysis due to conflicts with the protection of sensitive wildlife species and their habitats. Limited public access into these areas for recreational activities, including hiking, photography, wildlife observation, and hunting,²³ has been included in the analysis of all action alternatives.

Public scoping showed an interest in opening lakes on Saddle Mountain for fishing and waterfowl hunting. These lakes are currently administered by the BOR and are part of the SCBID Project water return system to the Columbia River. The cooperating agencies to this CCP have requested the lakes remain closed to fishing; therefore, this option was eliminated from further study and analysis. Waterfowl hunting was also removed from further

²² As noted earlier under the description for Alternative B-1, due to *The Fund For Animals et al. v. Dale Hall [FWS] et al.*, the Monument prepared a complete Sport Hunting Opening Package, which was signed by the FWS Regional Director on May 15, 2007. That document, while noting that sport hunting was desirable on the Monument and compatible with resource protection, defined which species could and could not be hunted and the rationale for these determinations.

²³ Only big game and upland species could be hunted—not waterfowl—and only on part of the area. At a minimum, the western end of the Wahluke Unit would remain closed to hunting as a sanctuary for wildlife under all alternatives, although other public uses could be allowed (see the unit descriptions later in this chapter).

consideration because the Saddle Mountain Lake is identified by the Oregon Department of Fish and Wildlife (ODFW), WDFW and FWS as a waterfowl sanctuary or “existing reserve” in the *Wintering Waterfowl Redistribution Plan* of October, 1983.²⁴

2.7 Alternatives Carried Forward

The FWS initially developed a range of four alternatives—Alternatives A through D (which includes the No Action Alternative)—with the assistance of the public, Native American tribes, cooperating agencies, and the FAC. The FAC and the CTUIR each subsequently provided an additional alternative, bringing the number of alternatives considered in the draft CCP to six. Following the release of the draft CCP, and due to the Fund For Animals lawsuit and the subsequent decision to complete a Sport Hunting Package, an alternative was developed to consider a prohibition on hunting (Alternative B-1). Likewise, following the public comment period, an alternative was developed in consideration of the comments received—Alternative C-1—which is the preferred alternative in this final CCP.

Within each alternative are public uses and management actions that are common to all alternatives. The Monument uses common to all eight alternatives, including the No-Action Alternative, are:

- Every unit is open to permitted research.
- Every unit has the potential for FWS-lead tours and educational classes/events (by permit).
- Wildlife population control (by permit for non-FWS personnel) may be implemented on any unit.
- The FWS would work with partners to provide appropriate visitor use enhancements, such as waterfowl hunting and photography blinds, interpretive sites, and nature trails.
- Auto tour routes would likely be established on existing state and county roads.

The eight alternatives considered in this CCP—Alternatives A through F, B-1 and C-1—are described briefly below. Additional detail is provided in the identification and discussion of objectives in Section 2.10.

²⁴ The sanctuary includes a portion of the Columbia River from the wooden power lines at the Hanford Townsite west to the Vernita Bridge. The ODFW is currently developing an updated plan, which is still in draft at this time.

2.7.1 Alternative A: No Action

Alternative A assumes no change from existing management practices, although lands under permit to the FWS could change, and FWS management practices be extended to those lands. Current management practices would be continued in accordance with Monument Proclamation mandates to conserve and protect biological, geological, paleontological and cultural resources. Conservation activities would involve inventory and monitoring, habitat restoration, invasive species control, fire protection, fire rehabilitation, and maintenance of existing facilities. Land use designations that were 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 sensitive resource areas. Limited interpretive and educational programs would be presented on request, dependent on the availability of staff.

Because it represents no change from existing practices, Alternative A provides a baseline for evaluating impacts that would occur with implementation of the other alternatives.

2.7.2 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 the 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. (Alternative F, with its permit system, would employ the greatest degree of control over visitors.)

Visitor facilities would be developed only in the least sensitive areas of the Monument and only after a comprehensive inventory of Monument resources is conducted and sensitive areas are identified in the area under consideration.

Interpretation and education programs would be provided; however, these programs would serve fewer people than under Alternatives C, C-1, D, E and F.

2.7.3 *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 filed by the Fund For Animals.

As a result of that lawsuit (*The Fund For Animals et al. v. Dale Hall [FWS] et al.*), alleging noncompliance with the National Environmental Policy Act (NEPA) in opening thirty-seven national wildlife refuges to hunting, the U.S. District Court for the District of Columbia granted the plaintiff's motion for summary judgment (August 31, 2006), agreeing that the FWS did not adequately consider the cumulative impacts of opening those refuges to hunting. In October of 2006, the FWS asked the Court not to enjoin the hunt programs while the FWS proceeded to address the NEPA deficiencies in the original hunting packages. In addition, the FWS informed the court that by May 30, 2007, it would also correct NEPA deficiencies for national wildlife refuges opened to hunting since the lawsuit was filed.

For the Monument, it was decided that a complete Sport Hunting Opening Package should be prepared for the existing hunt on the Wahluke Unit.^{25, 26} Although this CCP addresses hunting on the Monument, it addresses the long-term future of hunting; the Sport Hunting Opening Package addresses the immediate future of hunting until such time as this CCP can be finalized and a Record of Decision (ROD) signed.

Through the Sport Hunting Opening Package, the Monument addressed the issues raised in the Court's order, issues arising from decisions made in 1999 to maintain the hunting programs established by the Washington Department of Fish and Wildlife (WDFW). The Sport Hunting Opening Package addressed these issues by looking at two alternatives—a continuation of hunting as it currently exists and a complete closure; a third alternative was considered but rejected.^{27, 28}

²⁵ Absent such a document, hunting on the Monument for the 2007-2008 seasons could have been closed.

²⁶ The Sport Hunting Opening Package and the accompanying documents were signed by the FWS Regional Director on May 15, 2007.

²⁷ Following a public review, the FWS chose the No-Action Alternative, signed a Finding of No Significant Impact, and is continuing hunting under existing conditions until this CCP is finalized and an ROD signed.

²⁸ The option of opening the entire land base north of the river, including those areas currently closed to recreational hunting, was considered but rejected for several reasons:

- 1) This option was considered in development of the Draft CCP. However, it was determined that a portion of the area should remain closed to hunting to serve as a refuge to game and to provide the reservoir for harvestable populations.
- 2) The WDFW retains a closure of the area to waterfowl hunting as a sanctuary. Opening the area at this

As a result of the Sport Hunting Opening Package determining that the elimination of hunting was within a reasonable range of alternatives, it was decided that the CCP should also include no hunting within its range of alternatives. The most logical manner in which to include no hunting as an option was to include it within one of the existing alternatives most restrictive of hunting. As Alternative A from both the Sport Hunting Opening Package and this CCP are identical and represent the No-Action Alternative—and the cessation of hunting by the FWS would require an FWS ‘action’ as opposed to a continuation of the current situation—it was not logical to include it within Alternative A. Alternative B represented the action alternative in the draft CCP most restrictive of hunting, so it was decided that Alternative B would serve as the base for inclusion of no hunting in the CCP, resulting in a new Alternative, B-1.

Like Alternative B, Alternative B-1 emphasizes the restoration of native plants and animals in upland, riparian and aquatic habitats. Likewise, Alternatives B and B-1 would 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 protection of resources in that recreational/sport hunting of wildlife would be prohibited, 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.

2.7.4 *Alternative C*

Alternative C²⁹ concentrates 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 that are free of facility development. This would serve conservation, restoration, protection and recreation purposes by maintaining large natural landscapes, protecting sensitive resources, and providing opportunities for solitude.

time, at least during the time frame of the closure, would not be in keeping with the spirit of the WDFW waterfowl plan. At the point where a final management plan is identified through the CCP process, the FWS and DOE will have to work closely with the WDFW to carefully implement any changes in the hunting program in the area currently closed.

- 3) The area will remain closed for several more years due to DOE safety concerns associated with Hanford Site cleanup and remediation. Certainly it will remain closed to all uses during the period until the final management alternative is chosen through the CCP process. As noted above, at that point, the possible implementation of hunting in the area will be addressed through a revision of this Sport Hunting Plan. The issue is moot for this version of the Sport Hunting Plan.

²⁹ Alternative C borrows a concept employed by the National Park Service in many of its new management plans—the “Heart of the Park.”

The facilities and access points that would be provided 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 currently present within the Monument would be relocated. Vehicle access into the interior of the Monument 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 provided for in this alternative, would be developed after inventories of resources are conducted and sensitive areas are identified in the area under consideration.

Interpretation and education programs would serve more people than under Alternatives A, B and F, but fewer than under Alternatives D and E.

2.7.5 Alternative C-1

Alternative C-1 is the result of public comments on the draft CCP. Most comments received did not want extremes in public use, either it being too extensive or too tightly controlled.

Like Alternative C, Alternative C-1 concentrates 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 that are free of facility development. However, unlike Alternative C, 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).

On the other hand, like Alternative C, Alternative C-1 will concentrate new facilities and access points 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 it is currently; however, much of the Monument would be open to non-motorized access.

Facilities, such as the boat-in campsites along the Hanford Reach provided for in this alternative, would be developed after inventories of resources are conducted and sensitive areas are identified in the area under consideration.

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.

2.7.6 Alternative D

Alternative D provides 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 than in the other alternatives, likely decreasing the resources and attention available to restoration activities. 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 from the most biologically and culturally sensitive areas. Visitor facilities would include improved boat launches, auto tour routes, and campgrounds.

Interpretation and education programs would be greater than in any other alternative.

2.7.7 Alternative E

Alternative E was formulated by the FAC during a June 16-17, 2004, workshop and provides an alternate public use emphasis to that of Alternative D.

Alternative E also provides a high degree of public access and facilities development. It does this through the combination of elements from Alternatives C and D. The underlying openspace concept of Alternative C is maintained through the concentration of facilities in perimeter areas of the Monument; however, access and areas open to the public more closely resemble Alternative D. Again, the conservation, protection and monitoring of the biological, geological, paleontological, and cultural resources described in the Monument Proclamation is the top priority, but as in Alternative D, substantial effort and resources would be devoted to public use, likely decreasing the resources and attention available to restoration activities.

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 and to a greater extent than under Alternatives A, B, B-1 and F; access would be restricted from the most sensitive areas. Visitor facilities would include improved boat launches and campgrounds.

Interpretation and education programs would serve a high number of people, although not as many as Alternative D.

2.7.8 Alternative F

The CTUIR 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 vandalism and the looting of natural and cultural resources.

While similar to Alternative B, Alternative F provides for slightly more areas open to public access. 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, but would serve fewer people than under Alternatives C, C-1, D and E.

2.8 Public Use Zones Defined

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 proposed new management units (Section 2.9) and on the alternatives maps (Maps 7-14).

2.8.1 Open Zone

The public may access open zones year-round with no SUP (although a daily use permit would be necessary under Alternative F). 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.

2.8.2 Open, Controlled Zone

The public may access open, controlled zones year-round with no SUP (other than permits required under Alternative F); 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.

2.8.3 Designated Use Zone

The public may access designated use zones year-round with no SUP,³⁰ but uses are restricted to designated sites, routes, trails, or roads. For example, camping is allowed only in designated sites, boats may be launched only at designated sites, vehicles may park only in designated areas, and hikers must stay on trails.

2.8.4 Closed Zone

Closed zones are established for specific public safety or resource protection needs. Any access requires an approved SUP. For example, the Rattlesnake Unit's Research Natural Area (RNA) is a closed zone to protect sensitive natural and cultural resources,³¹ irrigation canal roads are closed for public safety purposes, and much of the Columbia River south shore is closed for security and public safety purposes while DOE carries out its missions.

2.9 Alternatives as Related to Management Units

The Monument is presently divided into six management units, which existed prior to establishment of the Monument in 2000 (see Map 5). The unit boundaries follow preexisting

³⁰ Permits are required under Alternative F, and specific activities or specific sites might require a permit. For example, a permit obtained through a reservation system might be required for camping at floatboat sites.

³¹ Closed zones could have smaller, included designated use zones. For example, the Rattlesnake Unit is considered a closed zone under all alternatives. However, in Alternatives C, C-1, D and E, a hiking trail in the Rattlesnake Unit could be established. Use would be strictly limited to hiking, wildlife observation, photography and other activities that could be conducted from the trail corridor.

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 has 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 Map 6, New Units, and Maps 7 through 14, Alternatives). The new units reflect a culmination of ideas and input received from the FAC, cooperating agencies, and the public, as well as the combined expertise of Monument staff. The five new, alternate units are described below.

2.9.1 Ringold Management Unit

2.9.1.1 Existing Units

The Ringold Unit will include what is now the southern-most portion of the Wahluke Unit along the Columbia River on the Monument's east side.

2.9.1.2 Area

The Ringold Unit will encompass lands within the Monument from the Ringold Fish Hatchery (WDFW) north and west to a point where the bluffs meet the river, approximately 1/2 mile below the northern locked gate on Ringold Road. The unit will include 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.

2.9.1.3 Size

The Ringold Unit will encompass 3,120 acres.

2.9.1.4 Open/Closed

2.9.1.4.1 Alternative B

The Ringold area has been used by the public for more than thirty years. The Ringold Unit would 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 would be controlled through the automatic gate located 1/2 mile north of the Ringold Fish Hatchery.

2.9.1.4.2 *Alternative B-1*

The area open to public access of some form is the same as Alternative B.

2.9.1.4.3 *Alternative C*

The area open to public access of some form is the same as Alternative B.

2.9.1.4.4 *Alternative C-1*

The area open to public access of some form is the same as Alternative B.

2.9.1.4.5 *Alternative D*

The area open to public access of some form is the same as Alternative B.

2.9.1.4.6 *Alternative E*

The area open to public access of some form is the same as Alternative B.

2.9.1.4.7 *Alternative F*

The area open to public access of some form is the same as Alternative B, except permits would be required to enter the area. The exact manner of issuing permits and where they would be obtained would need to be determined. Vehicle access would be controlled through the automatic gate located 1/2 mile north of the Ringold Fish Hatchery.

2.9.1.4.8 Other Potential Changes

Under Alternatives B, B-1, C, C-1, D, E and F, two of the existing eight parking lots would be closed.

2.9.1.5 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, would be required to revitalize affected plant communities to a fully functional state of native shrub-steppe habitat. These lands would rate low on the priority scale for restoration activities under each of the established alternatives. 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 would be an appropriate area to concentrate use.

2.9.2 Wahluke Management Unit

2.9.2.1 Existing Units

The new Wahluke Unit will include lands currently within the (existing) Wahluke and Saddle Mountain Units south of State Route 24.

2.9.2.2 Area

The Wahluke Unit will encompass 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.³² The eastern half of the unit includes all lands south of State Route 24 in the present day 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 will encompass all lands within the existing Saddle Mountain Unit south of State Route 24 to within 1/4 mile of the Columbia River.³³

2.9.2.3 Size

The Wahluke Unit will encompass 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).

2.9.2.4 Open/Closed

2.9.2.4.1 Alternative B

The eastern half of this unit and approximately 25% of the western half would be open to the public year-round from two hours before sunrise to two hours after sunset, with seasonal closures and use restrictions to protect sensitive resources and minimize chances of wildland fires during periods of high fire danger. Vehicle access would be controlled through the automatic gate located at mile marker 63.2 on State Route 24. Public use and access would be allowed throughout open areas of the unit during seasonal openings and on designated areas and established roads and trail systems the rest of the year. Public use in the western half of the unit would be phased in to allow time for infrastructure development, visitor education, and rehabilitation of previously disturbed travel corridors, and to direct uses away from historic cross-country travel patterns. The presence of sensitive plant communities, wildlife habitats, dune areas, and cultural resource sites could require temporary or permanent seasonal or year-round use closures, especially prior to proper infrastructure development.

³² The Columbia River and a 1/4-mile corridor on either side of the river—except within the Ringold Unit—would comprise the Columbia River Unit, as described below.

³³ Public use on lands currently in the Saddle Mountain Unit could not occur until the DOE suspends present day safety and security restrictions.

2.9.2.4.2 *Alternative B-1*

The area open to public access of some form is the same as Alternative B.

2.9.2.4.3 *Alternative C*

Alternative C includes opening the entire unit to public access in some form. The western end of the area would retain a “hunting enclosure” 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.

2.9.2.4.4 *Alternative C-1*

The area open to public access is the same as Alternative C, although the methods of ingress would be different (e.g., Alternative C-1 leaves the road to the Saddle Mountains open).

2.9.2.4.5 *Alternative D*

The area open to public access of some form is the same as Alternative C, although the activities allowed may vary depending upon resource protection needs.

2.9.2.4.6 *Alternative E*

The area open to public access of some form is the same as Alternative D, with the exception that there is no hunting enclosure on the western end.

2.9.2.4.7 *Alternative F*

The area open to public access of some form is the same as Alternative B, except there would be no hunting sanctuary on the western end of the unit, and permits would be required for all access. A visitor contact station would be located at the State Route 24 gate.

2.9.2.4.8 Other Potential Changes

Under Alternative B, the WB-10 Ponds would be considered for removal (the artificial dike removed) for public safety (contaminants) and resource protection if needed.³⁴

2.9.2.5 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 current Saddle Mountain Unit 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 would rate moderate on the priority scale for restoration activities under each of the established alternatives.

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

³⁴ Removal of the WB-10 Ponds could initiate future/additional NEPA evaluations and would, by necessity, require the involvement and concurrence of the BOR.

of the natural and cultural resources on this unit, the difficulty in law enforcement and fire suppression is acceptable.

2.9.3 Saddle Mountain Management Unit

2.9.3.1 Existing Units

The new Saddle Mountain Unit will include lands that are currently within the (existing) Wahluke and Saddle Mountain Units north of State Route 24.

2.9.3.2 Area

The Saddle Mountain Unit will encompass those lands within the Monument boundary north of State Route 24 to the northern boundary of the Monument.

2.9.3.3 Size

The Saddle Mountain Unit will encompass 24,055 acres.

2.9.3.4 Open/Closed

2.9.3.4.1 Alternative B

The Saddle Mountain Unit would be open to the public year-round from two hours before sunrise to two hours after sunset—except for the tops of the Saddle Mountains due to the presence of a potential Traditional Cultural Property (TCP), where public access would be closed—with 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. Vehicle access would be provided through existing access located at mile 60.1 on State Route 24; any additional access throughout the unit would be through established road systems.

2.9.3.4.2 *Alternative B-1*

Access would be the same as under Alternative B.

2.9.3.4.3 *Alternative C*

The Saddle Mountain Unit would 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 (e.g., migratory bird species such as burrowing owls) and minimize chances of wildland fire events during periods of high fire danger. There would be no vehicle access into the unit.

2.9.3.4.4 *Alternative C-1*

Access would be similar to Alternative B, except the top of the Saddle Mountains would remain open, albeit as an open controlled area, and the existing road will continue to be open as it currently is.

2.9.3.4.5 *Alternative D*

The Saddle Mountain Unit would be open to the public year-round from two hours before sunrise to two hours after sunset. 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 fire events during periods of high fire danger may be necessary. Vehicle access would be provided through existing access located at mile marker 60.1 on State Route 24; any additional access throughout the unit would be through established road systems.

2.9.3.4.6 *Alternative E*

The area open to public access of some form would be the same as under Alternative C-1, which is the same as Alternative B, except access to cross-country travel across the Saddle Mountain summit would be controlled to protect sensitive resources.

2.9.3.4.7 *Alternative F*

The Saddle Mountain Unit would 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 (e.g., migratory bird species such as burrowing owls) and to minimize chances of wildland fire events during periods of high fire danger. Vehicle access would be restricted to the existing parking area located at mile marker 60.1 on State Route 24; additional access throughout the unit would be by permitted pedestrian traffic. Permits would be required for all access.

2.9.3.5 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.

Management of biological resources would be different in the Saddle Mountain Unit than in the Ringold or Wahluke Units for restoration activities. The Saddle Mountain Unit would rate moderate on the priority scale for restoration activities under each of the established alternatives. This area would be second in priority for restoration activities in the Monument (the Rattlesnake Unit would be 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 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 may be a broader range of compatible public uses 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.

2.9.4 Columbia River Management Unit

2.9.4.1 Existing Units

The Columbia River Unit will comprise the current Riverlands and Vernita Bridge Units and the majority of the (existing) River Corridor Unit.

2.9.4.2 Area

The Columbia River Unit will encompass 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.³⁵ The Columbia River Unit will also include: 1) the Hanford Dune Field across from the Ringold Unit; 2) the existing Vernita Bridge Unit; and 3) the existing Riverlands Unit.

2.9.4.3 Size

The Columbia River Unit will be 29,951 acres—29,667 acres within the Monument and 284 acres of islands outside which are currently part of the McNary National Wildlife Refuge.

2.9.4.4 Open/Closed

2.9.4.4.1 Alternative B

Primary access to this unit is by boat on the Columbia River, originating at several undeveloped boat launches within the Monument and at developed launches downstream of the Monument. The Columbia River Unit would be open to access at designated locations only.

³⁵ Lands located along the Columbia River within Benton County and some within Grant County would not be available for proposed public uses until current safety and security restrictions are suspended by the DOE.

2.9.4.4.2 *Alternative B-1*

Access would be the same as under Alternative B.

2.9.4.4.3 *Alternative C*

Primary access to this unit is by boat on the Columbia River, originating at several 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 would be in designated areas only, with the exception of the area north and west of the Vernita Bridge, which would be open. The south shore west of the Vernita Bridge would be closed; east of the bridge, the shore would be open in designated areas, subject to DOE approval and release. The access road to the White Bluffs Boat Launch would be closed well back from the river.

2.9.4.4.4 *Alternative C-1*

Access would be similar to Alternative C, with two significant differences: 1) The White Bluffs Boat Launch and the road leading to it would remain open;³⁶ and 2) there would be no access to the Hanford Dune Field.

2.9.4.4.5 *Alternative D*

Primary access to this unit is by boat on the Columbia River, originating at several developed and undeveloped boat launches within the Monument and at developed launches downstream of the Monument. Most of the north shore in the Columbia River Unit would be open to controlled access in designated areas, with the exception of the area north and west of the Vernita Bridge, which would be open. The south shore west of the Vernita Bridge would be closed; east of the bridge, the shore would be open to controlled access in designated areas only, subject to DOE approval and release.

2.9.4.4.6 *Alternative E*

Primary access to this unit is by boat on the Columbia River, originating at several developed and undeveloped boat launches within the Monument and at developed launches downstream

³⁶ Under this alternative, there would be a need 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.

of the Monument. Most of the north shore in the Columbia River Unit would be open to controlled access in designated areas, with the exception of the area north and west of the Vernita Bridge, which would be open. The south shore west of the Vernita Bridge would be open to controlled access; east of the bridge, the shore would be open to controlled access in designated areas only, subject to DOE approval and release. The eastern half of the sand dunes would be open to controlled access and the west half would be closed.

2.9.4.4.7 Alternative F

Primary access to this unit is by boat on the Columbia River, originating at several developed and undeveloped boat launches within the Monument and at developed launches downstream of the Monument. Most of the north shore in the Columbia River Unit would be closed, except at designated locations. Most of the south shore east and west of the Vernita Bridge would be closed, with the exception of a public dock at the Vernita Rest Area. Permits would be required for all access via or to the Monument.

2.9.4.4.8 Other Potential Changes

Under Alternative C, the White Bluffs Boat Launch would be closed. Under Alternative E, the White Bluffs Boat Launch would be closed to motorized boats, but open to human-powered craft.

2.9.4.5 Rationale for Columbia River Unit Boundaries³⁷

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

³⁷ Islands within the Columbia River Corridor Unit are an exceptional resource and, although part of the unit, are discussed separately. See Section 2.9.6 for a description of island closures and the rationale for protection of these unique, ecologically important resources.

would rate moderate to high on the priority scale for restoration activities under each of the established alternatives.

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 will be necessary for this unit; balancing protection with public use will require 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 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 units are and will continue to be present. But both management activities are hindered by the very long response times needed to reach the north side of the river. However, 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.

2.9.5 Rattlesnake Management Unit

2.9.5.1 Existing Units

The Rattlesnake Unit will include the current Fitzner/Eberhardt Arid Lands Ecology Reserve and McGee Ranch Units.

2.9.5.2 Area

The Rattlesnake Unit will encompass those lands within the Monument boundary within the ALE and McGee Ranch Units.

2.9.5.3 Area

The Rattlesnake Unit will encompass 81,070 acres.

2.9.5.4 Open/Closed

2.9.5.4.1 Alternative B

The Rattlesnake Unit would be open for access by permit or FWS-led trips only. Existing permitted research and environmental education activities would continue, with seasonal use restrictions to protect sensitive resources and minimize chances of wildland fire events during periods of high fire danger.

2.9.5.4.2 Alternative B-1

Access would be the same as in Alternative B.

2.9.5.4.3 Alternative C

As in Alternative B, the area would be closed to public access with the exception of the possible establishment of a hiking trail.

2.9.5.4.4 Alternative C-1

Access would be the same as Alternative C.

2.9.5.4.5 Alternative D

As in Alternative C, the area would be closed to public access, except for the possible establishment of two or more hiking trails.

2.9.5.4.6 Alternative E

Alternative E is the same as Alternative D.

2.9.5.4.7 Alternative F

As in Alternative B, the area would be closed to public access.

2.9.5.5 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; the ALE and McGee Ranch 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 communities. Fire and cheatgrass invasion threaten the ecological diversity of this area. Lands in this unit would rate high on the priority scale for restoration activities under each of the established alternatives.

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.

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.³⁸ There are culturally significant plant communities of types still used by area Native American peoples.

Management in this unit will focus almost exclusively on preservation and restoration and will be influenced by special factors. For example, the ALE's designation as an RNA will likely bring with it certain management parameters. Extensive public use activities would threaten resources within the Rattlesnake Unit through destruction of microbiotic crusts, disturbance of

³⁸ 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.

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 might be compatible with resource protection goals if positioned, administered and monitored properly. However, if public access were provided, intensive management through designated access points, trails and road systems, as well as seasonal use restrictions, would be 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.

2.9.6 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 Map 15). 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 will be managed as part of the Columbia River Management Unit; management of the McNary Islands would be assigned to the Monument.³⁹ There are 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 would 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.⁴⁰

³⁹ In Section 3.21.5.4 in Chapter 3, there are twenty-one islands described. The lower two islands are not included within this CCP because they are owned by other entities. But they are described in this CCP because they directly contribute to the wildlife diversity of the Hanford Reach.

⁴⁰ 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.

2.9.6.1 Open/Closed

Because of high biological and cultural resource sensitivity, the islands under control of the FWS are closed above the high water mark.^{41, 42} Islands managed by the DOE are already closed.

2.10 Alternatives & Management Objectives

In accordance with the CCP Process Policy (602 FW 3), alternatives include different sets of management objectives and strategies to achieve them. In addition, the CCP policy also requires a narrative (rationale) to support each objective, along with strategies to achieve the objective.⁴³ The following pages provide specifics on management objectives across the ten goals (Section 2.2) and eight alternatives (Section 2.5), as well as summaries of some of the key implications of the alternatives as they stand now.

As stated above, there are some underlying assumptions common to all alternatives. Common assumptions are listed below.

⁴¹ 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.

⁴² 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. (See Section 3.21.5 for additional details on islands.)

⁴³ Strategies are management techniques to achieve a management objective. In similarity with the attributes (SMART criteria) of the objectives, management strategies were identified from available scientific literature and/or the collective best professional judgment of Monument staff and other resource management experts.

- Every unit is open to permitted research.
- Every unit has the potential for FWS-lead tours and educational classes/events (by permit).
- The FWS would work with partners to provide visitor use enhancements where appropriate, such as waterfowl hunting and photography blinds, interpretive sites, and nature trails.
- Wildlife population control may be used on any unit.
- Auto-tour routes will likely be established on existing state and county roads.

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.

2.10.1 Actions Common To All Alternatives

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.

2.10.1.1 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 (CCT, CTUIR, Nez Perce Tribe, 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.

2.10.1.2 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.

2.10.1.3 Objective C-4, Objective C-5 and 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.

2.10.1.4 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.

2.10.1.5 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. Table 2.1 below and 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.

Table 2.1. Monument Staffing Needed To Fully Implement Alternatives.

Position	P/T ¹	Grade	Alt. A		Alt. B		Alt. C		Alt. D		Alt. E		Alt. F	
			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
ROS	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 Tech	T	GS-5	✓	0	✓	3	✓	3	✓	2	✓	3	✓	3
Biological Tech	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 Tech	P	GS-9	✓	5	✓	0	✓	0	✓	0	✓	0	✓	0
Cultural Resources Tech	T	GS-7			✓	1							✓	1
Supervisory ORP	P	GS-12	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
ORP	P	GS-11	✓	1	✓	1	✓	1	✓	1	✓	1	✓	1
ORP	P	GS-9					✓	3	✓	3	✓	3		
ORP	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

Position	P/T ¹	Grade	Alt. A		Alt. B		Alt. C		Alt. D		Alt. E		Alt. F	
			Fill	Year										
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. FMO	P	GS-11			✓	1	✓	1	✓	1	✓	1	✓	1
Supervisory Range Tech	P	GS-8	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Supervisory Range Tech	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 Tech	T	GS-5	✓	0	✓	0	✓	0	✓	0	✓	0	✓	0
Range Tech	T	GS-5	✓	0	✓	1	✓	1	✓	1	✓	1	✓	1
Range Tech	T	GS-5			✓	1	✓	1	✓	1	✓	1	✓	1
Range Tech	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
LMRD	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	

¹ P = Permanent, T = Term

2.10.1.6 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 would 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 would 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.

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.

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

2.10.2.1 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 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 are adjacent to one another to increase landscape connectivity.*
- *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.⁴⁴*

⁴⁴ 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.*

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	9,568	Same as Alt. A.						
Rattlesnake	50,505							
Ringold	1,074							
Saddle Mountain	3,490							
Wahluke	21,420							
Total	86,057							

Rationale and Strategies

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.

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.

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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 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 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).	✓	✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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 GIS data base on vegetation condition on the Monument.	✓	✓	✓	✓	✓	✓	✓	✓

2.10.2.2 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	3,000	Same as Alt A.						
Rattlesnake	6,500							
Ringold	50							
Saddle Mountain	5,065							
Wahluke	19,534							
Total	34,149¹							

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

Rationale and Strategies

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 (≥ 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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓			✓

2.10.2.3 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 affected by ground disturbing activities required for operations and maintenance by the FWS or other agencies that have valid existing rights on Monument lands.⁴⁵*
- *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.⁴⁶*
- *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).*

⁴⁵ Other agencies may have responsibilities to mitigate habitat disturbed through their management activities.

⁴⁶ 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 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.*
- *Areas affected by previous land uses—such as old farm fields, plowed areas, grazed areas, and areas of former military 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Restore areas impacted by major disturbances as resources permit.	Restore lands degraded by historic uses, wildfires, project work, Hanford site mitigation, and invasive species management. Total acres treated varies each year by unit.						
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								
Total (Acres Annually)	<i>Varies</i>	<i>Up to 6,000</i>	<i>Up to 6,000</i>	<i>Up to 4,000</i>	<i>Up to 3,000</i>	<i>Up to 2,000</i>	<i>Up to 2,000</i>	<i>Up to 6,000</i>

Rationale and Strategies

A total of 727 species, representing 90 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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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. ⁴⁷		✓	✓	✓	✓			✓
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.	✓	✓	✓	✓	✓	✓	✓	✓

⁴⁷ All seed used to re-vegetate would at least be “source identified” as being from the Columbia Basin.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓			✓

2.10.2.4 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 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	1,419	Same as Alt. A.						
Rattlesnake	37,352							
Ringold	2,441							
Saddle Mountain	3,259							
Wahluke	3,288							
Total	47,759							

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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).	✓	✓	✓	✓	✓	✓	✓	✓

2.10.2.5 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 $\geq 20\%$ native bunchgrass and forbs, with grass height < 16 inches, a $< 10\%$ cover of native shrubs, and open ground $\geq 20\%$. The highest priorities for maintenance of short grass habitat are in areas where soil types allow for burrow development (for burrowing owl habitat).

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	4,454 ¹ (Existing)	Same as Alt. A.						
Rattlesnake	4,281							
Ringold	1,652							
Saddle Mountain	9,275							
Wahluke	3,922							
Total	23,584							

¹ The total acres of currently mapped short grass areas may not meet the criteria for conditions identified in the objective; see the grassland restoration objective.

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓			✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Revegetate short-grass habitats with native plant species materials in areas where ground disturbing activities have occurred.		✓	✓	✓	✓			✓

2.10.2.6 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							
	A	B ¹	B-1 ¹	C	C-1	D	E	F
Columbia River	Implement after major disturbance events as resources permit.	140	Same as Alt. B.	Same as Alt. B.	Same as Alt. A.	Same as Alt. A.	Same as Alt. A.	Same as Alt. B.
Rattlesnake		2,700						
Ringold		240						
Saddle Mountain		825						
Wahluke		825						
Total		4,730²						

¹ The acres shown are in addition to those of restoration from major disturbances.

² The acreage figure represents a 10% increase in cover of native grasslands over what is currently documented in Monument vegetation mapping efforts. This is over the anticipated life of the CCP (15 years).

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓			✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓			✓

2.10.2.7 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).⁴⁸

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Protect and maintain unique habitats, inventory and monitor as projects allow.	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 and Strategies

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

⁴⁸ Lithosols are discussed in Objective 1-12.

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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 global positioning system (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.	✓	✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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).		✓	✓	✓	✓			✓

2.10.2.8 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Protect existing rare plant populations.	Monitor, protect, stabilize and expand by 10%.		Monitor, protect, stabilize and expand by 5%.		Monitor, protect and stabilize.		Same as Alt. B.
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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 (see Chapter 3).

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).

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓			✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓			✓

2.10.2.9 Objective 1-9: Protect Microbotic Crust⁴⁹

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

Unit	Alternatives								
	A	B	B-1	C	C-1	D	E	F	
Columbia River	Limited project specific inventories.	Inventory/protect/research/expand where feasible.				Conserve and protect.		Same as Alt. B.	
Rattlesnake									
Ringold									
Saddle Mountain									
Wahluke									

⁴⁹ Also referred to as biological soil crust and cryptogamic crust.

Rationale and Strategies

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.⁵⁰ Proactive management is needed to prevent 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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓			✓

⁵⁰ There are many factors to consider in the management of soil communities, including disturbance type, intensity, timing, frequency, duration and/or extent.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓			✓

2.10.2.10 Objective 1-10: Inventory and 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Inventory and monitor T&E, rare and sensitive species as projects allow.	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 and Strategies

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 is 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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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 to fill information gaps within two to five years 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.	✓			✓	✓	✓	✓	

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

2.10.2.11 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	0	Same as Alt. A.						
Rattlesnake	200							
Ringold	0							
Saddle Mountain	40							
Wahluke	0							
Total	240							

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Require revegetation with native plants characteristic of lithosol communities.	✓	✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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. ⁵¹		✓	✓	✓	✓			✓

2.10.2.12 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.

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Conduct pest management in the highest priority areas (IPM plan), and along corridors as resources permit.	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	<i>~5,000 acres.</i>	<i>Up to 18,000 acres.</i>	<i>Up to 18,000 acres.</i>	<i>Up to 13,000 acres.</i>	<i>Up to 12,000 acres.</i>	<i>Up to 11,000 acres.</i>	<i>Up to 12,000 acres.</i>	<i>Up to 18,000 acres.</i>

⁵¹ The FWS does not have the authority to remove the observatory. Instead the FWS will recommend to the DOE that the observatory be removed.

Rationale and Strategies

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.

Strategy ¹	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Continue to identify, inventory, prioritize, treat, and monitor non-native, invasive plant species according to IPSIMP (2003). ¹	✓	✓	✓	✓	✓	✓	✓	✓
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.		✓	✓	✓	✓			✓

¹ Information and strategies are further detailed and identified in the IPSIMP, which was open for public review during the review of the draft CCP and is available at hanfordreach.fws.gov/documents/weed-plan.pdf.

2.10.2.13 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Conduct cooperative surveys; participate in elk forums/ workgroups; communicate with landowners.	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 and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Coordinate with the WDFW to develop the goals for desired future condition of the herd (sex ratios, productivity, etc.).	✓	✓	✓	✓	✓	✓	✓	✓
Work with the DOE and WDFW to allow hunting for elk on up to 42,000 acres of the Rattlesnake Unit as a method of population control.				✓				
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.	✓	✓	✓	✓	✓	✓	✓	✓

2.10.3 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.

2.10.3.1 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	As projects allow, cooperate with other agencies to protect fish and aquatic habitat.	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 and Strategies

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). 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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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, 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).	✓	✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Continue to develop partnerships to additional inventories on native species of concern within the Columbia River (e.g., mussels, bivalves, macro-invertebrates).	✓	✓	✓	✓	✓	✓	✓	✓

2.10.3.2 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River		Restore twenty acres of island habitat annually.				Restore ten acres of island habitat annually.		Same as Alt. B.
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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 managed by 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.⁵² 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

⁵² Before regulation of river flows by dams, trees were not found along river shoreline habitat, with the exception of small willows.

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Develop partnerships to research, monitor and develop management recommendations to address slumping, siltation of cobble, and erosion of islands.		✓	✓	✓	✓			✓
Maintain early successional habitat and cobble on islands, where possible, using a variety of techniques such as mowing or prescribed fire.	✓					✓	✓	
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).		✓	✓	✓	✓	✓	✓	✓
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.		✓	✓	✓	✓	✓	✓	✓

2.10.3.3 Objective 2-3: Irrigation Run-off Aquatic Habitats

In appropriate areas surrounding irrigation wasteways and artificial seeps (e.g., Saddle Mountain 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	Alternatives								
	A	B	B-1	C	C-1	D	E	F	
Wahluke	Conduct cooperative projects with other agencies.	Annually planned restoration.				Same as Alt. A.		Same as Alt. B.	

Rationale and Strategies

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.⁵³ 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.

⁵³ 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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓			✓

2.10.3.4 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Protect natural spring areas.	Protect and enhance all natural springs, seeps and vernal pools.						
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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).

The Nature Conservancy (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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓			✓

2.10.3.5 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Ringold				Restore 320 acres. ¹				
¹ Contingent upon having partnership and funding from outside of the agency.								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.				✓	✓	✓	✓	

2.10.3.6 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Inventory and monitor riverine and riparian habitats as projects allow.	Inventory, protect, maintain and improve riverine and riparian habitats, where appropriate, within the Hanford Reach of the Columbia River.						
Ringold								
Wahluke								

Rationale and Strategies

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 lilaopsis, 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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

2.10.3.7 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.⁵⁴*
- *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.⁵⁵*

⁵⁴ Other agencies may have responsibilities to mitigate habitat disturbed through management activities.

⁵⁵ This may include being away from public access in order to allow restoration to be undisturbed.

- *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.*⁵⁶
- *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).*
- *Areas affected by previous land uses—such as old farm fields, plowed areas, grazed areas, and areas of former military 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	822	Same as Alt A.						
Rattlesnake	44							
Ringold	156							
Wahluke	143							
<i>Total</i>	<i>1,166 acres</i>							

Rationale and Strategies

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 (National Park Service 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

⁵⁶ Ibid.

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓			✓

2.10.3.8 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, microbial crusts, lithosols).

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Inventory and monitor habitats as projects allow.	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 and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓
Based upon identified gaps in scientific information, conduct habitat inventories, and initiate research within two to five years 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.		✓	✓	✓	✓			✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

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

2.10.4.1 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Maintain habitat connectivity; prevent habitat fragmentation as projects allow.	Restoration actions strengthen connectivity through planned management actions.				Same as Alt. A.		Same as Alt. B.
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

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

2.10.5.1 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Inventory resources as projects allow.	Inventory 10% of lands annually; prioritize areas based on an annual assessment of threats.			Inventory 8% of lands annually; prioritize areas based on an annual assessment of threats.	Inventory 5% of lands annually; prioritize areas based on an annual assessment of threats.	Same as Alt. C-1.	Same as Alt. B.
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

See Objective 4.2 below.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

2.10.5.2 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	Alternatives								
	A	B	B-1	C	C-1	D	E	F	
Columbia River	Inventory resources as projects allow.	Inventory 2% of Monument lands annually; areas to be prioritized based on an annual assessment of threats.				Inventory 1% of Monument lands annually; areas to be prioritized based on an annual assessment of threats.		Same as Alt. B.	
Rattlesnake									
Ringold									
Saddle Mountain									
Wahluke									

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

2.10.5.3 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River		Identify and address at least two threats annually.		Identify and address at least one threat annually.				Same as Alt. B.
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

2.10.6 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.

2.10.6.1 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.⁵⁷

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Develop a Cultural Resources Management Plan.							
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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 would also address protocols for cultural resource surveys, protection, tribal consultation, monitoring, inadvertent discovery, and other issues of concern.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Form a cooperative planning team for cultural resources with tribal and other governmental partners.	✓	✓	✓	✓	✓	✓	✓	✓

⁵⁷ 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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

2.10.6.2 Objective 5-2: Oral History Program

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

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Develop an oral history program.							
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.⁵⁸ A data base of this information should be developed, recorded and preserved as soon as possible.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓
Apply for grants to assist with funding to obtain oral histories.		✓	✓	✓	✓	✓	✓	✓

2.10.6.3 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	Alternatives							
	A	B	B- 1	C	C-1	D	E	F
Columbia River	Conduct mandatory Section 106 (National Historic Preservation Act) project compliance.	Complete Section 106 compliance and an additional 1,000 acres/year.		Complete Section 106 compliance and an additional 750 acres/year.		Complete Section 106 compliance and an additional 500 acres/year.	Same as Alt. C.	Same as Alt. B.
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

⁵⁸ 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.

Rationale and Strategies

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.

Under all alternatives, cultural resource surveys mandated by Section 106 of the NHPA would be conducted prior to any ground-disturbing activities on the Monument. Alternatives B–F all call for at least some additional inventory work to be conducted. Dependant on the alternative chosen, the areas to be inventoried annually will be prioritized according to the emphasis of the alternative. For example, in Alternatives C, C-1, D and E, areas that are identified as having more public use and/or scheduled for future facility development 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 would 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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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 areas that will undergo restoration efforts.		✓	✓					✓
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.	✓	✓	✓	✓	✓	✓	✓	✓

2.10.6.4 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River		Inspect fifteen sites/year.		Inspect ten sites/year.		Inspect five sites/year.	Same as Alt. C.	Same as Alt. B.
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Identify and evaluate historical and archeological 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.		✓	✓	✓	✓	✓	✓	✓

2.10.6.5 Objective 5-5: Traditional Cultural Properties⁵⁹

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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Assist in the evaluation of potential TCPs.							
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Work with tribes to identify TCPs.		✓	✓	✓	✓	✓	✓	✓
Prepare and implement monitoring and management plans for eligible and designated TCPs.		✓	✓	✓	✓	✓	✓	✓

⁵⁹ 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.

2.10.6.6 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.

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Develop a Cultural Resource Protection Plan.							
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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;⁶⁰ 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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

⁶⁰ Stabilization of the island and/or bluffs would require a major undertaking involving several agencies and tribal governments.

2.10.6.7 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.

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Establish recovery policies.							
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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 database. 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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

2.10.7 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.

2.10.7.1 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River		Complete an Interpretive Plan.						
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

2.10.7.2 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River		4 sites.						
Rattlesnake		1 site.	1 site.	3 sites.	2 sites.	4 sites.	3 sites.	1 site.
Ringold		2 sites.	2 sites.	2 sites.	2 sites.	3 sites.	2 sites.	2 sites.
Saddle Mountain		0 sites.	0 sites.	1 site.	1 site.	2 sites.	1 site.	0 sites.
Wahluke		3 sites.	3 sites.	5 sites.	4 sites.	7 sites.	5 sites.	3 sites.
Total		10 sites.	10 sites.	15 sites.	13 sites.	20 sites.	15 sites.	10 sites.

Rationale and Strategies

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. Given the permit system proposed in Alternative F, this would also be of foreseeable benefit in issuing permits. An unmanned contact station is also a possibility.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓
Within eight years, initiate a study to determine the need, location and scope of a second contact station serving people to the north of the Monument.						✓		✓

2.10.7.3 Objective 6-3: Interpretive Trails

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

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River				1 trail.	1 trails.	2 trails.	1 trail.	
Rattlesnake								
Ringold		1 trail.						
Saddle Mountain						1 trail.		
Wahluke		1 trail.	1 trail.	2 trails.	2 trails.	2 trails.	2 trails.	1 trail.
Total		2 trails.	2 trails.	4 trails.	4 trails.	6 trails.	4 trails.	2 trails.

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

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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 American Disability Act standards and to avoid erosion.		✓	✓	✓	✓	✓	✓	✓

2.10.7.4 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Develop educational materials.							
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

2.10.7.5 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River		Full program within 6 years.		Full program within 4 years.	Full program within 5 years.	Full program within 2 years.	Full program within 4 years.	Full program within 6 years.
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

2.10.7.6 Objective 6-6: Interpretive Programs and Special Events

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

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	1/year on site; 6/year off site.			2/year on site; 8/year off site.		3/year on site; 12/year off site.	2/year on site; 8/year off site.	Same as Alt. A.
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓
Cooperate with local, state and federal partners to facilitate heritage tourism initiatives.						✓		

2.10.7.7 Objective 6-7: Training Programs

Provide one to two education training programs per year that focus on Monument-specific resources and issues for educators, FWS staff, partners, outfitters and volunteers.

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River				1 program per year.		2 programs per year.	Same as Alt. C.	
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

Training workshops are an important component to an environmental education program. They benefit staff and volunteers by providing in-depth information on Monument resources to those members that will be communicating with the public. It is more efficient to present one program to all staff at one time rather than individual training. Teachers benefit from Monument training sessions by expanding their knowledge of the resources. They will be better prepared to provide field learning opportunities for their students, either on the Monument or elsewhere.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Design and present an annual training program.				✓			✓	
Design and present two annual training programs.						✓		
Survey teachers, staff and volunteers as to proposed program offerings.				✓		✓	✓	

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

2.10.8.1 Objective 7-1: Visitor Services Plan

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

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River		Complete a plan within 5 years.		Complete a plan within 3 years.		Complete a plan within 2 years.	Same as Alt. C.	Same as Alt B.
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Develop a Visitor Services Plan to concentrate visitor use and place facilities only in appropriate areas.		✓	✓					✓
Develop a Visitor Services Plan to concentrate visitor use and place visitor facilities along the perimeter of the Monument.				✓	✓		✓	
Develop a Visitor Services Plan to concentrate visitor use and place visitor facilities throughout 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.		✓	✓	✓	✓	✓	✓	✓

2.10.8.2 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Develop and implement a commercial guide permit system.							
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Hold public meetings to explain the permit system requirements and to seek feedback proposed system.	✓	✓	✓	✓	✓	✓	✓	✓

2.10.8.3 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Pursue as re-sources allow.	Develop partnerships within five years.		Develop partnerships within three years.				Same as Alt. B.

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Through partnerships where appropriate, provide public information related to Hanford Reach visitor information, including rules and regulations.		✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

2.10.8.4 Objective 7-4: Hunting Plan⁶¹

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	Alternatives (Acres Open To Hunting) ¹								
	A	B	B-1	C	C-1	D	E	F	
Columbia River	5,588	3,341	0	3,920		6,962		7,797	
Rattlesnake ²	0								
Ringold	3,120		0						3,120
Saddle Mountain	24,055	21,411	0						24,055
Wahluke	29,486	35,176	0				40,006	57,747	
Total	62,249	63,048	0	71,101	71,101	74,143	74,143	92,719	

¹ This includes the total acres open to some form of hunting. For example, under Alternative B in the Columbia River Corridor Unit, the only hunting allowed is waterfowl hunting on the river outside of the WDFW waterfowl sanctuary (i.e., below the “wooden power lines”).

² The Rattlesnake Unit would be closed to sport hunting, although controlled elk hunting as a population control measure is a future possibility under Alternative C on 42,000 acres; see Objective 1-13.

⁶¹ 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 (i.e., Alternative A). In order to implement other alternatives, including the preferred alternative, the Sport Hunting Plan will need to be revised.

Rationale and Strategies

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).

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓
In conformance with FWS policy, phase out the put-and-take ring-necked pheasant stocking program within two years. ⁶²	✓	✓	✓	✓	✓	✓	✓	✓
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 in the Monument.		✓	✓	✓	✓	✓	✓	✓
Distribute the draft (revised) Hunting Plan for review by agencies, user groups, and interested persons.		✓	✓	✓	✓	✓	✓	✓
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.		✓	✓	✓	✓	✓	✓	✓

⁶² 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).

2.10.8.5 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River		Create a Fishing Plan within 5 years.		Create a Fishing Plan within 3 years.		Create a Fishing Plan within 2 years.		Same as Alt. B.
Ringold								
Wahluke								

Rationale and Strategies

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).

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

2.10.8.6 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River		Create up to 6 wildlife observation sites within 10 years.		Create up to 8 wildlife observation sites and up to two photography sites within 10 years.		Create up to 12 wildlife observation sites and up to 3 photography sites within 10 years.	Same as Alt. C.	
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

2.10.8.7 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	Alternatives (Acres) ¹							
	A	B	B-1	C	C-1	D	E	F
Columbia River	2,421		0	16,917	16,917; open 1-2 trails in sand dunes.	16,917	16,374	7,419
Rattlesnake			0	Open 1 trail.		Open 1-2 trails.		0
Ringold								3,120
Saddle Mountain	24,055		21,411					24,055
Wahluke	29,486		35,176					57,747

Unit	Alternatives (Acres) ¹							
	A	B	B-1	C	C-1	D	E	F
Total	59,082	59,707		101,739 <i>1-2 trails on Rattlesnake</i>			101,196 <i>2 trails</i>	92,341

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 and Strategies

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).

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

2.10.8.8 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	Alternatives ¹							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Open with no special restrictions.	Open, limited to select roads and trails; establish plan in 5 years.		Open, limited to select roads and trails; establish plan in 3 years.		Open, limited to select roads and trails; establish plan in 2 years.	Same as Alt. C.	Same as Alt. B.
Ringold								
Saddle Mountain								
Wahluke								
¹ The Rattlesnake Unit is closed to horses under all alternatives.								

Rationale and Strategies

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).

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

2.10.8.9 Objective 7-9: Boat Launches

Provide boat launch facilities to facilitate access to and from the Hanford Reach of the Columbia River.

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River								
Vernita Area	Maintain primitive launch.			Developed launch.			Same as Alt. C; south shore dock.	
White Bluffs	Maintain current launch and winter closure.			Close launch and access road.	Improve current launch.	Launch open to non-motorized boats only.	Close launch, provide a dock.	
Ringold	Main-tain primitive launch.	Developed launch in 5 years.		Developed launch in 3 years.				Same as Alt. B.
South Shore						Up to 2 on south shore in 15 years. ¹		
¹ This would have to be a DOE action and would be dependent upon Hanford cleanup progress.								

Rationale and Strategies

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 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 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. A range of management options for this area that were raised included requests to maintain or improve the White Bluffs Boat Launch, as well as requests to close the boat launch and manage the area for quiet and solitude. No closures would take place until substitute launching facilities were developed.

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.)

South Shore

Public scoping indicated a desire for increased boat access to the Columbia River from Richland. Providing increased access along the south shore fits the theme of Alternative D.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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 with the DOE, EPA, WDOE and WDFW to identify potential locations for boat access on the south shore based upon visitor safety, resource protection needs, existing infrastructure, and additional infrastructure needs. Work with other agencies to secure funding for boat access development on the south shore, if appropriate.						✓		
Work cooperatively with the Northwest Water Trail partnership to include the Hanford Reach as a segment within the Columbia River Water Trail.	✓	✓	✓	✓	✓	✓	✓	✓

2.10.8.10 Objective 7-10: Camping⁶³

Over the life of the CCP, seek to provide camping opportunities on the Monument.

Unit	Alternatives ¹							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Phase out unapproved camping activities at Vernita.			Same as Alt. A. Develop 3-6 boat-in campsites within 6 years.		Create a developed campground in the Vernita area. Develop 3-6 boat-in campsites within 6 years.		Same as Alt. A.
Ringold	Continue primitive camping.	Enhance the current primitive camping within 5 years.		Create semi-developed camping within 3 years.		Create a developed campground within 2 years.	Same as Alt. C.	Same as Alt B.
Saddle Mountain						Create a developed campground within 15 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 and Strategies

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

⁶³ Since the release of the draft CCP, the FWS has completed its policy on appropriate uses. As a result, an appropriate use test has been applied to camping (see Appendix H), and it has been 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. Other forms of camping have been left in the CCP so that the alternatives represented reflect those commented on by the public in the draft CCP.

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, 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 safely 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.)

Saddle Mountain

Scoping indicated a demand for a developed campground along Highway 24. This action best fits the theme of Alternative D, and although subsequently found to be an inappropriate use of the Monument at this time, is considered here as it was included in the draft CCP.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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 and WDFW to seek outside funding and partners to provide a developed camping area in the Vernita Bridge area or alternative location.						✓	✓	
Identify a suitable site for a campground on the Saddle Mountain Unit, considering resource protection needs, visitor safety, existing infrastructure, and additional infrastructure needs.						✓		
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.				✓	✓	✓	✓	

2.10.8.11 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River		Enforce closure and west of Vernita Bridge. ¹		Enforce closure south and west of Vernita Bridge; ¹ create new access points on the north (Alt. D.) and south shores. ²			Create new access points on the north and south shores. ²	Same as Alt. B.
Rattlesnake				Establish 1 trail.		Establish 1-2 trails.		
Ringold	Close little-used parking lots.					Same as Alt. A; establish an auto tour from the Ringold entrance to SR 24.	Close little-used parking lots.	
Saddle Mountain		Close the summit area and a portion of the road.		Close the road to motor use.				Same as Alt. C.
Wahluke		Open 5,785 additional acres. ²		Open 28,321 additional acres. ²		Same as Alt. C; ² establish an auto tour.	Same as Alt. C. ²	
¹ This would require action by the DOE. ² This would be dependent upon lifting of Hanford exclusion zone and/or Hanford cleanup progress.								

Rationale and Strategies

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 (see Sections 2.2 and 3.21 for a description of island resource values). 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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Provide signing and vehicle parking areas as needed to facilitate non-motorized public access to additional acreage in the Wahluke Unit. ¹		✓	✓	✓	✓	✓	✓	✓
Following resource inventories, establish an auto tour route on the Wahluke Unit along the old military road north of State Route 24. ¹						✓		
Install signing and infrastructure necessary to close the Saddle Mountain summit area and a portion of the road leading to the summit. Provide vehicle parking adjacent to State Route 24 for visitors seeking non-motorized recreation opportunities in the Saddle Mountain Unit.		✓	✓					
Install signing and infrastructure necessary to close the Saddle Mountain Road to motorized use. Provide vehicle parking adjacent to State Route 24 for visitors seeking non-motorized recreation opportunities in the Saddle Mountain Unit.				✓				✓
Coordinate the closure of the Saddle Mountain Road with valid existing rights holders to ensure the uninterrupted continuation of access for administrative purposes.				✓				✓
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.			✓	✓	✓	✓	✓	

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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. ²		✓	✓	✓	✓	✓		✓
Following resource inventories, identify one or more potential public access points on the north shore of the Columbia River. ¹						✓	✓	
Following resource inventories, identify one or more potential public access points on the south shore of the Columbia River. ^{1,2}				✓		✓	✓	
Following resource inventories, identify one or more potential foot trail corridors in the Hanford sand dunes area. ^{1,2} Coordinate sand dunes access planning and implementation with Energy Northwest and the BPA to address public safety and security issues.				✓		✓	✓	
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.	✓	✓	✓	✓	✓	✓	✓	✓
¹ This action would be dependent upon the DOE lifting or resizing the Hanford exclusion zone. ² This would be a DOE action.								

2.10.8.12 Objective 7-12: Visitor Access Permits

Within one year of the CCP being adopted, implement a visitor access permit system for the Monument, including the potential establishment of fee areas.

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River								Establish a permit system for all non-river public access areas.
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

A permit system was identified during alternative development as a method to increase visitor compliance of regulations, improve public safety, decrease illegal behavior, and allow for better tracking of visitor activities and locations. The permit system is the core of Alternative F.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Develop an access permit system, addressing procedures for permit application, permit issuance, potential fee schedule, and enforcement.								✓
Seek approval to include the potential permit in the federal pilot fee demonstration project, allowing revenues to remain on-site.								✓

2.10.9 Goal 8: Protect the natural visual character and promote the opportunity to experience solitude on the Monument.

2.10.9.1 Objective 8-1: Visual Resources Plan

Develop a Visual Resources Management Plan for the Monument.

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River		Develop a Visual Resources Management Plan within 7 years.		Develop a Visual Resources Management Plan within 5 years.		Develop a Visual Resources Management Plan within 3 years.	Same as Alt. C.	Same as Alt. B.
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

2.10.9.2 Objective 8-2: Light and Noise Standards

Develop light and noise standards for the Monument.

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River		Develop light and noise standards within 7 years.		Develop light and noise standards within 5 years.		Develop light and noise standards within 3 years.	Same as Alt. C.	Same as Alt B.
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

2.10.9.3 Objective 8-3: Solitude

Manage for solitude opportunities in select areas on the Monument.

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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 and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

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

2.10.10.1 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	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Manage research activities through a Special Use Permit System.	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 and Strategies

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 National Environmental Research Park, 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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.		✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

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

2.10.11.1 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.

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Revise the existing Fire Management Plan within five years of the CCP being adopted.							
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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, new techniques in fire management are developed, and new understandings about fire in the landscape are realized.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
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.	✓	✓	✓	✓	✓	✓	✓	✓

2.10.11.2 Objective 10-2: Firefighting

Expand the firefighting capability of the Monument.

Unit	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Columbia River	Increase the Monument’s firefighting capability.							
Rattlesnake								
Ringold								
Saddle Mountain								
Wahluke								

Rationale and Strategies

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.

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Increase existing firefighting personnel by 50% (see Section 3.19.7.4).	✓	✓	✓	✓	✓	✓	✓	✓

Strategy	Alternatives							
	A	B	B-1	C	C-1	D	E	F
Increase the number of fire engines and other equipment by 50% (see Section 3.19.7.4).	✓	✓	✓	✓	✓	✓	✓	✓
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.	✓	✓	✓	✓	✓	✓	✓	✓