Final Environmental Assessment

Revision of Critical Habitat for the

Northern Spotted Owl

Prepared by the U.S. Fish and Wildlife Service

Region 1

Portland, Oregon

November 19, 2012

Table of Contents

1.0 INTRODUCTION 1

1.1 Purpose of and Need for the Proposed Action 2

1.2 Previous Federal Actions 3

1.3 Northern Spotted Owl 4

1.3.1 Species Description 4

1.3.2 Distribution 5

1.3.3 Habitat 5

1.3.4 Prey 6

1.3.5 Life History 7

1.3.6 Threats 8

1.4 Endangered Species Act 10

1.4.1 Critical Habitat 10

1.4.2 Regulatory Mechanisms associated with Critical Habitat 11

1.5 Scoping and Public Participation 14

1.6 Issues 14

2.0 DESCRIPTION OF ALTERNATIVES 17

2.1 Alternative A (No Action Alternative) – 2008 Designation of critical habitat 19

2.2 Alternative B (Proposed Action and Environmentally Preferable Alternative) – Revise critical habitat similar to that described in the proposed revised rule (i.e. no exclusions) 23

2.2.1 Primary Constituent Elements 25

2.2.2 Criteria for Defining Essential Habitat 30

2.3 Alternative C - Alternative C - Revise critical habitat as described in Alternative B, but exclude all non-Federal lands with completed conservation agreements 33

2.4 Alternative D - Revise critical habitat as described in Alternative B, but exclude all non-Federal lands with completed conservation agreements, all State parks, and all Congressionally reserved natural areas 35

2.5 Alternative E – Revise critical habitat as described in Alternative B, but exclude all non-Federal lands, and all Congressionally reserved natural areas 36

2.6 Alternative F (Preferred Alternative) – Revise critical habitat as described in Alternative B, but exclude all lands with completed HCPs and SHAs, all private lands, all Congressionally reserved lands, all State Parks, and all private lands; revise designation on remaining lands to better incorporate habitat essential for the northern spotted owl. 37

2.7 Option 1 – Exempt Department of Defense lands 39

2.8 Alternatives Considered but Not Fully Evaluated 40

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 44

3.1 Affected Environment and Environmental Consequences – Effects of Changes in Land-Use Management on the Environment 45

3.1.1 Existing condition 46

3.1.2 Environmental Consequences 54

3.2 Affected Environment and Environmental Consequences – Effects on Fish, Wildlife, and Plant Species 81

3.2.1 Existing Condition 81

3.2.2 Environmental Consequences 87

3.3 Affected Environment and Environmental Consequences – Effects of Changes in Linear road maintenance/repair and energy transmission projects on the Environment 110

3.3.1 Existing Condition 110

3.3.2 Environmental Consequences 111

3.4 Additional Effects 133

3.4.1 Social and Economic Conditions 133

3.4.2 Indian Lands and Trust Resources 134

3.4.3 Climate Change 134

3.4.4 Cumulative Impacts 140

4.0 COUNCIL ON ENVIRONMENTAL QUALITY ANALYSIS OF SIGNIFICANCE 145

4.1 Context 146

4.2 Intensity 148

4.2.1 Impacts that may be both beneficial and adverse. 149

4.2.2. Public health and safety. 149

4.2.3. Unique characteristics of the geographic area. 150
4.2.4. Highly Controversial Impacts. 150
4.2.5. Uncertain, unique, or unknown risks. 152
4.2.6. Precedent-setting aspects. 152
4.2.7. Cumulative effects. 152
4.2.8. Effects on eligibility for listing in the National Register of Historic Places. 153
4.2.9. Endangered species effects. 153
4.2.10 Violation of environmental protection laws. 155
4.3 Summary of Significance Analysis 155
5.0 COMPLIANCE, CONSULTATION AND COORDINATION WITH OTHERS 157
5.1 Compliance with Other Laws and Regulations 157
5.1.1 Permits Required for Implementation 157
5.2 Consultation and Coordination with Others 157
5.3 Environmental Justice 158
5.4 Public Review and Comments 158
5.5 List of Contributors 158
6.0 REFERENCES CITED 181
7.0 APPENDICES 196
7.1 Appendix A: List of State Parks and Congressionally Reserved Natural Areas excluded from critical habitat designation. 198
7.2 Appendix B: Weblink to Dunk et al. 2012 202
7.3 Appendix C: Weblink to Appendix C of the 2011 Revised Recovery Plan 203
7.4 Appendix D: Analysis for lands considered for exclusion or exemption in this environmental assessment. 204
7.5 Appendix E: Response to Comments 309

TABLES

Table 1. Acres of proposed critical habitat designation by land ownership for each alternative.[1] 20
Table 2. Lands that would be excluded from proposed critical habitat under Alternative C. 34
Table 3. Federally listed wildlife and plant species (other than the northern spotted owl) that could occur in the proposed action area 83
Table 4. Summary of effects, by alternative, of proposed critical habitat designation on land-use management. Effects are categorized by ownership, land allocation, location, and presence or lack of conservation agreements. 117
Table 5. Summary of effects, by alternative, of proposed critical habitat designation on fish, wildlife, and plant species. 124
Table 6. Summary of effects, by alternative, of proposed critical habitat designation on linear road maintenance/repair and energy transmission projects. 131

FIGURES

Figure 1. Eleven regions and four zones of habitat associations of northern spotted owls in Washington, Oregon, and California. 160
Figure 2. Alternative A (No Action) map of critical habitat units in Washington (2008 Critical Habitat rule). 161
Figure 3. Alternative A (No Action) map of critical habitat units in Oregon (2008 Critical Habitat rule). 162
Figure 4. Alternative A (No Action) map of critical habitat units in California (2008 Critical Habitat rule). 163
Figure 5. Alternative B map of critical habitat units in Washington (Proposed Action). 164
Figure 6. Alternative B map of critical habitat units in Oregon (Proposed Action). 165
Figure 7. Alternative B map of critical habitat units in California (Proposed Action). 166
Figure 8. Alternative C map of critical habitat units in Washington. 167
Figure 9. Alternative C map of critical habitat units in Oregon. 168
Figure 10. Alternative C map of critical habitat units in California. 169
Figure 11. Alternative D map of critical habitat units in Washington. 170
Figure 12. Alternative D map of critical habitat units in Oregon. 171
Figure 13. Alternative D map of critical habitat units in California. 172
Figure 14. Alternative E map of critical habitat units in Washington. 173
Figure 15. Alternative E map of critical habitat units in Oregon. 174
Figure 16. Alternative E map of critical habitat units in California. 175
Figure 17. Alternative F map of critical habitat units in Washington (Preferred Alternative). 176
Figure 18. Alternative F map of critical habitat units in Oregon (Preferred Alternative). 177
Figure 19. Alternative F map of critical habitat units in California (Preferred Alternative). 178
Figure 20. Total area and number of female owls present in modeled northern spotted owl population response compared among alternatives and the Northwest forest Plan (NWFP). 179
Figure 21. Total area and percent of modeled spotted owl population simulations where spotted owl populations fell below 1250, 1000, and 750 for all alternatives and the northwest Forest Plan (NWFP). 180

1.0 INTRODUCTION

The U.S. Fish and Wildlife Service (Service) proposes to revise the designated critical habitat for the northern spotted owl (*Strix occidentalis caurina*) (spotted owl), under the Endangered Species Act of 1973, as amended (ESA). The northern spotted owl was originally listed as threatened under the ESA because of loss of its older forest habitat and a declining population, 55 Fed. Reg. 26114 (June 26, 1990). More recently, competition with barred owls (*Strix varia*) has emerged as a substantial additional threat to spotted owl conservation (USFWS, 2011a).

Under section 3(5)(A) of the ESA, critical habitat designation identifies specific areas within the geographical area occupied by the northern spotted owl at the time it is listed that contain the physical or biological features essential to the conservation of the species and that may require special management considerations or protection. Critical habitat may also include areas outside of the geographical area occupied at the time of listing, upon a determination that such areas are essential to the conservation of the species. The current designation of critical habitat was published August 13, 2008 and comprises 5,312,300 acres (ac). 73 Fed. Reg. 47325. The Service is currently under a court order to revise critical habitat by November 15, 2012 (see Section 1.1 Purpose of and Need for Proposed Action).

Outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not think there is a requirement to prepare environmental analyses pursuant to the National Environmental Policy Act (NEPA), 42 U.S.C. 4321§§ 4375, in connection with designating critical habitat under the ESA for the reasons outlined in a notice published in the Federal Register on October 25, 1983. 48 Fed. Reg. 49244. This position was upheld by the U.S. Court of Appeals for the Ninth Circuit in a challenge to the first rulemaking designating critical habitat for the northern spotted owl. *Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. 1995). Nevertheless, the Service decided, as a matter of discretion and not as a legal requirement, to prepare an environmental assessment on the designation of northern spotted owl habitat prior to making a final decision.

This Environmental Assessment (EA) presents the purpose of and need for revising critical habitat designation, the proposed action and alternatives, and an evaluation of the direct, indirect, and cumulative effects of the alternatives pursuant to NEPA as implemented by the Council on Environmental Quality (CEQ) regulations, 40 C.F.R §§ 1500-1508, and according to the U.S. Department of the Interior (USDI) NEPA procedures (43 C.F.R. Part 46). This EA will be used by the Service to determine whether further analysis is needed through preparation of an Environmental Impact Statement (EIS) and, if not, to assist the agency in deciding upon revision of critical habitat for the northern spotted owl.

1.1 Purpose of and Need for the Proposed Action

To help distinguish between the purpose and need, we consider the need of the action as the underlying problem or opportunity we (the Service) must address. The purposes are the means by which we are trying to address the underlying need for the action.

The need for this action is to revise the designation of critical habitat for the threatened northern spotted owl in response to the lawsuit *Carpenters' Industrial Council (CIC) v. Salazar*, 734 F. Supp. 2d 126 (D.D.C. 2010), in which the Federal government requested a remand of the 2008 critical habitat designation.

One of the purposes of this action is to designate critical habitat in accordance with the ESA and its implementing regulations, which include the following:

(1) Section 3(5)(A). This section defines critical habitat as, "the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection. Section 3(5)(A) goes on to define critical habitat as including, "specific areas outside the geographical area occupied by the species at the time is listed in accordance with the provisions of section 4 of this Act, upon determination by the Secretary that such areas are essential for the conservation of the species." Our regulations also state that the Secretary shall designate areas outside the geographical area presently occupied by a species only when a designation limited to its present range would be inadequate to ensure the conservation of the species. 50 C.F.R. § 424.12(e).

(2) Section 4(b)(2). This section of the ESA states that designation of, and revisions to, critical habitat will be made, "on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impact, of specifying any particular area as critical habitat." Section 4(b)(2) of the ESA also allows the Secretary of Interior to exclude an area from critical habitat designation if he determines, "the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned."

(3) Section 4(1)(3)(B). This section of the ESA states that the Secretary, "shall not designate as critical habitat any lands or other geographical areas owned or controlled by the

Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act, 16 U.S.C. § 670a, if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation."

Within the context of these statutory and regulatory requirements, our purpose is to also designate areas that are essential to the conservation of the owl, either because they contain the essential features or are essential themselves, but simultaneously minimize effects to other land and resource uses by using an efficient network design in determining what is essential and making appropriate use of our statutory authority to exclude lands under section 4(b)(2). That is, to designate critical habitat in a way that will help conserve and recover the northern spotted owl while minimizing human use conflicts.

1.2 Previous Federal Actions

The northern spotted owl was listed as a threatened species on June 26, 1990 (55 Fed. Reg. 26114). On January 15, 1992, we published a final rule designating 6,887,000 ac of Federal lands in Washington, Oregon, and California as critical habitat for the northern spotted owl (57 Fed. Reg. 1796). Publication of this designation was in compliance with a court order in *Northern Spotted Owl v. Lujan*, 758 F.Supp. 621 (W.D.Wash. 1991).

On January 13, 2003, we entered into a settlement agreement with the American Forest Resources Council, Western Council of Industrial Workers, Swanson Group Inc., and Rough & Ready Lumber Company, to, among other things, consider potential revisions to critical habitat for the northern spotted owl. *Western Council of Industrial Workers (WCIW) v. Secretary of the Interior,* Civ. No. 02-6100-AA (D. Or.). In compliance with the settlement agreement, as amended, we published a final revised rule, which is the current critical habitat designation, on August 13, 2008 (73 Fed. Reg. 47325). The 2008 recovery plan for the northern spotted owl, announced on May 21, 2008 (73 Fed. Reg. 29471), formed the basis for the existing designation of critical habitat, which comprises 5,312,300 ac.

Both the 2008 critical habitat designation and the 2008 recovery plan were challenged in court in *CIC v. Salazar.* In addition, on December 15, 2008, the Inspector General of the Department of the Interior issued a report entitled ''Investigative Report of The Endangered Species Act and the Conflict between Science and Policy,'' which concluded that the integrity of the agency decision-making process for the spotted owl recovery plan was potentially jeopardized by improper political influence. As a result, the Federal Government filed a motion in the *CIC* lawsuit for remand of the 2008 recovery plan and the critical habitat designation that was based on that recovery plan. On September 1, 2010, the Court issued an opinion remanding

the 2008 recovery plan to the Service for issuance of a revised plan. The notice of availability of the final Revised Recovery Plan for the Northern Spotted Owl (hereafter referred to as Revised Recovery Plan) was published in the **Federal Register** on July 1, 2011 (76 Fed. Reg. 38575). On October 12, 2010, the Court remanded the 2008 critical habitat designation and adopted the Service's proposed schedule to issue a final revised critical habitat rule by November 15, 2012.

The Service published the proposed rule for revised critical habitat for the northern spotted owl (proposed revised rule) on March 8, 2012 (77 Fed. Reg. 14062). The Service identified and proposed to designate as critical habitat approximately 13,962,449 ac in 11 units and 63 subunits in California, Oregon, and Washington. In addition, however, the ESA provides the Secretary with the discretion to exclude areas from the final designation after taking into consideration economic impacts, impacts on national security, and any other relevant impacts of specifying any particular area as critical habitat. The alternatives presented in this EA are based upon several possible options considered in the proposed revised rule (labeled "Possible Outcomes" in the rule (77 Fed. Reg. 14062,14067) based on potential exclusions of: (1) private and State lands with completed conservation agreements; (2) State Parks and Congressionally reserved natural areas; and (3) all State and private lands. Exclusion of all these areas could bring the final revised designation of critical habitat to 9,390,777 ac.

1.3 Northern Spotted Owl

1.3.1 Species Description

The northern spotted owl is a medium-sized owl and the largest of the three subspecies of spotted owls currently recognized by the American Ornithologists' Union (Gutiérrez *et al*. 1995). The other two subspecies are the California spotted owl (*S. o. occidentalis*) and the Mexican spotted owl (*S. o. lucida*). The taxonomic separation of these three subspecies is supported by numerous factors (reviewed in Courtney *et al*. 2004), including genetic (Barrowclough and Gutiérrez 1990; Barrowclough *et al*. 1999; Haig *et al*. 2004; Barrowclough *et al*. 2005), morphological (Gutiérrez *et al*. 1995), behavioral (Van Gelder 2003), and biogeographical characteristics (Barrowclough *et al*. 1999). The northern spotted owl is dark brown with a barred tail and white spots on the head and breast, and has dark brown eyes that are surrounded by prominent facial disks.

1.3.2 Distribution

The current range of the northern spotted owl extends from southwest British Columbia through the Cascade Mountains, coastal ranges, and intervening forested lands in Washington, Oregon, and California, as far south as Marin County (55 Fed. Reg. at 26114). The spotted owl has become especially rare in certain areas, such as British Columbia, southwestern Washington, and the northern coastal ranges of Oregon.

For the purposes of developing the proposed revised rule, and based on the Revised Recovery Plan (USFWS 2011a), the range of the northern spotted owl was divided into 11 different regions. These regions were based on regional patterns of climate, topography, forest communities, spotted owl habitat relationships and prey base relationships across the range of the species. These 11 regions were also used as the organizing units for the designation of critical habitat (Figure 1).

1.3.3 Habitat

Habitat for northern spotted owls has traditionally been described as consisting of four functional types: nesting, roosting, foraging, and dispersal habitats. Recent studies continue to support the practical value of discussing northern spotted owl habitat usage by classifying it into these functional habitat types (Irwin *et al.* 2000; Zabel *et al.* 2003; Buchanan 2004; Davis and Lint 2005; Forsman *et al.* 2005). Spotted owls generally rely on primarily conifer-forested habitats that contain the structures and characteristics required for nesting, roosting, foraging, and dispersal. Forest characteristics associated with spotted owls usually develop with increasing forest age, but their occurrence may vary by location, past forest practices, and stand type, history, and condition. Although spotted owl habitat is variable over its range, some general attributes are common to the owl's life-history requirements throughout its range. To support northern spotted owl reproduction, a home range requires appropriate amounts of nesting, roosting, and foraging habitat arrayed so that nesting pairs can survive, obtain resources, and breed successfully. In addition, dispersal habitat provides for movement of owls across the landscape to maintain genetic and demographic connections among populations across the range of the species. Both the amount and spatial distribution of nesting, roosting, foraging, and dispersal habitat influence reproductive success and long-term population viability of northern spotted owls. These four habitat functions are described in detail in the revised proposed rule (77 Fed. Reg. 14062, 14077, March 8, 2012) and summarized here.

Nesting habitat is essential to provide structural features for nesting, protection from adverse weather conditions, and cover to reduce predation risks. Habitat requirements for nesting and

roosting are nearly identical. However, nesting habitat is specifically associated with a high incidence of large trees (either live or dead) that contain platforms, cavities, or other structural features suitable for nest placement. Additional features that support nesting and roosting typically include a moderate to high canopy closure; a multilayered, multi-species canopy with large overstory trees; large accumulations of fallen trees and other woody debris on the ground; and sufficient open space below the canopy for spotted owls to fly (Thomas *et al*. 1990).

Roosting habitat is essential to provide for thermoregulation, shelter, and cover to reduce predation risk while resting or foraging. As noted above, the same habitat generally serves for both nesting and roosting functions; technically "roosting habitat" differs from nesting habitat only in that it need not contain those specific structural features used for nesting (cavities, broken tops, and mistletoe platforms), but does contain the remaining forest stand features.

Foraging habitat is essential to provide a food supply that will support survival and reproduction. Foraging habitat is the most variable of all habitats used by territorial spotted owls, and is closely tied to the prey base. Depending on the owl prey species available in a given portion of the range, owls in these areas may use more open and fragmented forests (see Section 1.3.4 Prey). Nesting and roosting habitat always provides for foraging, but foraging habitat may not always support successfully nesting pairs (USDI 1992).

Dispersal habitat provides for the movement of owls across the landscape. Specifically, this supports dispersing juveniles, as well as nonresident subadults and adults that have not yet recruited into the breeding population. Such movement allows genetic and demographic connections among populations across the range of the species. The survivorship of northern spotted owls is likely greatest when dispersal habitat most closely resembles nesting, roosting, and foraging habitat, but owls may use other types of habitat for dispersal on a short-term basis. Dispersal habitat, at a minimum, consists of stands with adequate tree size and canopy closure to provide protection from avian predators and at least minimal foraging opportunities (57 Fed. Reg. 1796, 1805).

1.3.4 Prey

Northern spotted owl diets vary across owl territories, years, seasons, and geographical regions (Forsman *et al.* 2001, 2004). However, four to six species of nocturnal mammals typically dominate spotted owl diets (Forsman *et al.* 2004), with northern flying squirrels (*Glaucomys sabrinus*) being a common prey species in all areas. In Washington, diets are dominated by northern flying squirrels, snowshoe hare (*Lepus americanus*), bushy-tailed woodrats (*Neotoma cinerea*), and boreal red-backed voles (*Clethrionomys gapperi*) (Forsman *et al.* 2001). In Oregon

and northern California, northern flying squirrels in combination with dusky-footed woodrats (*Neotoma fuscipes*), bushy-tailed woodrats, red tree voles (*Arborimus longicaudus*), and deer mice (*Peromyscus maniculatus*) comprise the majority of diets (Courtney *et al.* 2004; Forsman *et al.* 2004). Northern spotted owls are also known to prey on insects, other terrestrial mammals, birds, and juveniles of larger mammals (e.g., mountain beaver (*Aplodontia rufa*)) (Forsman *et al.* 2001).

Because woodrats and flying squirrels are predominant components of northern spotted owl diets, the habitat limitation for these small mammals are key to understanding spotted owl habitat needs. The main factors that may limit northern flying squirrel densities are the availability of den structures and food, especially hypogeous (below ground) fungi or truffles (Gomez *et al.* 2005). Flying squirrel densities tend to be higher in older forest stands with ericaceous shrubs (e.g., Pacific rhododendron (*Rhododendron macrophyllum*)) and an abundance of large snags (Carey 1995), and density tends to increase with stand age (Carey 1995, 2000). However, second growth stands may also have high densities of squirrels if suitable structural conditions occur (e.g., Rosenberg and Anthony 1992; Lehmkuhl *et al.* 2006b). The main factors that may limit woodrats are access to stable, brushy environments that provide food, cover from predation, materials for nest construction, dispersal ability, and appropriate climatic conditions (Carey *et al.* 1999).

1.3.5 Life History

Northern spotted owls are a long-lived species with relatively stable and high rates of adult survival, lower rates of juvenile survival, and highly variable reproduction. Franklin *et al.* (2000) suggested that northern spotted owls follow a “bet-hedging” life-history strategy, where natural selection favors individuals that reproduce only during favorable conditions. For northern spotted owls, demographic analyses have indicated declining trends in both adult survival and recruitment across much of the species range (Forsman *et al.* 2011).

Northern spotted owls are highly territorial (Courtney *et al.* 2004), though overlap between the outer portions of the home ranges of adjacent pairs is common (Forsman *et al.* 1984; Solis and Gutiérrez 1990; Forsman *et al.* 2005). Pairs are nonmigratory and remain on their home range throughout the year, although they often increase the area used for foraging during fall and winter (Forsman *et al.* 1984; Sisco 1990), likely in response to potential depletion of prey in the core of their home range (Carey *et al.* 1992; Carey 1995; but see Rosenberg *et al.* 1994). The northern spotted owl shows strong year-round fidelity to its territory, even when not nesting (Solis 1983; Forsman *et al.* 1984) or after natural disturbance alters habitat characteristics within the home range (Bond *et al.* 2002).

1.3.6 Threats

Primary threats to northern spotted owl are habitat loss and competition from barred owls (USFWS 2011a). The spotted owl was listed as threatened throughout its range "due to loss and adverse modification of spotted owl habitat as a result of timber harvesting and exacerbated by catastrophic events such as fire, volcanic eruption, and windstorms" (55 Fed. Reg. at 26114). More specifically, threats to the spotted owl included low and declining populations, limited and declining habitat, inadequate distribution of habitat or populations, isolation of populations within physiographic provinces, predation and competition, lack of coordinated conservation measures, inadequacy of regulatory mechanisms and vulnerability to natural disturbance (USDI 1992).

In 2006, as part of the development of the Revised Recovery Plan, a panel of scientists with expertise in spotted owl biology and fire ecology identified the current threats facing the spotted owl (USFWS 2011a). Although timber harvest was reduced on Federal lands since the implementation of the Northwest Forest Plan (NWFP) in 1994 (USDA and USDI 1994a), past and current habitat loss and competition from barred owls were identified as the most pressing threats to the spotted owl. In addition, climate change combined with effects of past management practices are likely exacerbating changes in forest ecosystem processes and dynamics, including patterns of wildfires, insect outbreaks and disease, to a degree greater than anticipated in the NWFP (Perry *et al.* 2011). While a change in forest composition or extent is likely as the result of climate change, the rate of that change is uncertain.

Spotted owl habitat loss on Federal lands rangewide was expected to be about 5 percent per decade (USDA and USDI 1994b) with the implementation of the NWFP. Recent monitoring indicates a rangewide loss of 3.4 percent of habitat on Federal lands since the mid-1990s, leading to the conclusion that habitat is not declining faster than predicted under the NWFP (Davis and Dugger 2011). In these analyses, habitat loss includes timber harvest, as well as natural disturbance events such as wildfire; some physiographic provinces, particularly those that have experienced large-scale wildfires, have exceeded the 5 percent per decade threshold (Davis and Dugger 2011). The rate of habitat loss on non-federal lands due to timber harvest exceeds that of Federal lands. During this same time period, harvest of spotted owl habitat on Federal lands comprised 0.6 percent of the available habitat in this ownership, while habitat loss on non-federal lands due to timber harvest was 14.9 percent of the available habitat during the same time period (USFWS 2011a).

Although the rate of loss of habitat due to timber harvest has been reduced on Federal lands over the past two decades, both past and current habitat loss remain a threat to the northern

spotted owl. Despite implementation of habitat conservation measures in the early 1990s, Thomas *et al*. (1990) and USDI (1992, Appendix C) foresaw that owl populations would continue to decline for several decades, even with habitat conservation, as the consequence of lag effects at both individual and population levels. However, many populations of northern spotted owls have declined at a faster rate than anticipated, especially in the northern parts of the subspecies' range (Anthony *et al*. 2006; Forsman *et al*. 2011). We now know that the suite of threats facing the northern spotted owl differs from those at the time it was listed; in addition to the effects of historical and ongoing habitat loss, the northern spotted owl now faces a complex and major threat in the form of competition from the congeneric (referring to a member of the same genus) barred owl (USFWS 2011a).

During the second half of the 20th century, barred owls expanded their range from eastern to western North America, and the range of the barred owl now completely overlaps that of the northern spotted owl (Gutiérrez *et al*. 1995; Crozier *et al*. 2006). Barred owls compete with northern spotted owls for habitat and resources for breeding, feeding, and sheltering. Consequently, the presence of barred owls has dramatic negative effects on northern spotted owl reproduction, survivorship, and successful occupation of territories. The loss of habitat has the potential to intensify competition with barred owls by reducing the total amount of resources available to the northern spotted owl and by increasing the likelihood and frequency of competitive interactions. While there are important differences in the ecology between barred owls and spotted owls, barred owls select very similar habitat for breeding, feeding, and sheltering. Consequently, loss of habitat for the spotted owl has the potential to intensify competition between species. While conserving habitat will not alleviate the barred owl threat, Dugger *et al*. (2011) found that spotted owl occupancy and colonization rates decreased as both barred owl presence increased and available habitat decreased. Similar to another case in which increased suitable habitat was required to support two potentially competing raptors, these authors concluded that increased habitat protection for spotted owls may be necessary to provide for sustainable populations in the presence of barred owls in some areas (Dugger *et al*. 2011). Maintaining high-quality habitat has been important since the northern spotted owl was initially listed as threatened in 1990, and this competitive pressure from barred owls has intensified the need to conserve and restore large areas of contiguous, high-quality habitat across the range of the northern spotted owl (Dugger *et al*. 2011; Forsman *et al*. 2011; USFWS 2011a, Recovery Action 32 [RA32]).

It is becoming increasingly evident that solely securing habitat will not be effective in achieving the recovery of the northern spotted owl when barred owls are present (USFWS 2011a). While conservation of high-quality habitat is essential for the recovery and conservation of the spotted owl, habitat conservation alone is not sufficient to achieve recovery objectives. As stated in the Revised Recovery Plan, "addressing the threats associated with past and current

habitat loss must be conducted simultaneously with addressing the threats from barred owls. Addressing the threat from habitat loss is relatively straightforward with predictable results. However, addressing a large-scale threat of one raptor on another, closely related raptor has many uncertainties" (USFWS 2011a). A designation of critical habitat is intended to ameliorate habitat-based threats to an endangered or threatened species; critical habitat cannot reasonably be expected to fully address other, non-habitat-related threats to the species. In the case of the northern spotted owl, the recovery goal of supporting population viability and demographically stable populations of northern spotted owls will likely require habitat conservation in concert with the implementation of recovery actions that address other, non-habitat-based threats to the species, including the barred owl. In addition, recovery actions include scientific evaluation of potential management options to reduce the impact of barred owls on northern spotted owls (USFWS 2011a, Recovery Action 29 [RA29]), and implementation of management actions determined to be effective (USFWS 2011a, Recovery Action 30 [RA30]).

Projected changes in climate are a more recent, and likely persistent threat to northern spotted owls (See section 3.4.3 Climate Change). Hotter, drier summers and wetter nesting seasons, as predicted for the Pacific northwest, have the potential to negatively affect northern spotted owls (see section 3.4.3 Climate Change). Negative effects can manifest in reductions of nesting habitat through disturbances such as wildfire and insects that are exacerbated by the projected hotter and drier summers. Wetter nesting seasons may also result in decreased productivity through egg and nestling loss.

1.4 Endangered Species Act

1.4.1 Critical Habitat

"Critical habitat" is defined in section 3 of the ESA (16 U.S.C. § 1532(5)) as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

    a. Essential to the conservation of the species; and

    b. Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

"Conservation," as defined under section 3 of the ESA, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. 16 U.S.C. § 1532(3).

Section 4 of the ESA requires that we designate critical habitat on the basis of the best scientific and commercial data available. 16 U.S.C. § 1533(b)(1)(A). Under the first prong of the ESA's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features: (1) which are essential to the conservation of the species, and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical and biological features within an area, we focus on the principal biological or physical constituent elements (primary constituent elements (PCEs) such as roost sites, nesting structures, canopy cover, forest type, or prey base) that are essential to the conservation of the species. 50 C.F.R. § 424.12(b).

Under the second prong of the ESA's definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. In other words, an area that was not occupied at the time of listing but is nonetheless determined to be essential to the conservation of the species—for example, to support population expansion—may be included in the critical habitat designation. We designate critical habitat in areas outside the geographical area occupied by a species at the time of listing only when a designation limited to its current range would be inadequate to ensure the conservation of the species 50 C.F.R. § 424.12(e).

1.4.2 Regulatory Mechanisms associated with Critical Habitat

Critical habitat receives protection under section 7 of the ESA through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. 16 U.S.C. § 1536(a)(2). The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures. Where a landowner requests Federal agency funding or authorization for an action that may affect a

listed species or critical habitat, the consultation requirements of section 7(a)(2) of the ESA would apply. But even in the event of a destruction or adverse modification finding, the obligation of the Federal action agency and the landowner is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

Decisions by the Fifth and Ninth Circuit Courts of Appeals have invalidated our regulatory definition of "destruction or adverse modification", and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. *See Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service*, 378 F. 3d 1059 (9th Cir. 2004); *Sierra Club* v. *U.S. Fish and Wildlife Service*, 245 F.3d 434, 442 (5th Cir. 2001). Under the statutory provisions of the ESA, we determine destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with the Service. Examples of actions that are subject to the section 7 consultation process are actions that occur on Federal land or that are implemented by Federal agencies. Additional actions subject to the section 7 consultation process are activities on non-Federal (e.g., State and private) lands that require a Federal permit (e.g., a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act, 33 U.S.C. § 1251, or a permit from the Service under section 10 of the ESA, 16 U.S.C. § 1539, or that involve some other Federal action (e.g., funding from a Federal agency such as the Federal Highway Administration). Federal actions not affecting listed species or critical habitat, and actions on non-federal lands that are not federally funded or authorized do not require section 7 consultation.

As a result of section 7 consultation, we issue:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or

(2) A biological opinion for Federal actions that may affect, and are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. 16 U.S.C. § 1536(b)(3)(A). We define "reasonable and prudent alternatives" as alternative actions identified during consultation that:

(1) Can be implemented in a manner consistent with the intended purpose of the action,

(2) Can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction,

(3) Are economically and technologically feasible, and

(4) Would, in the Director's opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

50 C.F.R. § 402.02. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project.

While reasonable and prudent alternatives could substantially change a proposed project and affect the economic gains from a timber project, a determination that a project would result in jeopardy or adverse modification with respect to spotted owls is an extremely rare event because: (1) the NWFP generally guides the development of Bureau of Land Management (BLM) and Forest Service actions in a manner that considers the conservation needs of the spotted owl, and (2) the consultation-streamlining procedures in place within the range of the spotted owl are likely to elevate such types of actions for resolution before a formal consultation occurs. Our consultation-streamlining process mandates that the action agency seek technical assistance from the Service as it determines the effects of a proposed action prior to the submission of a biological assessment. As a consequence, impacts that may rise to the level of jeopardy or adverse modification are rarely included in a biological assessment or biological opinion under this interagency effort.

Regulations at 50 C.F.R § 402.16 require Federal agencies to reinitiate section 7 consultation on previously reviewed actions in instances where we have listed a new species or subsequently designated critical habitat that may be affected by the action and the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law). Consequently, Federal agencies sometimes may need to request re-initiation of consultation with the Service on actions for which consultation has been completed, if those actions with discretionary involvement or control may affect subsequently listed species or designated critical habitat.

Once finalized, the effect of designation of critical habitat for a listed species is to add a requirement that Federal agencies ensure that their actions are not likely to result in the destruction or adverse modification of that critical habitat. In areas where northern spotted owls occur, which includes most areas within units of the proposed revised critical habitat rule, Federal agencies such as the Forest Service and BLM are already consulting with the Service on

the potential effects of their proposed actions on the species, regardless of whether these lands are currently designated as critical habitat. Aside from this requirement specific to Federal agencies, critical habitat designation does not provide additional regulatory protection for a species on non-federal lands unless the activities proposed involve Federal funding or permitting (see above in this section). In other words, designation of private or other non-federal land as critical habitat has no regulatory impact on the use of that land unless there is such a Federal connection. Identifying non-federal lands that are essential to the conservation of a species may nonetheless be important, in that it alerts State and local government agencies and private landowners to the value of the habitat, and may help facilitate voluntary conservation partnerships such as Safe Harbor Agreements (SHAs) and Habitat Conservation Plans (HCPs) that may contribute to the recovery and delisting of the species.

1.5 Scoping and Public Participation

Scoping is not required for the development of an EA (see 40 C.F.R. § 1501.7.). During development of the proposed revised critical habitat rule, we met on separate and sometimes multiple occasions with multiple interested parties, including the Forest Service and BLM, tribes, State agencies, and non-governmental organizations (representing timber interests and environmental interests). We conducted internal scoping among Service divisions regionally and nationally. We drew on the information gathered through this outreach and internal scoping as well as the Service's experience with land-use activities by multiple landowners (Federal and non-federal) that occur within northern spotted owl habitats throughout the range of the species to describe the purpose and need and identify issues relevant to this analysis, i.e. those issues necessary to determine whether there would be significant environmental effects.

The draft EA (USFWS 2012) was announced in the Federal Register on June 1, 2012 (77 Fed. Reg. 32483) and made available to the public for a 30-day comment period. During that public comment period, we held seven public meetings (two in California, two in Washington, and three in Oregon) and one public hearing (in Oregon). At these events we accepted public comment on the draft environmental assessment, the proposed revised rule and the draft economic analysis. At the public meetings we presented information and answered questions from the public on the rule, the environmental assessment, and the economic analysis.

1.6 Issues

The environmental assessment must focus on the issues that need to be addressed to determine whether there may be significant environmental effects. In this regard, the two

principal issues that continually arise relate to effects on the northern spotted owl, and effects on activities that may occur on a given landowner's property. Although effects on land-use management per se are not effects that require analysis under NEPA, effects of that land-use management on the environment is subject to a NEPA analysis and is covered in this EA. We expanded these issues to include an analysis of effects to other listed species (to ensure our action does not inhibit the conservation and recovery of these listed species) and to the barred owl (because it is an identified threat to the spotted owl and it occupies similar habitats). We also looked at effects to the environment as a result of potential effects on road maintenance and energy transmission projects because these are typically linear features with little room for project modification in-place; as such, their effects would not be adequately covered in the land-use management section of this analysis. All other issues raised during scoping and public comment (described below) were not considered to result in potentially significant effects.

During the public comment period, some requested we also consider the effects of critical habitat designation on air quality, water quality, soil productivity, forest ecosystems, aquatic ecosystems, forest health, risk of catastrophic wildfire, recreation, and visual resources. We did not analyze effects on these resources for several reasons. We discuss specific reasons for certain issues further in this section, but the principal reason overarching all of these issues is that the designation of critical habitat is not a ground-disturbing activity with the potential to affect these resources. The regulatory effect of a critical habitat designation is only the requirement that Federal action agencies consult with the Service on actions that they fund, authorize, or undertake in critical habitat and that they ensure that their actions do not "destroy or adversely modify" critical habitat. Critical habitat designation does not dictate management actions; those will be determined by land managing agencies in accordance with their own statutory and regulatory authorities. Even if an action may "destroy or adversely modify" critical habitat, any reasonable and prudent alternatives suggested by the Service must be able to be implemented in a manner consistent with the intended purpose of the action and the scope of the action agency's legal authority and jurisdiction, and be economically and technologically feasible. Therefore, we foresee no potential for there to be a significant effect on these resources as a result of critical habitat designation.

In the case of air quality, water quality, and soil productivity, there are State or Federal regulations and policies (e.g. Clean Air Act, Clean Water Act, individual State forest practices acts) that govern the activities related to protecting these resources. Similarly, for visual resources, Federal agencies have standards and guidelines within their land management plans addressing tree retention to meet visual resource needs. The designation of critical habitat will not change these regulations, policies, or standards and guidelines, nor will the designation alter the ability of landowners to meet these various rules and policies.

With respect to forest health (risk of death of trees to fire, insects, and disease) and risk of catastrophic wildfire, we again reiterate that designation of critical habitat is not a ground disturbing activity and does not dictate management actions. The effect of designating critical habitat is the requirement that Federal action agencies not destroy or adversely modify critical habitat. Meeting this requirement does not automatically preclude actions intended to reduce the risk of wildfire or other disturbances. We note the recommendations of the Revised Recovery Plan for the Northern Spotted Owl for maintaining or restoring forest ecosystems and refer Federal, State, local, and private land managers to these recommendations as they make decisions on the management of their lands under their jurisdictions and through their normal processes. Special management considerations are described in the revised rule to address the effects of activities such as fire suppression that have altered disturbance regimes and ecological functions; where these activities can restore or maintain ecological processes and resilience, they may be compatible with critical habitat management. However, we also note that the critical habitat rule does not take any action or adopt any policy, plan, or program in relation to active forest management and such management is not mandated by the Service and is not required as a result of critical habitat designation. Concerning emergency wildfire activities, Service and Department policy states that emergency Section 7 consultation efforts must not delay or obstruct fire suppression efforts (Fish and Wildlife Service Policy Memorandum, September 21, 1995; Department of Interior Memorandum, August 20, 2001). Therefore, we believe these issues are accounted for within the critical habitat rule and within existing policy. Thus, we foresee no potential for there to be a significant effect to forest health or the risk of catastrophic fire as a result of critical habitat designation.

With respect to recreation, these activities typically do not modify habitat; they are usually associated with potential human disturbance to the northern spotted owl. Designation of critical habitat would not affect recreation actions that do not involve habitat modification; those activities would be considered under section 7 in determining whether the action would likely jeopardize the species. Recreation associated with habitat modification is typically tied to expansion or modification of existing recreation sites, or development of new recreation sites (e.g. campgrounds, ski areas) that may potentially remove critical habitat. We discuss the effects of critical habitat designation on the environmental effects as a result of land-use management actions associated with habitat modification or removal in Section 3.1 (Affected Environment and Environmental Consequences – Land-Use Management).

We were asked during the public comment period to analyze the effects of critical habitat designation on forest ecosystems and aquatic ecosystems. Because critical habitat designation is not a ground-disturbing activity and is aimed at maintaining current environmental conditions through its mandate to avoid critical habitat destruction or adverse modification, we cannot conceive of potential significant adverse effects of any designation on forest or aquatic

ecosystems. The ingrowth of forests and possible restoration of forest ecosystems and processes within critical habitat units may benefit forest ecosystems. Furthermore, as noted above, designation of critical habitat doesn't change existing management plans designed to protect forest ecosystems (e.g. the Northwest Forest Plan). Components of these ecosystems have been considered and, based on our experience (through either section 7 consultation or in developing HCPs and SHAs) with forest activities that may affect the northern spotted owl, we have identified those key elements of forest ecosystems that have the potential to result in significant effects and analyzed them in this EA.

Several public commenters believed the designation of critical habitat as proposed would undermine and remove the protections afforded under the Northwest Forest Plan (NWFP) (USDA and USDI 1994a, b), implying the need to address the effects of critical habitat on retaining the integrity of the Northwest Forest Plan. We note that critical habitat designation dos not change land use allocations or Standards and Guidelines for management under the NWFP. Thus, this is not a significant issue needing analysis in this EA.

2.0 DESCRIPTION OF ALTERNATIVES

Acreage figures for Alternatives B through E were derived from data in the 2012 proposed revised rule (77 Fed. Reg. 14062 (March 8, 2012). However, as a result of parsing the proposed designation into separate ownerships and land classifications necessary for the analysis in the final EA, accompanied by mapping refinements and the resulting rounding errors associated with recombining the data, the total acreages for these alternatives differ from the data presented in the proposed revised rule. Acreage figures used in this analysis are rounded to the nearest 100 acres. In addition, changes in land-use categories have occurred and are noted in Table 1 and briefly described below, as well as in the respective alternative descriptions.

Alternatives B, C, D, and E differ from alternatives described in the draft environmental assessment in that these lands no longer include Department of Defense lands at Joint Base Lewis-McChord (JBLM) in Washington. Since the draft environmental assessment, the Service has determined that conservation efforts identified in JBLM's integrated natural resource management plan will benefit northern spotted owls. As such, in accordance with section 4(a)(3)(B)(i) of the ESA, these lands are exempt from designation of critical habitat and have been removed from all alternatives (see Section 2.7 Option 1 – Exempt Department of Defense lands).

Three ownership or land-use descriptions for Alternatives B, C, D, and E also differ from that described in the draft environmental assessment. One difference is the inclusion of County and Municipal lands in California in the private land ownership category in the draft. We have

identified County and Municipal lands as a distinct ownership in this final environmental assessment. A second change is the misidentification of about 6,500 acres of Washington Department of Fish and Wildlife lands as private lands in the draft. These acres have been moved from the "Washington lands without a conservation agreement" category in Table 1 to, "Washington lands with a conservation agreement." A final change in land-use category is a result of a Safe Harbor Agreement that was enacted for SDS and Broughton Lumber Companies since the draft EA. This agreement covers 2,000 acres and these acres have been moved from the "Washington lands without a conservation agreement" to "Washington lands with a conservation agreement."

The development of a critical habitat network for the northern spotted owl must take into account the current uncertainty associated with both barred owl impacts and climate change predictions (USFWS 2011a). This includes the uncertainty associated with how climate change effects will impact northern spotted owls, and whether and how barred owls will be managed (and thus, what the future effect of barred owls will be on northern spotted owl populations). These uncertainties require that we make some assumptions about likely future conditions in developing, modeling, and evaluating potential critical habitat for the northern spotted owl; those assumptions are identified clearly in the proposed revised rule and in our supporting documentation (Dunk *et al*. 2012).

Given the continued decline of northern spotted owl populations, the apparent increase in severity of the threat from barred owls, and information indicating a recent loss of genetic diversity for the subspecies, retaining northern spotted owl sites (and their associated high-value habitat) and unoccupied, high-quality northern spotted owl habitat across the subspecies' range are key components for recovery (USFWS 2011a, Recovery Actions 10 and 32). The units and subunits identified as critical habitat under the action alternatives in this EA each consists predominantly of habitat occupied at the time of listing. However, parts of most units and subunits contain a forested mosaic which includes younger forests that may not have been occupied at the time of listing. We also recognize that there may be some uncertainty regarding areas we believe were occupied, based on the presence of suitable habitat or dispersing owls, but for which we do not have survey information. Therefore we have evaluated all areas as if they were unoccupied under the higher standard of section 3(5)(a)(ii) of the Act and have determined that all such areas are essential to the conservation of the species. Details of this evaluation are further described below (see section 2.2 Alternative B)

Not all northern spotted owl sites were included in the critical habitat networks described in the action alternatives. Sites were not included if those areas did not make a substantial contribution to population viability (for example, if known sites were too small or isolated to play a meaningful role in the conservation of the species), and thus do not contain features

essential, or if unoccupied at the time of listing are not themselves essential, to the species' conservation. This is in accordance with Section 3(5)(C) of the Act, which specifies that "critical habitat shall not include the entire geographical area which can be occupied by the threatened or endangered species."

Thus, we have proposed a critical habitat network based on what we believe to be essential for the conservation of the northern spotted owl, including information on areas that were occupied at the time of listing containing the features essential to owl conservation, unoccupied habitat that is essential to owl conservation, the current distribution of those habitats, and the best available scientific knowledge about northern spotted owl population dynamics, while acknowledging uncertainty about future conditions in Pacific Northwest forests. The action alternatives in this environmental assessment follow from that analysis.

2.1 Alternative A (No Action Alternative) – 2008 Designation of critical habitat

Pursuant to NEPA and its implementing regulations (40 C.F.R. § 1502.14), we are required to consider a No Action Alternative. The No Action Alternative, Alternative A, represents the current condition prior to implementation of the proposed action or any of the alternatives considered in this analysis. It is the baseline against which remaining alternatives are compared. This alternative represents the existing environment and conditions that result from the designation of critical habitat for the northern spotted owl in 2008 (Figures 2-4). The current designation totals 5,312,300 ac of Federal lands in California, Oregon, and Washington (Table 1) (73 Fed. Reg. 47325, 47326).

TABLE 1. ACRES OF PROPOSED CRITICAL HABITAT DESIGNATION BY LAND OWNERSHIP FOR EACH ALTERNATIVE.[1]

Ownership	No Action Alternative	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Federal Total	**5,312,400**	**12,009,400**	**12,009,400**	**9,376,900**	**9,376,900**	**9,286,400**
USFS	4,555,600	9,527,100	9,527,100	8,000,000	8,000,000	7,957,800
BLM	756,800	1,483,700	1,483,700	1,376,900	1,376,900	1,328,600
NPS	0	998,600	998,600	0	0	0
State Total	**0**	**677,600**	**452,600**	**287,800**	**0**	**270,900**
Washington						
DNR Lands with HCP[2]	0	225,000	0	0	0	0
State Parks	0	100	100	0	0	0
Washington Department of Fish and Wildlife[3]	0	8,300	8,300	8,300	0	8,300
Oregon Department of Forestry	0	228,700	228,700	228,700	0	212,800
California						
California State Parks	0	164,700	164,700	0	0	0
California State Forests	0	50,800	50,800	50,800	0	49,800
County and Municipal Total	**0**	**20,700**	**20,700**	**20,700**	**0**	**20,700**
California[4]	0	20,700	20,700	20,700	0	20,700
Private Total	**0**	**1,241,700**	**527,900**	**527,900**	**0**	**0**
Washington lands with a conservation agreement[5]	0	48,000	0	0	0	0
Washington lands without a conservation agreement[3,5]	0	141,400	141,400	141,400	0	0
California lands with a conservation agreement	0	665,800	0	0	0	0
California lands without a conservation agreement[4, 6]	0	386,500	386,500	386,500	0	0
Total[7]	**5,312,400**	**13,949,400**	**13,010,600**	**10 ,213,300**	**9,376,900**	**9,578,000**

[1]Totals may not sum due to rounding errors.
[2]Washington State Department of Natural Resources lands under an existing Habitat Conservation Plan.
[3]Since the draft EA, we discovered that 6,500 acres of land was misidentified as private land which was actually Washington Department of Fish and Wildlife ownership. These 6,500 acres have been moved into this category from the "Washington lands without a conservation agreement" category under the Private

lands heading.

[4]Acres in the proposed revised rule included County and Municipal lands located in California in the category of private lands. These 20,700 acres have been removed from the "California lands without a conservation agreement" category under the heading of Private Lands and put in their own separate category.

[5]Since the draft EA, a Safe Harbor Agreement was enacted for SDS and Broughton Lumber Companies. The agreement covers 2,000 acres and the acres of Washington lands with and without a conservation agreement have changed accordingly in this EA.

[6]Includes 232,600 acres of an HCP currently being developed between the Service and Mendocino Redwood Company.

[7]Grand totals for Alternatives B through E do not equal Table 1 of proposed revised rule because of rounding and because acres have subsequently been revised through mapping refinements.

The 2008 designation of critical habitat is limited to Forest Service and BLM lands. Units west of the Cascade Mountains were delineated based on the Managed Owl Conservation Areas (MOCAs) described in the 2008 Final Spotted Owl Recovery Plan (USFWS 2008). The 2008 recovery plan did not delineate MOCAs in the Eastern Washington Cascades, Eastern Oregon Cascades, and California Cascades Provinces. For these provinces, critical habitat units were based on information developed during the recovery-planning process (USFWS 2007). Further, while the MOCA network of the final 2008 recovery plan included areas of Congressionally reserved lands, such as wilderness areas and national parks, the 2008 critical habitat designation does not. However, the 2008 final critical habitat rule states that the contribution of the Congressionally reserved areas should be considered in any evaluation of the sufficiency of the overall habitat network for the recovery of the northern spotted owl (73 Fed.Reg. 47325, 47326). The 2008 critical habitat rule includes 135,800 ac of lands identified under current NWFP land-use allocations as available for scheduled timber harvest (that is, Matrix and Adaptive Management Areas). The remaining 5,176,600 acres designated as critical habitat in 2008 overlay reserve land-use allocations (e.g., Late-Successional Reserve), or allocations not otherwise designated for timber harvest (e.g., Administratively Withdrawn Areas). A more detailed description of these allocations is found in section 3.1.2.2 under the heading, *Federal lands—Other Forest Service and BLM land allocations*.

Within existing critical habitat the northern spotted owl receives protections under section 7 of the ESA by prohibiting Federal agencies from implementing actions that would destroy or adversely modify critical habitat. Both within and outside of currently designated critical habitat, the northern spotted owl receives protections under section 7 of the ESA by prohibiting Federal agencies from implementing actions that would jeopardize the continued existence of the species. In addition, section 9 of the ESA prohibits take of the northern spotted owl on all lands. Finally, section 10 of the ESA would apply on non-federal lands where these landowners may request authorization from the Service for take of a listed species that is incidental to an otherwise lawful activity. Existing section 7 prohibitions on jeopardizing a listed species and the protection of sections 9 and 10 under the ESA are considered to be part of the baseline in this NEPA analysis.

The current designation of northern spotted owl critical habitat is based on the 2008 recovery plan. As discussed above, both the current critical habitat designation and the 2008 recovery plan were challenged in *CIC* v. *Salazar*. In addition, on December 15, 2008, the Inspector General of the Department of the Interior (DOI) issued a report entitled "Investigative Report of The Endangered Species Act and the Conflict between Science and Policy," which concluded that the integrity of the agency decision-making process for the spotted owl recovery plan was potentially jeopardized by improper political influence. As a result, the Federal Government filed a motion for remand of the 2008 recovery plan and the critical habitat designation that

was based on that plan. The Court remanded the 2008 critical habitat designation on October 12, 2010. This revision of critical habitat is in response to this litigation and to the DOI Inspector General's report.

We are required to analyze the existing condition under the No Action Alternative, regardless of its legal sufficiency. Our No Action Alternative (2008 critical habitat designation) has been challenged in court and its use of the best available science has been questioned, prompting this revision. We conclude that it does not meet the purpose and need because it includes some lands that do not meet the definition of critical habitat and does not include other lands that are essential to conserve the species. Nor does it consider the best available science, which is required under the ESA. We do, however, carry it forward as a baseline with which to compare other alternatives, consistent with NEPA.

2.2 Alternative B (Proposed Action and Environmentally Preferable Alternative) – Revise critical habitat similar to that described in the proposed revised rule (i.e. no exclusions)

Alternative B was our Proposed Action in the draft EA. It includes the most acreage of critical habitat compared with all other alternatives. We consider Alternative B to also be the Environmentally Preferable Alternative because it would apply the protections of ESA section 7 to the greatest number of acres. However, while it meets the Purpose and Need, it is not as efficient as other alternatives in terms of providing essential spotted owl habitat while minimizing human use conflict (See Section 3.2 Affected Environment and Environmental Consequences—Fish, Wildlife, and Plant Species). Alternatives C through F were developed using selective exclusions in an attempt to determine which, if any, of these alternatives would better meet our Purpose and Need of minimizing conflict while retaining levels of predicted population performance (See Section 2.2 Criteria for Defining Essential Habitat) similar to Alternative B.

Alternative B is similar to the critical habitat designation described in the proposed rule published in the Federal Register on March 8, 2012 (77 Fed. Reg. 14062, 14067) except that Department of Defense (DOD) lands at Joint Base Lewis-McChord (JBLM) in Washington are no longer included under this alternative (See section 2.7 Option 1 – Exempt Department of Defense Lands). In addition, changes to three ownership or land-use descriptions have been made to this alternative from the draft based on original ownership misidentification or changes in the status of conservation agreements. One difference is the inclusion of County and Municipal lands in California in the private land ownership category in the draft. We have identified 20,700 ac of County and Municipal lands as a distinct ownership in this final environmental assessment and have removed them from the private lands category. A second

change corrects the misidentification in the draft EA of about 6,500 acres of Washington Department of Fish and Wildlife lands as private lands (categorized as "Washington lands without a conservation agreement" in Table 1 of the draft). These acres have also been adjusted accordingly. A final change in land-use category is a result of a Safe Harbor Agreement that was enacted for SDS and Broughton Lumber Companies since the draft EA. This agreement covers 2,000 acres and these acres have been moved from the "Washington lands without a conservation agreement" to "Washington lands with a conservation agreement."

No exclusions would occur under this alternative, and designation of critical habitat for the northern spotted owl would total 13,949,400 ac in 11 units and 60 subunits (Table 1, Figures 5-7). Land ownership would include Federal (12,009,400 ac), State (677,600 ac), County/Municipal (20,700 ac), and private (1,241,700 ac) lands. Federal land ownership would include Forest Service (9,527,100 ac), BLM (1,483,700 ac), and National Park Service (998,600 ac). State lands in Washington (233,400 ac), Oregon (228,700 ac), and California (215,500 ac) would be designated under this alternative. Additional designation would include private land in Washington (189,400 ac) and California (1,052,300 ac).

Of the Forest Service and BLM lands included in this alternative, 3,148,700 ac are in a NWFP land allocation with scheduled timber harvest (that is, Matrix and Adaptive Management Areas); the remaining Forest Service and BLM lands (7,862,100 ac) are in either a reserve allocation such as Late-Successional Reserves, or in allocations not subject to programmed timber harvest (e.g., Administratively Withdrawn Areas). A more detailed description of these allocations is found in section 3.1.2.2 under the heading, Federal lands—Other Forest Service and BLM land allocations.

Under this alternative, private lands would be designated as critical habitat in Washington and California, but not Oregon. Private lands are intended to be included in a critical habitat subunit only where private land is identified as a component of critical habitat in the subunit description. Private lands in Oregon were considered for inclusion in the modeling that was done to compare spotted owl population performance under different habitat-reserve networks. Under the scenarios reviewed, spotted owl population performance was not improved when private lands in Oregon were included in reserve networks as compared to networks that did not include private lands in Oregon (USFWS 2011a, Appendix C; Dunk *et al.* 2012). Thus, we determined that they do not contain essential physical and biological features or are not otherwise essential to conservation of the owl. Private lands in Washington and California, by contrast, did contribute to a substantial improvement in spotted owl population performance, and thus were included in the proposed critical habitat because we determined them to be essential.

Units and subunits that would be designated critical habitat under this alternative consist

primarily of habitat occupied by the species at the time of listing. However, parts of most units and subunits contain a forested mosaic that includes younger forests that may not have been occupied at the time of listing; we evaluated such areas of younger forest as unoccupied at the time of listing. Unoccupied areas must meet the standard of section 3(5)(A)(ii) of the ESA: they must be determined to be essential for the conservation of the species. In addition, there are some areas we have concluded were highly likely to be occupied at the time of listing, based on the presence of suitable habitat and our predictive models, but acknowledge there is some element of uncertainty to recognizing these areas as occupied under the statutory definition due to the lack of survey information. Therefore, we also evaluated all areas that we concluded were likely occupied but which lack survey information applying the higher standard under section 3(5)(A)(ii) of the ESA; we have determined that all such areas included in the proposed designation under this and all other action alternatives are essential for the conservation of the species. In addition, as a result of our application of the modeling framework described in Section 2.2.2 (Criteria for Defining Essential Habitat), we have additionally determined that all areas identified here as critical habitat, whether occupied at the time of listing or unoccupied at the time of listing, are essential to the conservation of the species and therefore meet the definition of critical habitat under section 3(5)(A)(ii) of the ESA.

We have proposed the revised designation of critical habitat for the northern spotted owl to be consistent with the most current assessment of the conservation needs of the species, as described in the 2011 Revised Recovery Plan (USFWS 2011a). The network development and network-evaluation strategy prioritized public lands when identifying lands for inclusion in the critical habitat network. That is, where modeled spotted owl population performance measures showed little difference between scenarios that included public lands only vs. those that included public and non-public lands, we selected the scenario with public lands only. This critical habitat designation approach helps meet the purpose and need (Section 1.1) through advancing northern spotted owl conservation and recovery while minimizing human use conflicts.

2.2.1 Primary Constituent Elements

Based on current knowledge of the physical or biological features and habitat characteristics required to sustain the species' life-history processes, the primary constituent elements (PCEs) specific to the northern spotted owl are as follows; note that PCE 1 must occur in concert with PCE 2, 3, or 4:

(1) Forest types that may be in early-, mid-, or late-seral stages and that support the northern spotted owl across its geographical range; these forest types are primarily:

a. Sitka spruce (*Picea sitchensis*);

b. Western hemlock (*Tsuga heterophylla*);

c. Mixed conifer and mixed evergreen;

d. Grand fir (*Abies grandis*);

e. Pacific silver fir (*Abies amabilis*);

f. Douglas-fir (*Pseudotsuga menziesii*);

g. White fir (*Abies concolor*);

h. Shasta red fir (*Abies magnifica*);

i. Redwood (*Sequoia sempervirens*)/Douglas-fir (in coastal California and southwestern Oregon); and

j. The moist end of the ponderosa pine (*Pinus* ponderosa) coniferous forests zones at elevations up to approximately 3,000 ft near the northern edge of the range and up to approximately 6,000 ft at the southern edge.

(2) Habitat that provides for nesting and roosting. In many cases the same habitat also provide for foraging (PCE (3)). Nesting and roosting habitat provides structural features for nesting, protection from adverse weather conditions, and cover to reduce predation risks for adults and young. This PCE is found throughout the geographical range of the northern spotted owl, because stand structures at nest sites tend to vary little across the species' range. These habitats must provide:

a. Sufficient foraging habitat to meet the home range needs of territorial pairs of northern spotted owls throughout the year.

b. Stands for nesting and roosting that are generally characterized by:

i. Moderate to high canopy cover (60 to over 80 percent);

ii. Multilayered, multispecies canopies with large (20 to 30 in or greater diameter at breast height (dbh)) overstory trees;

iii. High basal area (greater than 240 ft^2/ac);

iv. High diversity of different diameter trees;

v. High incidence of large live trees with various deformities (e.g., large cavities, broken tops, mistletoe infections, and other evidence of decadence);

vi. Large snags and large accumulations of fallen trees and other woody debris on the ground; and

vii. Sufficient open space below the canopy for northern spotted owls to fly.

(3) Habitat that provides for foraging, which varies widely across the northern spotted owl's range, in accordance with ecological conditions and disturbance regimes that influence vegetation structure and prey species distributions. Across most of the owl's range, nesting and roosting habitat is also foraging habitat, but in some regions northern spotted owls may additionally use other habitat types for foraging as well. The foraging habitat PCEs for the four ecological zones (Figure 1) within the geographical range of the northern spotted owl are generally the following:

a. West Cascades/Coast Ranges of Oregon and Washington

i. Stands of nesting and roosting habitat; additionally, owls may use younger forests with some structural characteristics (legacy features) of old forests, hardwood forest patches, and edges between old forest and hardwoods;

ii. Moderate to high canopy cover (60 to over 80 percent);

iii. A diversity of tree diameters and heights;

iv. Increasing density of trees greater than or equal to 31 in dbh increases foraging habitat quality (especially above 12 trees per ac);

v. Increasing density of trees 20 to 31 in dbh increases foraging habitat quality (especially above 24 trees per ac);

vi. Increasing snag basal area, snag volume , and density of snags greater than 20 in dbh all contribute to increasing foraging habitat quality, especially above 4 snags per ac;

vii. Large accumulations of fallen trees and other woody debris on the ground; and

viii. Sufficient open space below the canopy for northern spotted owls to fly.

b. East Cascades

i. Stands of nesting and roosting habitat;

ii. Stands composed of Douglas-fir and white fir/Douglas-fir mix;

iii. Mean tree size greater than 16.5 in quadratic mean diameter;

iv. Increasing density of large trees (greater than 26 in and increasing basal area (the total area covered by trees measured at breast height) increases foraging habitat quality;

v. Large accumulations of fallen trees and other woody debris on the ground; and

vi. Sufficient open space below the canopy for northern spotted owls to fly.

c. Klamath and Northern California Interior Coast Ranges

i. Stands of nesting and roosting habitat; in addition, other forest types with mature and old-forest characteristics;

ii. Presence of conifer species, incense-cedar (*Calocedrus decurrens*), sugar pine (*Pinus lambertiana*), Douglas-fir, and hardwood species such as bigleaf maple (*Acer macrophyllum*), black oak (*Quercus kelloggii*), live oaks (*Quercus* spp.), and madrone (*Arbutus menziesii*), as well as shrubs;

iii. Forest patches within riparian zones of low-order streams and edges between conifer and hardwood forest stands;

iv. Brushy openings and dense young stands or low-density forest patches within a mosaic of mature and older forest habitat;

v. High canopy cover (87 percent at frequently used sites);

vi. Multiple canopy layers;

vii. Mean stand diameter greater than 21 in:

viii. Increasing mean stand diameter and densities of trees greater than 26 in increases foraging habitat quality;

ix. Large accumulations of fallen trees and other woody debris on the ground; and

x. Sufficient space below the canopy for northern spotted owls to fly.

d. Redwood Coast

i. Nesting and roosting habitat; in addition, stands composed of hardwood tree species, particularly tanoak;

ii. Early-seral habitats 6 to 20 years old with dense shrub and hardwood cover and abundant woody debris; these habitats produce prey, and must occur in conjunction with nesting, roosting, or foraging habitat;

iii. Increasing density of small- to medium-sized trees (10 to 22 in) increases foraging habitat quality;

iv. Trees greater than 26 in in diameter or greater than 41 years of age; and

v. Sufficient open space below the canopy for northern spotted owls to fly.

(4) Habitat to support the transience and colonization phases of dispersal, which in all cases would optimally be composed of nesting, roosting, or foraging habitat (PCEs (2) or (3)), but which may also be composed of other forest types that occur between larger blocks of nesting, roosting, and foraging habitat. In cases where nesting, roosting, or foraging habitats are insufficient to provide for dispersing or nonbreeding owls, the specific dispersal habitat PCEs for the northern spotted owl may be provided by the following:

a. Habitat supporting the transience phase of dispersal, which includes:

i. Stands with adequate tree size and canopy cover to provide protection from avian predators and minimal foraging opportunities; in general this may include, but is not limited to, trees with at least 11 in dbh and a minimum of 40 percent canopy cover; and

ii. Younger and less diverse forest stands than foraging habitat, such as even-aged, pole-sized stands, if such stands contain some roosting structures and foraging habitat to allow for temporary resting and feeding during the transience phase.

b. Habitat supporting the colonization phase of dispersal, which is generally equivalent to nesting, roosting, and foraging habitat as described in PCEs 2 and 3, but may be smaller in area than that needed to support nesting pairs.

In areas occupied at the time of listing, not all of the proposed revised critical habitat will contain all of the PCEs, because not all life-history functions require all of the PCEs. Some subunits contain all PCEs and support multiple life processes, while some subunits may contain only those PCEs necessary to support the species' particular use of that habitat. However, all of the areas proposed for designation support at least the first PCE described (forest-type), in

conjunction with at least one other PCE. Thus PCE (1) must always occur in concert with at least one additional PCE (PCE 2, 3, or 4).

2.2.2 Criteria for Defining Essential Habitat

As required by section 4(b)(1)(A) of the Act, we used the best scientific and commercial data available to designate critical habitat. We reviewed the available information pertaining to the habitat requirements of the species. In accordance with the Act and its implementing regulations at 50 CFR 424.12(e), based on this review, we identified the specific areas within the geographical area occupied by the species at the time it was listed on which are found those physical or biological features essential to the conservation of the species, and which may require special management considerations or protection. In addition, we considered whether any additional areas outside those occupied at the time of listing are essential for the conservation of the species.

Based on the best available scientific information regarding population structure of northern spotted owls, "occupied at the time of listing" encompasses (1) home ranges of resident, territorial northern spotted owls known from surveys to be present at the time of listing, (2) home ranges of territorial owls determined likely to have been present at the time of listing based on a model developed specifically to predict owl presence based on relative habitat suitability, and (3) areas used by nonterritorial and dispersing owls that were likely to be present within the matrix of territories in a given landscape known to be occupied by resident owl pairs. We then characterized "specific areas" as used in the definition of critical habitat, U.S.C. § 1532(5)(A), to conform to known patterns of space-use and distribution exhibited by northern spotted owls.

To help refine, select, and evaluate a series of alternative critical habitat networks for the northern spotted owl, we used a three-step modeling framework developed as part of the Revised Recovery Plan. This three-step process integrates a northern spotted owl habitat model, a habitat conservation planning model, and a population simulation model. Each of these steps helped identify a critical habitat network that meets the statutory definition of critical habitat—namely, the distribution of the physical or biological features needed by the species across its geographical range occupied at the time of listing, and the identification of a landscape configuration where these features, as well as any necessary unoccupied areas, are essential to the conservation of the species. The details of this modeling framework are presented in Appendix C of the Revised Recovery Plan (USFWS 2011a) (See Appendix C of this document). In addition, a detailed technical description of the modeling and habitat network evaluation process we used in this revised designation of critical habitat is provided in Dunk *et*

al. (2012) (Appendix B). Furthermore, we include these documents as appendices in this EA (Appendices B and C) and incorporate them by reference.

The first step in the modeling framework was to use a northern spotted owl habitat model, informed by published research, input from individual experts, and analysis of northern spotted owl location and habitat data from nearly 4,000 known owl pairs (USFWS 2011a, Appendix C), to depict relative habitat suitability. This map of relative habitat suitability was used to inform the second step of the framework. In this second step, a habitat conservation planning model was used to aggregate areas of greatest relative habitat suitability (areas occupied at the time of listing that provide the physical or biological features, or areas of habitat that may have been unoccupied at the time of listing, but have the potential to play an essential conservation role, for example, in providing connectivity between isolated populations) into discrete units. This modeling step provided a range of alternative critical habitat networks. In step three, these network scenarios were each subject to the population simulation model, which allowed us to simulate the relative population responses of northern spotted owls to individual habitat conservation network scenarios. This step enabled us to determine the amount and configuration of physical or biological features on the landscape that are essential to the conservation of the owl, as well as to determine those unoccupied areas essential for the conservation of the species. The use of these three models in concert helped us to identify a critical habitat network that meets the statutory definition of critical habitat; namely, the distribution of the physical or biological features needed by the species across the geographical range of the species occupied at the time of listing, and the identification of a landscape configuration where these features, as well as any necessary unoccupied areas, are essential to the conservation of the species.

In developing critical habitat, we assessed what is essential to conservation and recovery of the spotted owl by evaluating the relative performance of multiple potential critical habitat scenarios considered against the recovery needs of the owl, as described in the Revised Recovery Plan (USFWS 2011a, Appendix C). We evaluated spotted owl population metrics such as relative population size and trend to assess what is essential to owl conservation, both in terms of where and how much of the physical or biological features are essential and how much unoccupied habitat is essential to meet the recovery objectives for the owl, as defined in the Revised Recovery Plan (USFWS 2011a) and detailed in the supporting documentation (Dunk *et al.* 2012).

To accomplish this, we developed the following rule set to compare and evaluate the potential of various habitat scenarios and to determine what is essential to the conservation of the northern spotted owl (Dunk *et al.* 2012):

(1) Ensure sufficient habitat to support population viability across the range of the

species.

(a) Habitat can support an increasing or stable population trend, as measured by a population growth rate of 1.0 or greater.

(b) Habitat will be sufficient to insure a low risk of extinction.

(2) Support demographically stable populations in each recovery unit.

(a) Habitat can support an increasing or stable population trend in each recovery unit.

(b) Habitat will be sufficient to insure a low risk of extinction in each recovery unit.

(c) Conserve or enhance connectivity within and among recovery units.

(d) Conserve genetic diversity.

(e) Ensure sufficient spatial redundancy in critical habitat within each recovery unit.

(f) Accommodate habitat disturbance due to fire, insects, disease, and catastrophic events.

(3) Ensure distribution of spotted owl populations across representative habitats.

(a) Maintain distribution across the full ecological gradient of the historical range.

(4) Acknowledge uncertainty associated with both future habitat conditions and spotted owl population performance—including influence of barred owls, climate change, fire/disturbance risk, and demographic stochasticity—in assessment of critical habitat design.

Following the application of this modeling framework, we further refined the model-based map units, after considering land ownership patterns, interagency coordination, and best professional judgment, with the objective of increasing the efficiency and effectiveness of the critical habitat designation. The process generally consisted of modifying boundaries to better conform to existing administrative and landscape features, removing small areas of relatively lower-suitability habitat, and incorporating additional areas that may have been unoccupied at the time of listing, but were determined to be essential for population connectivity, for population growth, or to accommodate maintenance of suitable habitat on the landscape for owls in the face of natural disturbance regimes (e.g. fire) or competition with the barred owl, while retaining the overall configuration of the model-based maps. We used the population simulation model to evaluate whether this alternative continued to provide what is essential to

the conservation of the northern spotted owl. This critical habitat designation approach helps meet the purpose and need (Section 1.1) through advancing northern spotted owl conservation and recovery while minimizing human use conflicts.

The units and subunits identified as critical habitat under this alternative each consists predominantly of habitat occupied at the time of listing. However, parts of most units and subunits contain a forested mosaic which includes younger forests that may not have been occupied at the time of listing. We also recognize that there may be some uncertainty regarding areas we believe were occupied, based on the presence of suitable habitat or dispersing owls, but for which we do not have survey information. Therefore, as noted earlier, we have evaluated all areas as if they were unoccupied under the higher standard of section 3(5)(a)(ii) of the Act and have determined that all such areas are essential to the conservation of the species.

In summary, our evaluation of the various habitat scenarios considered in the modeling process described above enabled us to determine the amount and configuration of physical and biological features on the landscape that are essential to the conservation of the owl, based on the relative ability of that habitat network to meet the recovery criteria of stable or increasing populations and adequate distribution of viable populations. Although this evaluation was primarily based on areas we know to have been occupied at the time of listing, our evaluation of what is essential to the conservation of the owl additionally identified areas that may not have been occupied at the time of listing, if those areas were essential to the conservation of the species; these areas provide for dispersal and connectivity between currently occupied areas, allow space for population growth, and provide habitat replacement in the event of disturbances, such as wildfires and competition with barred owls. The resulting revised critical habitat under this alternative represents the amount and spatial distribution of habitats that we have determined to be essential for the conservation of the northern spotted owl.

2.3 Alternative C - Alternative C - Revise critical habitat as described in Alternative B, but exclude all non-Federal lands with completed conservation agreements

This alternative would designate critical habitat as described in Alternative B (Proposed Action)), but would exclude all non-Federal lands with completed conservation agreements (HCPs, SHAs, and other formal agreements) currently in place (Table 2). Three changes in ownership or land-use descriptions have been made to this alternative from the draft based on original ownership misidentification or changes in the status of conservation agreements. One difference is the inclusion of County and Municipal lands in California in the private land ownership category in the draft. We have identified 20,700 ac of County and Municipal lands

as a distinct ownership in this final environmental assessment and have removed them from the private lands category. A second change corrects the misidentification in the draft EA of about 6,500 acres of Washington Department of Fish and Wildlife lands as private lands (categorized as "Washington lands without a conservation agreement" in Table 1 of the draft). These acres have also been adjusted accordingly. Finally, since the proposed rule and draft EA were released, a SHA was completed for SDS Company and Broughton Lumber Company in Washington. This new agreement adds 2,000 ac of private land with an active conservation agreement to be considered for exclusion under this alternative, reducing by 2,000 acres the lands in Washington that do not have a conservation agreement (Table 1).

In this alternative, 48,000 ac of private land in Washington, 665,800 ac of private land in California, and 225,000 ac of State land in Washington would be excluded (Table 2); a total of 938,800 ac would be excluded under this alternative, with a final designation of 13,010,600 ac (Table 1, Figures 8-10). Land ownership designated under this alternative would include Federal (12,009,400 ac), State (452,600 ac), County and Municipal (20,700) and private (527,900 ac) lands. Federal land ownership would include Forest Service (9,527,100 ac), BLM (1,483,700 ac), and National Park Service (998,600 ac). State lands in Washington (8,400 ac), Oregon (228,700 ac), and California (215,500 ac) would be designated under this alternative. Additional designation would include private land in Washington (141,400 ac) and California (386,500 ac). Private lands are intended to be included in a critical habitat subunit only where private land is identified as a component of critical habitat in the subunit description.

Of the Forest Service and BLM lands included in this alternative, 3,148,700 ac are in a NWFP land allocation with scheduled timber harvest (that is, Matrix and Adaptive Management Areas); the remaining Forest Service and BLM lands (7,862,100 ac) are in either a reserve allocation such as Late-Successional Reserves, or in allocations not subject to programmed timber harvest (e.g., Administratively Withdrawn Areas). A more detailed description of these allocations is found in section 3.1.2.2 under the heading, Federal lands—Other Forest Service and BLM land allocations.

Except for the noted exclusions described above, this alternative, including the primary constituent elements and the criteria for defining essential habitat, remain the same as that described for Alternative B.

TABLE 2. LANDS THAT WOULD BE EXCLUDED FROM PROPOSED CRITICAL HABITAT UNDER ALTERNATIVE C.

Name of Agreement	State	Agreement Type
Port Blakely Tree Farms	WA	Safe Harbor Agreement
SDS Lumber Co. and Broughton Lumber Co.[1]	WA	Safe Harbor Agreement
Cedar River Watershed	WA	Habitat Conservation Plan
Green River Water Supply Operations and Watershed Protection	WA	Habitat Conservation Plan

Plum Creek Timber Central Cascades I-90	WA	Habitat Conservation Plan
West Fork Timber	WA	Habitat Conservation Plan
Scofield Corporation	WA	Deed Restriction (former Habitat Conservation Plan)
Washington Department of Natural Resources State Lands	WA	Habitat Conservation Plan
Forster-Gill, Inc.	CA	Safe Harbor Agreement
Van Eck Forest Foundation	CA	Safe Harbor Agreement
Green Diamond Resource Company	CA	Habitat Conservation Plan
Humboldt Redwood Company	CA	Habitat Conservation Plan
Regli Estate	CA	Habitat Conservation Plan
Terra Springs	CA	Habitat Conservation Plan
Usal Forest	CA	Conservation Easement
Big River, Salmon Creek, and Garcia Forests	CA	Conservation Easement

[1] Agreement completed since publication of the proposed revised rule and the draft EA and subsequently included in this alternative.

2.4 Alternative D - Revise critical habitat as described in Alternative B, but exclude all non-Federal lands with completed conservation agreements, all State parks, and all Congressionally reserved natural areas

This alternative would designate critical habitat as described in Alternative B, but would exclude all non-Federal lands with completed conservation agreements (HCPs, SHAs, and other formal agreements) in place, as in Alternative C. In addition, all State parks, and all Congressionally reserved natural areas (e.g., wilderness areas, national scenic areas, national parks) initially considered for designation under Alternative B (See Appendix A for list of excluded Congressionally reserved natural areas) would be excluded under this alternative. Three changes in ownership or land-use descriptions have been made to this alternative from the draft based on original ownership misidentification or changes in the status of conservation agreements. One difference is the inclusion of County and Municipal lands in California in the private land ownership category in the draft. We have identified 20,700 ac of County and Municipal lands as a distinct ownership in this final environmental assessment and have removed them from the private lands category. A second change corrects the misidentification in the draft EA of about 6,500 acres of Washington Department of Fish and Wildlife lands as private lands (categorized as “Washington lands without a conservation agreement” in Table 1 of the draft). These acres have also been adjusted accordingly. Finally, since the proposed revised rule and draft EA were released, a SHA has been completed for SDS Company and Broughton Lumber Company in Washington. This new agreement adds 2,000 ac of private land with an active conservation agreement to be considered for exclusion under this alternative. Thus, this alternative would exclude the 938,800 ac described in Alternative C as revised (State

and private lands with completed conservation agreements). In addition, 100 ac and 164,700 ac of State Park land in Washington and California, respectively, would be excluded. Finally, 2,632,500 ac of Congressionally reserved Federal natural areas would be excluded, of which 998,600 ac are National Park Service lands, and the remaining 1,633,900 ac are managed by the Forest Service and BLM. A total of 3,736,100 ac would be excluded under this alternative, with a final designation of 10,214,300 ac (Table 1, Figures 11-13).

Land ownership designated under this alternative would include Federal (9,376,900 ac), State (287,800 ac), County and Municipal (20,700), and private (527,900 ac) lands. Federal land ownership would include Forest Service (8,000,000 ac) and BLM (1,376,900 ac). State lands in Washington (8,300 ac), Oregon (228,700 ac), and California (50,800 ac) would be designated under this alternative. Additional designation would include private land in Washington (141,400 ac) and California (386,500 ac). Private lands are intended to be included in a critical habitat subunit only where private land is identified as a component of critical habitat in the subunit description.

Of the Forest Service and BLM lands included in this alternative, 3,148,700 ac are in a NWFP land allocation with scheduled timber harvest (that is, Matrix and Adaptive Management Areas); the remaining Forest Service and BLM lands (7,862,100 ac) are in either a reserve allocation such as Late-Successional Reserves, or in allocations not subject to programmed timber harvest (e.g., Administratively Withdrawn Areas). A more detailed description of these allocations is found in section 3.1.2.2 under the heading, Federal lands—Other Forest Service and BLM land allocations.

Except for the noted exclusions described above, this alternative, including the primary constituent elements and the criteria for defining essential habitat, remain the same as that described for Alternative B.

2.5 Alternative E – Revise critical habitat as described in Alternative B, but exclude all non-Federal lands, and all Congressionally reserved natural areas

This alternative would designate critical habitat as described in Alternative B, but would exclude the 3,736,100 ac described in Alternative D (non-Federal lands with completed conservation agreements, State Parks, and Congressionally reserved natural areas). In addition, all remaining State (287,800 ac), private (527,900 ac), and County and Municipal (20,700 ac) lands would be excluded under this alternative. Three changes in ownership or land-use descriptions have been made since the draft EA as a result of original ownership misidentification or changes in the status of conservation agreements; these changes will affect the acres considered for exclusion under this alternative. One difference is the inclusion of County and Municipal lands

in California in the private land ownership category in the draft. We have identified 20,700 ac of County and Municipal lands as a distinct ownership in this final environmental assessment and have removed them from the private lands category. A second change corrects the misidentification in the draft EA of about 6,500 acres of Washington Department of Fish and Wildlife lands as private lands (categorized as "Washington lands without a conservation agreement" in Table 1 of the draft). These acres have also been adjusted accordingly. Finally, since the proposed revised rule and draft EA were released, a SHA has been completed for SDS Company and Broughton Lumber Company in Washington. This new agreement adds 2,000 ac of private land with an active conservation agreement to be considered for exclusion under this alternative.

State lands to be excluded under this alternative are lands managed by the Washington Department of Fish and Wildlife (8,300 ac), Oregon Department of Forestry (228,700 ac), and California State Forests (50,800 ac). In California, 20,700 ac of County and Municipal lands would be excluded under this alternative. Private lands to be excluded under this alternative include 141,400 ac in Washington, and 386,500 ac in California. A total of 4,572,500 ac would be excluded, with a final designation of 9,376,900 ac for this alternative (Table 1, Figures 14-16).

Land ownership designated under this alternative would include only Federal lands (9,391,900 ac). Federal land ownership would include Forest Service (8,000,000 ac) and BLM (1,376,900 ac). Of this ownership, 3,148,700 ac are in a NWFP land allocation with scheduled timber harvest (that is, Matrix and Adaptive Management Areas); the remaining Forest Service and BLM lands (7,862,100 ac) are in either a reserve allocation such as Late-Successional Reserves, or in allocations not subject to programmed timber harvest (e.g., Administratively Withdrawn Areas). A more detailed description of these allocations is found in section 3.1.2.2 under the heading, Federal lands—Other Forest Service and BLM land allocations.

Except for the noted exclusions described above, this alternative, including the primary constituent elements and the criteria for defining essential habitat, remain the same as that described for Alternative B.

2.6 Alternative F (Preferred Alternative) – Revise critical habitat as described in Alternative B, but exclude all lands with completed HCPs and SHAs, all private lands, all Congressionally reserved lands, all State Parks, and all private lands; revise designation on remaining lands to better incorporate habitat essential for the northern spotted owl.

This alternative was developed to meet our purpose and need after refining our exclusion analysis and receiving comments on our draft environmental assessment, draft economic

analysis, and proposal to revise critical habitat. It meets our Purpose and Need in that it is consistent with our authorities and regulatory discretion and would designate areas essential to the conservation of the species but exclude lands where we believe the benefits of exclusion are greater than the benefits of inclusion in order to minimize the impacts of the designation. Based on these revisions in response to public comments, we believe this alternative better meets our purpose and need and consider this alternative to be our Preferred Alternative.

In response to public comments, we looked closely at non-Federal landowners to assess whether the benefits of exclusion outweigh benefits of inclusion; under this alternative we have identified for exclusion those lands where benefits of exclusion outweigh benefits of inclusion (Appendix D). Also in response to public comments, we have applied our exclusion analysis to Congressionally reserved areas and State parks; where benefits of exclusion outweigh benefits of inclusion, we have identified them for exclusion under this alternative.

We worked closely with the BLM, Forest Service, the States, and individual and corporate land owners to refine potential critical habitat locations to better incorporate habitat essential for the northern spotted owl. Changes in acres for all ownerships categories (Federal, State, and other non-Federal lands) occurred as a result of this exercise. Additional changes from the proposed action that were made under this alternative were minor and included correcting mapping errors, or locating administrative boundaries.

As a result of the above-mentioned changes, this alternative is most similar to Alternative E. Like Alternative E, this alternative would exclude non-federal lands with existing HCPs and SHAs, all State parks, all Congressionally reserved areas, and all remaining private lands. Unlike Alternative D, this alternative would not exclude County or Municipal lands. This alternative would also not exclude those State lands that do not have an HCP or SHA.

Excluded under this alternative would be 189,400 ac of private land in Washington, 1,052,300 ac of private land in California, and 225,100 ac of State land in Washington. In addition, 2,632,500 acres of Congressionally reserved lands (998,600 ac of NPS, 1,633,900 ac of combined BLM and Forest Service), and 164,800 ac of State Parks (100 ac in Washington and 164,700 ac in California) would be excluded. Exclusions would total 4,371,400 ac, with a final designation of 9,578,000 ac (Table 1, Figures 17-19). Land ownership of the proposed revised critical habitat designation includes Federal (9,286,400 ac), State (270,900 ac), and County and Municipal (20,700) lands. Federal land ownership designated under this alternative would include Forest Service (7,957,800 ac) and BLM (1,328,600 ac). State lands in Washington (8,300 ac), Oregon (212,800 ac), and California (49,800 ac) would be designated under this alternative. Additional designation would include County and Municipal lands in California (20,700 ac). No Indian lands are included in this or any other alternative.

Of the Federal lands, 2,274,800 ac are in a NWFP land allocation with scheduled timber harvest (that is, Matrix and Adaptive Management Areas); the remaining Forest Service and BLM lands (7,011,600 ac) are in either a reserve allocation such as Late-Successional Reserves, or in allocations not subject to programmed timber harvest (e.g., Administratively Withdrawn Areas). A more detailed description of these allocations is found in section 3.1.2.2 under the heading, Federal lands—Other Forest Service and BLM land allocations.

Except for the noted exclusions and revisions described above, this alternative, including the primary constituent elements and the criteria for defining essential habitat, remain the same as that described for Alternative B.

2.7 Option 1 – Exempt Department of Defense lands

In the Draft Environmental Assessment, we considered this option, which could have been applied to any selected action alternative. This option would exempt from designation the 15,000 ac of Department of Defense (DOD) lands at Joint Base Lewis-McChord (JBLM) in Washington, which was included in the proposed revision of critical habitat. Section 4(a)(3)(B) of the ESA states: "The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation." Exemption of DOD lands under section 4(a)(3)(B) of the ESA is a different r regulatory process than exclusion of lands under section 4(b)(2). Thus, in the draft environmental assessment, this exemption was not included in any of the action alternatives (B, C, D, E, or F) that address various forms of potential exclusions under section 4(b)(2). Our determination for exemption was pending our evaluation of JBLM's revised Integrated Natural Resources Management Plan (INRMP). The base has an integrated natural resource management plan (INRMP) in place that was approved in 2008 (INRMP 2007). JBLM is in the process of updating that INRMP. In 2012, JBLM completed an Endangered Species Management Plan for the northern spotted owl.

We originally included this option to compare the effects on the human environment of designating versus not designating critical habitat on JBLM lands. However, since the draft environmental assessment was released, the Service has completed its review of JBLM's Endangered Species Management Plan for the northern spotted owl. This plan is an integral part of the INRMP and includes guidelines for protecting, maintaining, and enhancing habitat essential to support the northern spotted owl on JBLM. The primary conservation goals for northern spotted owl habitat on JBLM are to: (1) protect and maintain existing spotted owl

suitable habitat; (2) manipulate unsuitable habitat to suitable habitat; and (3) ensure long term suitable habitat and monitor northern spotted owl habitat to assure that goals are met and actions are successful (see Appendix D for more details). Based on these considerations, the Service has since determined that the identified lands are subject to the JBLM INRMP and that conservation efforts identified in the INRMP will provide a benefit to northern spotted owls occurring in habitats within or adjacent to JBLM. Therefore, in accordance with section 4(a)(3)(B)(i) of the ESA, lands within this installation are exempt from critical habitat designation. As such, we have eliminated this option from the final environmental assessment and removed JBLM lands from consideration for critical habitat designation in all action alternatives. JBLM lands are not designated as critical habitat under the current rule. Therefore, the exclusion of JBLM lands from critical habitat designation does not result in a change from the No Action Alternative.

2.8 Alternatives Considered but Not Fully Evaluated

To identify and map potential critical habitat for the northern spotted owl, we used, in part, a three-step modeling framework developed for the purposes of the Revised Recovery Plan (USFWS 2011a) that integrates a spotted owl-habitat model, a habitat-conservation-planning model, and a spotted owl population-simulation model. The details of this modeling framework are presented in Appendix C of the Revised Recovery Plan (USFWS 2011a), and a technical description of how we applied this model to the habitat-network-selection process in the revised designation of critical habitat is detailed in Dunk *et al*. (2012). Furthermore, we include these documents (Dunk *et al*. 2012 and USFWS 2011 a) as appendices in this EA (Appendices B and C, respectively) and incorporate them by reference. Each of these three models helped us to identify a critical habitat network that meet the statutory definition of critical habitat; namely, the distribution of the physical or biological features needed by the species across the geographical range occupied at the time of listing, and the identification of a landscape configuration where these features, as well as any necessary unoccupied areas, are essential to the conservation of the species.

As discussed above (Section 2.2.2 Criteria for Defining Essential Habitat), based on the statutory definition of critical habitat, we developed a set of guiding principles that generally identified what would be essential to conserving the northern spotted owl. These principles formed the basis for establishing quantitative and qualitative criteria used by the Service while evaluating and comparing potential critical habitat networks. As the purpose of critical habitat is to designate what is essential to the conservation of the listed species, we used the recovery goals and criteria of the Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011a) as the

foundation for the guiding principles and rule set for identifying critical habitat. These guiding principles are (see Dunk *et al.* (2012) for a more detailed description of the guiding principles):

(1) Ensure sufficient habitat to support population viability across the range of the species;

(2) Support demographically stable populations in each recovery unit;

(3) Ensure distribution of spotted owl populations across representative habitats;

(4) Incorporate/consider/accommodate uncertainty – barred owls, climate change, fire/disturbance risk, demographic stochasticity; and

(5) These critical habitat objectives of supporting population viability and demographically stable populations are intended to be met in concert with the implementation of recovery actions to address other non-habitat based threats to the owl.

We developed multiple critical habitat scenarios (USFWS 2011a, Appendix C; Dunk *et al*. 2012) and evaluated what is essential to recovery of the spotted owl by examining the relative performance of each of these scenarios against the recovery needs of the owl. Specifically, we evaluated spotted owl population metrics such as relative population size and trend to determine where and how much of the physical and biological features may be essential to owl conservation, and how much unoccupied habitat is essential to conserve the spotted owl, as informed by the Revised Recovery Plan (USFWS 2011a) and detailed in our supporting documentation (Dunk *et al*. 2012). To accomplish this, we developed a rule set for the identification of critical habitat based on the ability of that habitat to meet the recovery objectives and criteria set forth in the Revised Recovery Plan (USFWS 2011a). This rule set is found above in Section 2.2.2 Criteria for Defining Essential Habitat.

Habitat network scenarios analyzed included former and existing networks such as the Northwest Forest Plan, as well as the 1992 and 2008 critical habitat designations (USFWS 2011a, Appendix C). The Northwest Forest Plan, as an existing reserve system, represented a starting point with which to compare the performance of all other developed networks. In addition, six habitat network scenarios were developed using the Zonation conservation planning model (Moilanen and Kujala 2008); this model looks at relative habitat suitability and other user-specified criteria (e.g. land ownership) to develop an efficient solution (that is, maximizing the inclusion of areas with high relative habitat value while reducing the total area of the network by excluding areas of lower habitat value) (see Dunk *et al*. 2012 and USFWS 2011a, Appendix C for more details). Six habitat network scenarios were developed to provide a wide range of potential configurations, sizes, and land ownerships. These six scenarios comprised 30 (Z30all, Z30pub), 50 (Z50all, Z50pub), or 70 (Z70all, Z70pub) percent of relative habitat value (RHS). The “all” scenarios included lands regardless of ownership. Conversely,

the “pub” scenarios represented a prioritization of habitat on public lands; if, however, the total amount of habitat value specified (e.g., 50% or 70%) could not be acquired from cells in public lands, other lands were included in the solution. We considered examining a Z90 scenario (a network that incorporated 90 percent of relative habitat value) to encompass a larger area of potential critical habitat, which may provide greater conservation benefit to the spotted owl. However, the amount of high relative habitat value in Z70 was nearly identical to that in Z90, yet it encompassed a much larger area; that is, for a very little amount of additional high relative habitat value, Z90 included millions of additional acres. This scenario did not meet our purpose and need of providing conservation benefits to the northern spotted owl while minimizing land-use conflicts. As such, this scenario was not carried through for analysis in this EA. Consequently, the Z70 scenario represented an upper range of maximizing relative habitat value while reducing the amount of acreage necessary for critical habitat, yet still met the guiding principles as described in Dunk *et al.* (2012).

The Z70 scenario was subsequently modified in various composite networks for which spotted owl population performance was evaluated. Each composite scenario represented the Service’s effort to maximize efficiency and realism by reducing the potential critical habitat designation, focusing on well-connected high quality habitat while maintaining the best possible population performance. The habitat network developed for the proposed revised critical habitat rule (Alternative B in this environmental assessment) exhibited a modeled spotted owl population performance that was substantially better than that exhibited by the NWFP and better than other composites nearly twice its size (Dunk *et al*. 2012, Figures 4 and 5 where “Comp 7” on the X axis is the scenario that became the proposed revised designation of critical habitat (i.e. Alternative B in this EA)). The preferred alternative (Alternative F in this EA) showed a population performance that was similar to Alternative B, but required fewer acres (Figures 20 and 21).

In short, modeling enabled us to assess the amount and configuration of the physical and biological features essential to the conservation of the northern spotted owl in areas occupied by the species at the time of listing, and areas that are otherwise essential to the species’ conservation, based on the relative ability of that habitat network to meet the recovery criteria of stable or increasing populations and adequate distribution of viable populations. It also helped us propose an efficient network design (that is, provide what is essential to conservation on the smallest land area) and allowed us to maximize reliance on public lands while still meeting the stated population goals essential for recovery. These modeling objectives are consistent with the purpose and need for this EA.

We consider the above-discussed network scenarios assessed in the modeling efforts as alternatives considered but not fully evaluated and include these documents in attached

appendices (Dunk *et al*. (2012) is found in Appendix B of this document. Appendix C of USFWS (2011a) is found in Appendix C of this document). Included among these scenarios was the Northwest Forest Plan (NWFP). We did not analyze the NWFP as an alternative in this EA because it does not meet the Purpose and Need, including meeting the requirements of the ESA for designating critical habitat. Although initiated in part because of litigation relating to spotted owl conservation, the NWFP responded to dual needs: the need to provide forest habitat, particularly late-successional and old-growth forests, and the need to provide a sustainable supply of forest products (USDA and USDI 1994b). In order to meet these underlying needs, the purpose of the NWFP was to ". . . take an ecosystem management approach to forest management, with support from scientific evidence, and meet the requirements of existing laws and regulations" (USDA and USDI 1994b, p. S-4). While the NWFP was intended to conserve forest habitat for late-successional and old-growth species, it does not necessarily meet the requirement of the ESA in providing critical habitat for the northern spotted owl. For instance, it included late-successional habitat for all species associated with that habitat type, not just habitat essential to the northern spotted owl. The NWFP was also designed to meet the statutory mandates of the Forest Service and BLM regarding multiple use; these statutory requirements do not apply to the Service's designation of critical habitat. Furthermore, the implementation of the NWFP is limited to Forest Service and BLM lands within the range of the northern spotted owl; these agencies have no management authorities on other lands within the spotted owl range. Conversely, in designating critical habitat, the Service must consider all ownerships within the species range and identify essential habitat regardless of ownership; consequently, we have identified essential habitat on ownerships outside of the NWFP. Finally, we compared spotted owl population performance of the NWFP with habitat networks designed to identify essential habitat consistent with Section 3(5)(A) of the ESA. The performance of spotted owl populations was substantially lower on NWFP lands than on most other habitat networks that were developed (Figures 20 and 21 in this EA). Therefore, we conclude that because the NWFP system of LSRs includes some lands that do not contain features essential to conservation of the northern spotted owl or are not otherwise essential to its conservation and does not include all lands that are, it does not meet the definition of critical habitat under the ESA, and thus does not meet the purpose and need of this EA.

Other scenarios described in Dunk *et al.* (2012) and USFWS (2011a, Appendix C) were developed internally within the Service, or based on suggestions provided by the BLM and Forest Service; we eliminated the remaining scenarios from detailed analysis in this environmental assessment because they did not meet the purpose and need, or because they were similar in design and performance to the analyzed alternatives. The scenarios that did not meet the purpose and need failed for one of two reasons. Some scenarios did not contain all the habitat that was essential for conservation and recovery of the spotted owl based on

modeled population performance of the spotted owl. The other reason scenarios failed to meet the purpose and need was that they encompassed more acreage than was necessary to provided habitat that was essential for conservation of northern spotted owls; this was the conclusion drawn for those scenarios that exhibited similar modeled population performance to those scenarios that contained much less acreage.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

In this EA we will evaluate the direct and indirect effects, and cumulative impacts of this proposed action, and its alternatives. We do this to determine whether the effects of the proposed action, or any of its reasonable alternatives, would have significant impacts to the human environment, and hence to determine whether this EA supports a Finding of No Significant Impact (FONSI).

"Direct effects" are defined in CEQ regulations as "[e]ffects which are caused by the proposed action and occurring at the same time and place" (40 CFR 1508.8 (a)). The direct effects of this action are to identify those areas on the landscape that meet the definition of critical habitat for the northern spotted owl. Any action that may occur or may be required later in time is an indirect result of this action, not a direct effect.

"Indirect effects" are "caused by the action that are later in time or farther removed in distance, but are still reasonably foreseeable" (40 CFR 1508.8 (b)). "Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR 1508.8 (b)). Any action that is later triggered or required is an indirect effect of this action. All impacts from critical habitat designation are expected to be indirect, as critical habitat designation is not a ground-disturbing activity and does not in itself directly result in any alteration of the environment. In this case, the indirect effect is to require Federal agencies to consult under section 7 of the ESA on actions they authorize, fund, or carry out to ensure that they are not likely to destroy or adversely modify critical habitat as those terms are used in section 7. Meeting this requirement of the ESA tends to retain the environmental status quo. The potential future indirect impacts caused by the application of section 7 are not reasonably foreseeable at this time because we do not know: (1) what actions other Federal agencies, in accordance with their own missions and statutory and regulatory authorities will request to consult on; (2) how those actions may be modified as a result of section 7 consultation, if at all; or (3) how or whether the agencies might modify their management proactively to avoid destroying or adversely modifying critical habitat. We note that these actions would also require NEPA compliance if they occur on Federal lands,

require use of Federal funds, or otherwise have a Federal nexus. Thus, other agencies will prepare project or program-level NEPA documents for these subsequent actions. The Service assumes that for these actions, subsequent NEPA documents will address, at the appropriate spatial and temporal scales, direct, indirect, and cumulative impacts of these actions.

On non-Federal lands, the indirect effects of critical habitat designation would be for landowners to avoid destruction or adverse modification of critical habitat. As noted above, meeting this requirement of the ESA tends to retain the environmental status quo. This prohibition would only be in effect if the action had a Federal connection. Similarly to Federal lands, the potential impacts as a result of meeting these ESA requirement are not reasonably foreseeable because we do not know: (1) what actions they will undertake that would have a Federal nexus; (2) how or if they may modify their actions proactively to avoid destroying or adversely modifying critical habitat.

"Cumulative impact" is defined in the CEQ regulations as "[t]he impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7). CEQ guidance on cumulative effects analysis (CEQ 1997, CEQ 2005) indicates that we should account for other past (or present) actions that are relevant to the action being evaluated—that is, interrelated actions or those with a causal connection to the action. Causal connection has two prongs—the action must affect the outcome of the proposed action, or add to, modify, or mitigate its impacts (CEQ 2005). Cumulative effects assessment need only include relevant past actions, interrelated present actions, or reasonably foreseeable future actions and their impacts, not all past, present, and potential future actions.

We describe the direct and indirect effects of this action below (sections 3.1 through 3.4.3). We describe cumulative impacts in section 3.4.4.

3.1 Affected Environment and Environmental Consequences – Effects of Changes in Land-Use Management on the Environment

This section describes the regulations and policies governing land-use management in the various ownerships overlain by critical habitat. We then describe how designation of critical habitat could theoretically alter potential use of the various ownerships, although we determine that most of these indirect effects are not reasonably foreseeable and, as such, the resulting effects on the environment are not reasonably foreseeable. Potential effects of how changes in land-use as a result of critical habitat designation could theoretically affect specific

resources are described in other sections (e.g., section 3.2 Affected Environment and Environmental Consequences – Fish, Wildlife, and Plant Species).

3.1.1 Existing condition

Ownership within the proposed critical habitat units includes a mixture of private, Municipal, County, State, and Federal lands. All of these ownerships are subject to a multitude of uses, varying by ownership and guided by their own land-management objectives and the overarching laws and regulations pertaining to management of these lands in general and forest management in particular. Most State and Federal lands, as well as some County and Municipal lands, are open to public access. Some private industrial timberlands, at the discretion of the landowner, may be available to the public for certain activities or at certain times of years (e.g., access during hunting season). Landowners make management decisions about forest use and timber harvest, recreation use, and access. In this chapter, we are focusing on land-use management related to forest use that may affect or alter spotted owl habitat because it is most relevant to determining the effects of the critical habitat alternatives on the environment. While this would primarily apply to commercial timber management, it would also include other actions that may alter or remove spotted owl habitat, such as development of recreation sites.

Landowners make land-use decisions pursuant to the laws and authorities under which they operate. Forest management on Federal lands is generally regulated by the relevant agency's organic act and other applicable statutes (e.g., National Forest Management Act for the Forest Service, Federal Land Management Policy Act and the Oregon and California Railroad and Coos Bay Wagon Road Grant Lands Act for BLM), administrative-unit management plans, and other authorities such as the ESA, Clean Water Act, and Healthy Forests Restoration Act. Washington, Oregon, and California all have forest practice rules regulating the management of most non-federal forest lands, providing varying degrees of protection for spotted owls from timber harvest and management (ODF 2008; CAL FIRE 2012; WA DNR 2012). Most State forests with managed forest resources have forest-resource-management plans that guide timber management (e.g., ODF 2001). The laws and regulations that govern land-use management can vary by ownership and by State. Below we describe the different authorities by ownership.

3.1.1.1 Federal Lands (Forest Service, BLM, and National Park Service)

There are approximately 24.7 million acres of Forest Service, BLM, and National Park Service lands within the range of the northern spotted owl. As many as 12 million acres may be

included in the proposed revision of critical habitat (Table 1). The Forest Service and BLM manage their lands under the Northwest Forest Plan (NWFP), which was implemented in 1994 through Records of Decisions (RODs) amending their land and resource management plans (LRMPs) and resource management plans (RMPs), respectively (USDA and USDI 1994a, 1994b).

The NWFP established reserved areas (e.g., Late-Successional Reserves (LSRs), Managed Late-Successional Areas) intended to provide for conservation of late-successional associated species, including the northern spotted owl. Land allocations where programmed timber harvest is expected to occur are the Matrix and Adaptive Management Areas (AMA). In the Matrix allocation, standards and guidelines require retention of structural components (e.g., down wood, snags, and green trees) in timber sale units. Retention levels vary by area, but example quantities include leaving 120 to 240 linear feet of down logs (greater than or equal to 20 inches in diameter) per acre, and retaining 15 percent of the area associated with each cutting unit to provide green-tree structure (USDA and USDI 1994a). The AMAs were designated to, "encourage the development and testing of technical and social approaches to achieving desired ecological, economic, and other social objectives" (USDA and USDI 1994a, p. D-1). Ten AMAs were identified, each with a specific management emphasis. While timber harvest is programmed in AMAs, Matrix standards and guidelines do not apply; the intent of Matrix standards and guidelines, however, should be met, consistent with the management emphasis identified for the individual AMA (USDA and USDI 1994a).

Remaining allocations under the NWFP are areas where timber harvest is not programmed (e.g., Administratively Withdrawn Areas); these areas incorporate a wide variety of uses, from recreation and visual areas, to backcountry and other areas where management precludes scheduled timber harvest (USDA and USDI 1994a). Riparian Reserves, which are protection buffers along water bodies, overlay all of the above land allocations.

The Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011a) recommends restoration-focused management in reserve and non-reserve areas to accommodate climate change and dynamic ecosystem processes, with the goal of maintaining or restoring forest ecosystem structure, composition, and processes so they are sustainable and resilient under current and future climate conditions. In addition, the plan recommends extra protections for older habitat and spotted owls sites in non-reserved areas (USFWS 2011a). Recovery actions recommended by recovery plans are not regulatory and are implemented at the land manager's discretion.

The current guidelines for managing the large reserves of the NWFP are aimed at creating and maintaining the habitat characteristics required by late-successional species, including the northern spotted owl, and, thus, are consistent with the objectives of the proposed critical habitat designation (USDA and USDI 1994a, b). In allocations programmed for timber harvest

(Matrix and Adaptive Management Areas), the NWFP affords fewer protections to the northern spotted owl and its habitat than in reserve lands. The Revised Recovery Plan recommends implementing additional conservation measures, such as retaining high-quality habitat and conserving spotted owl sites, to promote spotted owl conservation and recovery (USFWS 2011a). While these are discretionary actions for the Forest Service and BLM, the agencies have been implementing some of these conservation measures as part of their timber sales. As an example, for some projects the agencies have been identifying and retaining high-quality habitat, which is a recovery action (Recovery Action 32) originally included in the 2008 recovery plan (USFWS 2008) that was carried forward into the current Revised Recovery Plan (USFWS 2011a) (e.g., Chapman *et al.* 2008; North Coast Planning Province Interagency Level 1 Team 2010; USDA FS and USDI BLM 2010; BLM undated). Agencies are also incorporating conservation of spotted owl sites (Recovery Action 10, USFWS 2011a), (e.g., BLM unpublished data; USFWS 2011b) in some projects, although it is too early in the plan implementation to know the extent to which this measure will be applied across the range of the northern spotted owl. The Revised Recovery Plan also recommends implementing ecological forestry techniques to restore and develop structurally complex forests to benefit the spotted owl (USFWS 2011a). The BLM is revising its resource management plans for its western Oregon districts in part because of new science related to forest resiliency that was brought forth in the Revised Recovery Plan. Thus, Federal agencies seem to be starting to implement discretionary measures described in the Revised Recovery Plan, but it is too early to foresee the extent to which these recommendations will be applied.

Under the NWFP, post-fire salvage can occur in the Matrix, AMAs, and, to a much more limited extent, in LSRs (USDA and USDI 1994a, b). In areas where management is focused on development of spotted owl habitat (e.g., critical habitat), the Revised Recovery Plan (Recovery Action 12) recommends managing post-fire areas for, "conserving and restoring habitat elements that take a long time to develop (e.g., large trees, medium and large snags, downed wood)" (USFWS 2011a, p. III-49). Again, it is too early in the implementation of the recovery plan to know the extent to which this recommendation will be applied by the agencies.

In Congressionally Reserved Areas (e.g., National Parks, wilderness areas, and national scenic areas) there is no timber harvest unless specified under the Congressional designation of these lands. Current management practices in these lands are more conservative than may be implemented in other areas designated as critical habitat. Management in some areas may include removal of hazard trees, road maintenance, as well as fire-management activities, including let-burn approaches.

3.1.1.2 Non-Federal Lands (primarily State, County, Municipal, and private)

There are roughly 3 million acres of State-managed lands within the range of the northern spotted owl. As much as 677,600 ac of which could be designated as critical habitat under this proposal (Table 1). Lands owned by the States under consideration for critical habitat designation are primarily managed as State Forests or State Parks, with some additional lands managed by the Washington Department of Fish and Wildlife. Of the 29 million acres of private lands within the range of the northern spotted owl, as much as 1,241,700 acres are considered for designated as critical habitat under this proposal (Table 1). Ownership of these lands varies from individuals to industrial businesses and corporations. In addition, 20,700 ac of County and Municipal lands are being considered for designation.

Timber harvest on non-Federal lands is guided by a number of State laws and policies. Land-management policies, by State, for these lands are described in depth in the economic analysis for the revised proposed critical habitat rule (IEc 2012) and are summarized below.

Washington State lands

The Washington State Environmental Policy Act (SEPA) requires analysis of environmental impacts and consideration of reasonable alternatives for actions proposed by the State. State timber-harvest activities must also comply with the State Forest Practices Act (Chapter 76.09 CW), which regulates all forest-management activities in Washington. Management of State Trust lands are guided by the Forest Resource Plan, which requires the Washington Department of Natural Resources (DNR) to analyze and potentially modify the effects of activities on watersheds, wildlife habitat, wetlands, and other natural resources to maintain healthy forests for future generations (IEc 2012). In addition, all Washington DNR lands included in the proposed critical habitat designation are covered by an HCP designed to provide habitat for a number of species, including the northern spotted owl. General provisions of this HCP include identifying portions of their landscape where they will manage for nesting, roosting, and foraging habitat for spotted owls in areas that will provide demographic support and strategically complement the NWFP's reserve system. In other areas that are strategically important for connectivity, management provides for dispersal and foraging (see Appendix D).

The Washington Department of Fish and Wildlife also maintains a land base where commercial timber harvest does not occur, and all harvest activities are limited to thinning. Commercial timber harvest does not occur within Washington State Parks either. Washington Department of Fish and Wildlife is currently developing an HCP for their lands that would provide conservation measures for multiple species, including the northern spotted owl.

Oregon State lands

Timber harvest on State lands in Oregon is guided by the Forest Practices Act and Forest Practices Rules (ODF 2008). State forests in particular are managed to achieve "greatest permanent value," considering economics, environmental, and cultural goals. Each State Forest has a Forest Management Plan that seeks to implement these ideals. Ultimately, the State's goal is to produce timber revenue and also provide for a range of habitats across ownerships. Specific policies and procedures have been adopted on State lands to protect and conserve the northern spotted owl and its habitat. In addition, thirty percent of Oregon State forests must be managed for the development of "complex forest structure" and late-seral tree species, which could provide some level of conservation benefit for a number of wildlife species, including the northern spotted owl (IEc 2012)

California State lands

The California Department of Forestry and Fire Protection (CAL FIRE) manages State forestland for research purposes and to demonstrate different forest-management techniques, including demonstrating timber harvests. Harvests are regulated by the California Forest Practices Rules (CAL FIRE 2012). The Forest Practice Rules contain specific provisions for the protection of the northern spotted owl. California State Parks are managed by the California Department of Parks and Recreation to "administer, protect, provide for recreational opportunity, and develop the State Park System" (California State Parks 2001, p. 9).

Private lands in Washington

The Washington State Forest Practices Rules (Washington Administrative Code (WAC) Title 222), which guide State and private timber harvest, are administered by the Washington DNR through the Forest Practices Act of 1974 (Revised Code of Washington (RCW) Chapter 76.09). The Rules that implement the purposes and policies of the Forest Practices Act are adopted by a 13-member, multi-stakeholder Forest Practices Board (RCW 76.09.030).

The Forest Practices Board has established rules related to protection of the northern spotted owl, which included establishment of Spotted Owl Special Emphasis Areas (SOSEAs) and designation of "critical habitat (state)" for the species. Within each SOSEA, these rules establish "median home range" circles around identified owl "site centers." The ultimate goal of these management rules is to maintain the highest-quality 40 percent of habitat within each circle as

such. Outside of the SOSEAs, rules are focused on protecting the habitat around identified site centers during the nesting season (IEc 2012).

Spotted owl habitat identified around owl site centers in SOSEAs is considered to be "critical habitat (state)." Timber harvest on lands identified as "critical habitat (state)" requires a "Class IV – Special" application, which triggers the State Environmental Policy Act (SEPA) (WAC 222-16-050(1)(b)), which in turn requires an environmental review of proposed activities. All activities requiring SEPA review are considered carefully by Washington DNR prior to issuance of a timber-harvest permit. Landowners holding less than 500 ac are exempt from the requirement to submit a Class IV Special application (i.e., their land is not considered to be "critical habitat (state)") to harvest timber as long as the proposed activity will not occur within 0.7 miles of an identified spotted owl site center (IEc 2012).

Private lands in Oregon

Because the proposed revised rule does not include private lands in Oregon, we do not describe the regulations and policies governing land-use management on these lands.

Private, County, and Municipal lands in California

Timber operations on private, County, and Municipal lands, including timber harvesting for forest products or converting land to another use other than growing and harvesting timber, are also regulated by the State in accordance with the California Forest Practice Rules and other applicable laws and regulations (IEc 2012). In order to obtain approval to harvest, landowners generally hire a registered professional forester (RFP) to prepare a Timber Harvesting Plan (THP). THPs are environmental-review documents that outline what timber will be harvested, how it will be harvested, and the steps that will be taken to prevent damage to the environment. CAL FIRE reviews THPs under the California Environmental Quality Act (CEQA). As a result of its review, CAL FIRE may recommend changes to the THP so that significant impacts to natural resources, or "take" of federally listed species, will be avoided or mitigated (IEc 2012).

The California Forest Practice Rules prohibit CAL FIRE from approving any permit resulting in the "take" of northern spotted owl, unless such take is covered under a State or Federal incidental take permit. Project proponents may obtain an incidental take permit (ITP) from the Service, which includes developing and implementing an HCP, to satisfy the State requirements. For harvests not covered by an HCP, the California Forest Practice Rules outline procedures for

avoiding spotted owl "take" and the criteria by which the potential for "take" will be evaluated. The Forest Practice Rules define "take" in terms of harm or harassment if feeding, nesting, or sheltering sites are affected. These procedures apply to actions within a Northern Spotted Owl Evaluation Area or within 1.3 miles of a known northern spotted owl activity center outside of a Northern Spotted Owl Evaluation Area. This area is generally synonymous with the range of the northern spotted owl in California and encompasses the areas proposed for critical habitat designation in California (IEc 2012, Exhibit 5-4). However, there are approximately 25,400 proposed ac of private land along the border of Sonoma and Napa Counties that fall outside the State's Northern Spotted Owl Evaluation Area. Activities on these lands are not subject to an existing HCP or conservation easement. However, given the presence of the spotted owl in these areas, these lands are likely to be subject to the northern spotted owl protections provided by the California Forest Practice Rules even though they fall outside the boundaries of the Northern Spotted Owl Evaluation Area (IEc 2012).

3.1.1.3 Section 7 of the Endangered Species Act

Federal Actions

In addition to the authorities and regulations in place for specific landowners described above, Federal actions that may affect the northern spotted owl or its existing designated critical habitat are analyzed during the section 7 consultation process (see section 1.4.3 Regulatory Mechanisms Associated with Critical Habitat). Individuals, organizations, local governments, States, and other non-federal agencies are potentially affected by this requirement only if their actions occur on Federal lands, require a Federal permit or license, or involve Federal funding (e.g., section 404 Clean Water Act permits from the U.S. Army Corps of Engineers or funding of activities by the Natural Resource Conservation Service). Designation of critical habitat does not regulate land use. It does not amend Federal or State land-management plans. It does not impose broad rules or restrictions on land use, nor does it prohibit any land-use activity. The only statutory requirement of critical habitat designation is for Federal agencies to ensure that their actions are not likely to result in the "destruction or adverse modification" of critical habitat, as that term is used in its statutory context, after consultation with the Service.

When we conclude that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify its critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. A determination that a project would result in jeopardy or adverse modification with respect to spotted owls is an

extremely rare event because: (1) the NWFP generally guides the development of Bureau of Land Management (BLM) and Forest Service actions in a manner that considers the conservation needs of the spotted owl, and (2) the consultation-streamlining procedures in place within the range of the spotted owl are likely to elevate such types of actions for resolution before a formal consultation occurs. Our consultation-streamlining process mandates that the action agency seek technical assistance from the Service as it determines the effects of a proposed action prior to the submission of a biological assessment. In this pre-consultation process the Service provides, for the action agency's consideration, advice and technical assistance for minimizing effects of the action on spotted owls and critical habitat. The final project design and implementation is at the discretion of the action agency, subject to its statutory and regulatory authorities. As a consequence, impacts that may rise to the level of jeopardy or adverse modification are unlikely to ever be included in a biological assessment or biological opinion under this interagency effort.

The majority of spotted owl consultations under section 7 of the ESA are between the Service and either the Forest Service or the BLM, or both agencies; the vast majority of these consultations are timber sales, timber-management projects, or other projects involving habitat modification or removal that are developed under the NWFP. The Service also consults on transportation projects on State and Federal lands where there is a Federal nexus (e.g., Federal Highway Administration funding). In addition, the Service consults on energy-transmission projects and their associated rights-of-way where they may affect northern spotted owls or their designated critical habitat. These energy projects include natural-gas pipelines and electricity-transmission power lines, all of which require the complete removal of forest structure within their rights-of-way (see section 3.3 Affected Environment and Environmental Consequences – Linear Road Maintenance/Repair and Energy Transmission Projects).

Non-Federal actions

Currently there is no critical habitat on non-federal lands; as a result, barring any action with a Federal nexus that may affect the northern spotted owl and thus require section 7 consultation to determine whether it is likely to jeopardize the species, these landowners are subject only to the regulations under Section 9 of the Act, which prohibits taking of a listed species. If landowners anticipate take of a northern spotted owl, they may obtain an incidental take permit from the Service pursuant to section 10 of the ESA. The action of issuing the permit by the Service is subject to intra-Service consultation under section 7 of the ESA, wherein the Service must consult internally over the issuance of the permit.

Incidental take permits under section 10 of the ESA have been granted to non-Federal landowners covering lands overlain by proposed critical habitat units; to receive these permits, these landowners have either submitted HCPs under Section 10(a)(1)(B) of the ESA, or have entered into a SHA with the Service under Section 10(a)(1)(A) (Table 2). Actions that the landowner must take or refrain from taking to either benefit the species, as in an SHA, or to minimize and mitigate take, as in an HCP, are specific to the individual SHAs and HCPs. These actions, along with the conservation benefits that these agreements provide for the northern spotted owl, are described in Appendix D.

There are other non-federal lands within the boundary of proposed critical habitat units that operate under other formal agreements (e.g., conservation easements or deed restrictions) that may benefit northern spotted owl habitat. These agreements are briefly described in Appendix D.

3.1.2 Environmental Consequences

For each of the alternatives, we describe potential effects of critical habitat designation on implementing management actions on all ownerships, and the resultant environmental effects.

Changes From Draft EA

In the draft EA, we displayed acres of Matrix and AMA land allocations from the NWFP which included Riparian Reserves. Thus, Matrix and AMA acres used in the draft EA depicted a larger area than what is actually available for programmed timber harvest. Since the draft EA, we were able to obtain acres of Riparian Reserves within Matrix and AMA land allocations and have excluded Riparian Reserve acres. As a result, the Matrix and AMA acres used in this final EA depict the actual acres of NWFP land subject to programmed timber harvest.

The economic analysis for the proposed revision to critical habitat for the northern spotted owl (IEc 2012) showed that projects in only a portion of Matrix and AMA land allocations may result in additional project modifications as a result of critical habitat designation. This is based on the assumption that additional conservation benefits from the Revised Recovery Plan (USFWS 2011) may be applied by the action agencies at their discretion (See Section 3.1.1.1 Federal Lands (Forest Service, BLM, and National Park Service)). Consequently, project modifications as a result of critical habitat designation may only occur on those portions of the Matrix and AMA that is either younger forests or unoccupied by spotted owls (IEc 2012). The economic analysis calculated the portion of Matrix and AMA that could be affected based, in part, on an

assumption that 6.5% of these lands would be unoccupied by northern spotted owls (IEc 2012). However, during the public comment period, BLM asserted that this occupancy rate was overstated for BLM lands, and estimated that a larger portion of Matrix and AMA lands in their ownership may be unoccupied by spotted owls (IEc 2012). We have incorporated this lower occupancy rate provided by the BLM into our analysis of effects.

Effects Common to all Alternatives

The designation of critical habitat is not a ground-disturbing activity. It does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area, nor does it require implementation of restoration, recovery, or enhancement measures. Such designation does not allow the government or public to access private lands. The indirect effect of a critical habitat designation is the requirement that Federal action agencies consult with the Service on actions that they fund, authorize, or undertake in critical habitat and that they ensure that their actions do not "destroy or adversely modify" critical habitat. Consultation with the Service would only occur on Federal lands or on non-Federal lands where a Federal connection exists. Even if an action may "destroy or adversely modify" critical habitat, any reasonable and prudent alternatives suggested by the Service must be able to be implemented in a manner consistent with the intended purpose of the action and the scope of the proponent's legal authority and jurisdiction, and be economically and technologically feasible.

Effects Common to all Action Alternatives

The Revised Recovery Plan for the Northern Spotted Owl also recommends the application of active forest management to restore forest ecosystem structure, composition, and processes. processes. In response to public comment regarding the appropriateness of this activity in critical habitat, we have clarified the relationship between this revised recovery plan recommendation and its application within spotted owl critical habitat. Its discussion in the revised critical habitat rule is provided primarily for consideration by Federal, State, local, and private land managers, as they make decisions on the management of forest land under their jurisdictions and through their normal processes. This critical habitat rule does not take any action or adopt any policy, plan or program in relation to active forest management. Many areas of critical habitat do not require active management, and active forest management within such areas could negatively impact northern spotted owls. We are not encouraging land managers to consider active management in areas of high-quality owl habitat or occupied owl sites; rather, we encourage management actions that will maintain and restore ecological

function where appropriate. In some areas, forest stands are not on a trajectory to develop into high-value habitat, ecological processes have been disrupted by human actions, or projected climate change is expected to further disrupt or degrade desired forest conditions. In these areas, land managers may choose to implement active management, as recommended in the Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011), to improve ecological health and development of forest conditions more favorable to northern spotted owls and other biodiversity. However, such management is not mandated by the Service and is not required as a result of this critical habitat rule. Such management is at the discretion of the individual land manager, subject to their operating authorities.

3.1.2.1 Alternative A (No Action Alternative) – 2008 Designation of critical habitat

Under Alternative A, the No Action Alternative, 5,312,300 ac of land would remain designated as critical habitat for the northern spotted owl under the existing 2008 rule, and no additional critical habitat would be designated for this species under the ESA (Table 1, Figures 2-4). Because this is the status quo, no changes to existing land-use management and associated environmental consequences would occur. Current designation of critical habitat is limited to Federal lands; most of this existing designation overlays NWFP land allocations that are reserve lands, but there are 135,800 ac of Matrix and AMA (areas allocated for timber harvest) within the 2008 designation of critical habitat.

Because critical habitat is currently designated only on Federal lands, Alternative A does not affect non-federal lands. Under the No Action Alternative, Section 7 consultations would continue for Federal actions that may affect the northern spotted owl as well as those that may affect designated critical habitat. While it is difficult to predict how or if specific actions would be changed to avoid adverse modification, such changes generally would be limited to those NWFP land allocations where timber harvest is programmed (135,800 ac). However, voluntary implementation of Revised Recovery Plan conservation measures may result in as little as 62,500 (IEc 2012 unpublished data (Note that this source indicates 99,400 acres of Matrix and AMA, but this included overlapping Riparian Reserves, which have subsequently been removed from our analysis)) being subject to additional project modifications as a result of critical habitat. This presumes a 6.5% occupancy rate by spotted owls across all ownerships (See Section 3.1.2 under the heading Changes From Draft EA). If we incorporate the higher occupancy rate estimated by BLM for their ownership, this results in 70,300 acres of Matrix and AMA that may be subject to additional project modifications. Management of these lands is described in Section 3.1.2.2 under the subheading Federal Lands—Other Forest Service and BLM land allocations. In short, the additional environmental effects from changes in land-use management as a result of critical habitat designation under this alternative may occur on from

62,500 to 70,300 ac (depending on the occupancy rate used) if the Federal agencies choose to implement recovery actions from the Revised Recovery Plan on all of their projects. These effects may also occur on up to 135,800 ac if the agencies choose not to implement the Revised Recovery Plan on any of their projects.

Specific project modifications that may be incorporated to avoid destruction or adverse modification of critical habitat in these allocations programmed for timber harvest would be at the discretion of the action agency consistent with their land-use plans and statutory authorities; modifications may range from none, to relatively minor changes, to avoidance of the action altogether. Determining the specific modification is speculative, and not reasonably foreseeable, nor is the associated effects on the environment. In addition, while the agencies have a history of implementing recovery actions (Recovery Actions 10 and 32) from the Revised Recovery Plan that provide additional conservation benefits to the northern spotted owl in lands programmed for timber harvest, the degree to which they may continue to apply them is not reasonably foreseeable. In addition, the indirect effects of critical habitat designation on these agencies is to avoid the destruction or adverse modification of critical habitat. As stated earlier, any determination that a project would result in adverse modification of critical habitat would be an extremely rare event because of existing management plans and policies already in place.

3.1.2.2 Alternative B (Proposed Action and Environmentally Preferable Alternative—Revise critical habitat similar to that described in the proposed revised rule (i.e. no exclusions)

Alternative B is the action alternative initially proposed in our draft EA, dated June 2012. Under Alternative B, the Service would designate 13,949,400 ac of critical habitat for the northern spotted owl. Designation would occur on Federal, State, County, Municipal, and private lands (Table 1, Figures 5-7). Compared with the existing critical habitat designation under the 2008 rule (Alternative A), this alternative increases the overall amount of designated critical habitat by 8,637,000 ac (6,697,000 additional acres of Federal land, 677,600 ac of State land, 20,700 ac of County and Municipal land, and 1,241,700 ac of private land). For Federal lands, the acres of allocations programmed for timber harvest included under this alternative are 3,148,700 ac, an increase of 3,012,900 ac from the No Action Alternative.

Land ownerships subject to critical habitat designation under this alternative that were not designated under the No Action Alternative are private lands (1,241,700 ac), County and Municipal lands (20,700 ac), State lands (677,600 ac), and National Park Service (998,600 ac) lands. Included in the Forest Service and BLM ownership under this alternative are Wilderness Areas and other Congressionally reserved natural areas (1,633,900 ac), which are allocations

that were not designated under the No Action Alternative. These additional acres would be subject to the land-use management described below in this alternative.

Federal lands—National Park Service and other Congressionally Reserved lands

Currently, there are no Congressionally reserved areas designated as critical habitat under the 2008 rule. Congressionally reserved areas, as described in the 2012 proposed revised rule, include NPS lands, as well as Wilderness Areas, National Scenic Areas, and other Congressionally reserved allocations on Forest Service and BLM lands (Appendix A). There are currently no logging and no active forest-management practices on NPS lands (IEc 2012). Timber harvest is not allowed in other areas unless specified by Congress.

While critical habitat is not expected to generate changes to forest management, actions on NPS ownership and other non-Wilderness lands may be subject to new or additional section 7 consultations as a result of critical habitat designation. For example, activities that may involve section 7 consultation include the construction or maintenance of visitor facilities and access roads to projects. Given the statutory purpose of Wilderness Areas, it is unlikely that activities proposed in these areas would affect critical habitat. Although some actions in non-Wilderness and National Park Service lands may affect critical habitat, current management practices on Congressionally reserved lands are generally consistent with the conservation needs of the northern spotted owl (IEc 2012, Appendix B; 77 Fed. Reg. 14062). Consequently, effects of critical habitat designation on these lands, and the associated environmental effects as a result of their management, is expected to be limited.

Federal lands—Other Forest Service and BLM land allocations

The effects of designating critical habitat on Forest Service and BLM lands that are not Congressionally reserved will depend on the land allocation and the planned activities that may occur in these allocations. All BLM and Forest Service lands within the proposed revised critical habitat are managed under the RMPs and LRMPs that incorporated the standards and guidelines of the NWFP (USDA and USDI 1994a, b). Under the NWFP, BLM and Forest Service timber-harvest practices on LSRs are consistent with proposed critical habitat objectives as these lands are currently being managed for the benefit of the spotted owl and other species associated with old-growth. The NWFP also restricts or limits timber harvest on Riparian Reserves, consistent with proposed critical habitat objectives. Therefore, reserved lands are not likely to experience any changes in proposed land management as a result of critical habitat designation. Consequently, no associated environmental effects are expected on these lands.

Matrix and AMA allocations, wherein timber harvest is programmed under the NWFP (3,148,700 ac), are the allocations wherein project modifications are relatively more likely to occur as a result of critical habitat designation. However, we know that in many instances the agencies have been implementing discretionary conservation measures from the Revised Recovery Plan (section 3.1.1.1). These measures provide conservation benefits to high-quality habitat and spotted owl sites on all allocations, including those programmed for timber harvest. If agencies were to apply these discretionary measures on all projects, then additional project modifications specific to critical habitat designation may affect only a subset of Matrix and AMA allocations, specifically younger stands and unoccupied spotted owl habitat, resulting in from 1,400,100 ac (using 6.5 percent occupancy rate) to 1,459,900 ac (using lower occupancy rate on BLM lands) being affected under this alternative (IEc 2012b unpublished data, FWS 2012 unpublished data).

Specific project modifications that may be incorporated to avoid destruction or adverse modification of critical habitat in these allocations programmed for timber harvest would be at the discretion of the action agency consistent with their land-use plans and statutory authorities; modifications may range from none, to relatively minor changes, to avoidance of the action altogether. Determining the specific modification is speculative, and not reasonably foreseeable, nor is the associated effects on the environment. In addition, while the agencies have a history of implementing recovery actions (Recovery Actions 10 and 32) from the Revised Recovery Plan that provide additional conservation benefits to the northern spotted owl in lands programmed for timber harvest, the degree to which they may continue to apply them is unknown. Because we cannot reasonably foresee the degree and extent to which the agencies will continue to apply discretionary conservation measures, we consider a range of potential changes in land-use management that the agencies may experience under this alternative. If the agencies choose not to apply voluntary conservation measures from the Revised Recovery Plan, land-use changes may occur on all of the lands programmed for timber harvest (3.1 million ac), although, as stated above, determining specific changes as a result of critical habitat designation is speculative at this time; conversely, if the agencies choose to apply conservation measures described in the Revised Recovery Plan, then land-use changes may only affect a subset of lands programmed for timber harvest (from 1,400,100 to 1,459,900 ac, depending on which occupancy estimate is used). Regardless of how the agencies choose to apply the Revised Recovery Plan, the likelihood of projects on their lands being changed substantially is extremely low given that agencies are only required to avoid the destruction or adverse modification of critical habitat. Any determination that a project will destroy or adversely modify critical habitat is highly unlikely given past section 7 consultation history and given the existing management plans and policies under which the agencies operate.

Recovery Action 12 is another discretionary conservation recommendation from the Revised Recovery Plan that could be implemented by the Forest Service and BLM. This recovery action relates to post-fire salvage management, and recommends "conserving and restoring habitat elements that take a long time to develop (e.g., large trees, medium and large snags, downed wood)" in "lands where management is focused on development of spotted owl habitat" (USFWS 2011a). A critical habitat designation may be considered as "lands where management is focused on development of spotted owl habitat," thus action agencies may decide to modify projects that would otherwise occur in Matrix allocations under this Recovery action. Therefore, changes in management may occur for fire salvage projects in proposed critical habitat on land allocations subject to programmed timber harvest if the agencies opt to follow recommendations of the Revised Recovery Plan. Implementing the Revised Recovery Plan would be at the discretion of the land manager. Also, because the timing, extent, and severity of fire events are not predictable, we cannot provide acreages of Federal land that would fall into this category and be affected by critical habitat.

Where the Federal action agency has retained discretionary involvement or control, existing consultations on projects that may affect the proposed spotted owl critical habitat will need to be reinitiated once critical habitat has been designated. By avoiding impacts that may cause jeopardy to the spotted owl, we consider it likely that the action will also not adversely modify critical habitat because many (but not all) of these impact avoidance measures overlap both the species and its important habitat. This is most likely true in areas of spotted owl habitat that were considered occupied during the original consultation. In younger stands or areas unoccupied by northern spotted owls (i.e. 1,400,100 to 1,459,900 ac as described above), effects of these projects on habitat may not have been minimized and could result in additional project modification to avoid destruction or adverse modification of critical habitat.

In summary, for Federal lands, of the approximately 12.0 million ac of Federal lands proposed for critical habitat designation under this alternative, a range of approximately 1,400,100 to 1,459,900 ac (implementing Revised Recovery Plan on all actions, with the different acreage figures representing different spotted owl occupancy estimates) to 3,148,700 ac (not implementing Revised Recovery Plan) could potentially experience some changes in land-use management and consequent environmental effects as a result of designation of critical habitat. Compared with the No Action Alternative, this is an increase of approximately 1.3 to 3.0 million ac. An unquantifiable amount of Forest Service and BLM land may also be subject to additional conservation measures where future high-severity fires may occur should the agencies follow the recommendations of the Revised Recovery Plan.

There is a wide spectrum of management options that action agencies may choose to implement to avoid adverse modification of critical habitat, ranging from no changes, to minor

project-specific changes, to applying silvicultural treatments that meet ecological-forestry principles recommended in the Revised Recovery Plan. The Service cannot predict which of these or what combination of these, if any, the action agencies will pursue in critical habitat; we can only conclude that changes in land-use management could theoretically occur in some areas within a range of 1.3 to 3.0 million acres of BLM and Forest Service land, although we conclude there is an extremely low likelihood that these projects will result in a determination of adverse modification of critical habitat given past history and the existing plans and policies under which the agencies operate. Because we cannot predict the nature or extent of the changes that may be made as a result of critical habitat, the effects of Alternative B on land use are not reasonably foreseeable. Consequently, any associated effects of land use changes on the environment are also not reasonably foreseeable and we cannot analyze them. In addition, these subsequent actions will be subject to NEPA and ESA compliance, at which time, project- or program-specific analyses can occur.

Non-Federal lands – Federal nexus

For the purpose of this analysis, we divided effects of critical habitat designation on non-Federal lands into two general categories. One category includes effects of the regulatory requirement of section 7 on these lands should a Federal nexus occur (that is, the landowner implements a project that is Federally funded or requires Federal authorization). The second category includes all other effects that are not necessarily tied to a Federal nexus. One example may be additional regulatory requirements implemented by a State agency. These two categories are not mutually exclusive.

The effects of critical habitat designation on non-Federal lands where a Federal nexus occurs stem from the consideration of the potential for destruction or adverse modification of critical habitat during the section 7 consultations. Prohibitions under Section 9 of the Act making "take" unlawful apply only to the species, not to critical habitat and apply regardless of whether there is a Federal nexus. Most ESA prohibitions that occur on non-Federal land stem from the avoidance of take of the species as a result of its listing. Non-Federal lands may be affected by the designation of critical habitat only if a Federal nexus exists—that is, the action either requires a Federal permit or other Federal approval, or receives Federal funding (see section 1.4.3 Regulatory Mechanisms Associated with Critical Habitat). Where there is a Federal nexus, the Federal agency (and non-Federal project proponent if they seek applicant status) may need to consult with the Service under section 7 of the ESA, and may need to make modifications to their project to avoid "destruction or adverse modification" of critical habitat. Based on the Service's work with non-Federal lands, there is a low likelihood of there being a Federal nexus on many of these lands (see Appendix D).

Re-initiation of existing consultations may occur to consider the potential for the project to adversely modify critical habitat. However, by avoiding impacts that may cause jeopardy to the spotted owl as described above, it is likely that the action will also not adversely modify critical habitat because many (but not all) of these impact avoidance measures overlap both the species and its important habitat. Thus, additional project modifications are not anticipated to result from such consultations because project effects should have already been reduced to avoid jeopardy during the initial consultation on the species (IEc 2012, Appendix B). In younger stands or areas unoccupied by northern spotted owls effects of these projects on habitat may not have been minimized and could result in additional project modification to avoid destruction or adverse modification of critical habitat. However, this is expected to be a rare event because most activities on non-Federal lands rarely have a Federal nexus (Appendix D). Furthermore, should such a nexus occur, and a determination of destruction or adverse modification of critical habitat is made, and reasonable and prudent alternatives suggested by the Service must be able to be implemented in a manner consistent with the intended purpose of the action and the scope of the proponent's legal authority and jurisdiction, and be economically and technologically feasible. For lands with existing HCPs and SHAs, project modifications are also not anticipated given the existing conservation provisions in the current agreements (Appendix D).

Non-Federal lands – other effects

As a result of critical habitat designation, additional effects on projects without a Federal nexus may include a State permitting agency altering its own requirements relative to land-use management on private lands to further protect the habitat in question. These changes may result in additional changes to land use associated with carrying out that activity in compliance with new regulations. In other cases, designation of one's property may result in concern or uncertainty about potential future regulation, altering the decisions made about uses of that land. We assess each of these effects below.

Effects on State lands as a result of changes in State management

Informational interviews with State agencies currently involved in managing timber harvest on State and private lands in Washington, Oregon, and California were conducted as part of the economic analysis. Managers in all three states concluded that they do not anticipate revising current management practices on State lands as a result of critical habitat overlaying their land (IEc 2012). Managers further concluded that their current management efforts are sufficient to protect northern spotted owls. In addition, timber harvest does not occur on lands managed by

the Washington Department of Wildlife, or in Washington State Parks, and it is not anticipated to occur in California State Park lands; therefore, no effects associated with changes in land-use management is expected to occur on these lands. Hence, for the approximately 677,600 ac of State lands proposed for designation of critical habitat, State agencies do not anticipate altering management on any of these lands in response to critical habitat designation (IEc 2012). Thus, we conclude that land-use management on State lands, and the associated environmental effects, are unlikely to be affected by the designation of critical habitat for the northern spotted owl.

Effects on County and Municipal Lands as a result of changes in State management

Approximately 20,700 acres of County Parks and Municipal watershed in California would be designated as critical habitat under this alternative. Like private lands, these lands must also comply with the California Forest Practices Rules. As noted above in the description of effects on private lands, CAL FIRE is unlikely to request additional protective measures for habitat beyond those already required by these regulations (IEc 2012). Thus, project modification and associated environmental effects resulting from changes in State approval of Timber Harvest Plans appears unlikely. In addition, the management objectives for these County Parks and Municipal watersheds are generally consistent with management objectives for spotted owls. Consequently, in the unlikely event that there is a Federal nexus requiring section 7 consultation, it is unlikely such projects could result in adverse modification to critical habitat. Thus limited changes in management and the associated environmental effects are expected on these lands under this alternative.

Effects on private lands as a result of changes in State management

Washington. During interviews with Washington Department of Natural Resources representatives (IEc 2012), they would not speculate on the likelihood of any specific modification to the State Forest Practices Rules that might occur in response to the designation of critical habitat on private lands in Washington. Modification to the State Practices Rules to enact any such response is the decision of the State Forest Practices Board (IEc 2012). Instead, DNR officials described two scenarios that encompass the range of potential restrictions that could be implemented by the State Forest Practices Board in response to the designation of critical habitat (IEc 2012):

- **Scenario 1: No changes.** Under this scenario, the Forest Practices Board reviews the Services' critical habitat designation and sees that the private lands proposed all fall

within State-designated SOSEAs. The Board concludes that current Forest Practices Rules are in line with the Service's intent, and makes no changes to the Forest Practices Rules.

- **Scenario 2: Re-designation of "critical habitat state."** Under this second scenario, which represents perhaps the most restrictive possible response of the State, the Forest Practices Board designates all suitable habitat within the SOSEAs overlapping Federal critical habitat as "critical habitat state" and rewrites the SEPA guidelines such that harvest on any suitable habitat within the SOSEAs likely necessitates an EIS. As a result, harvest of any suitable spotted owl habitat within a SOSEA overlapping Federal critical habitat (not just within a median home range circle) will require a Class IV Special application, which triggers SEPA and likely leads to a need to develop an EIS (See "Private lands in Washington" heading in section 3.1.1.3). As a result, landowners may experience an administrative burden to develop the state-required EIS. Landowners may also choose to forego any management activities. Existing exemptions for landowners holding less than 500 ac would continue.

The two scenarios present extreme ends of a possible range of scenarios that the Forest Practices Board could enact. As noted above, State DNR representatives would not speculate on what the Board may do, and we also decline to attempt this. We can only analyze effects of those actions that are reasonably foreseeable. Reasonably foreseeable actions, "include those Federal and non-federal activities not yet undertaken, but sufficiently likely to occur, that a Responsible Official of ordinary prudence would take such activities into account in reaching a decision. These Federal and non-federal activities that must be taken into account in the analysis of cumulative impacts include, but are not limited to, activities for which there are existing decisions, funding, or proposals identified by the bureau. Reasonably foreseeable future actions do not include those actions that are highly speculative or indefinite". (73 Fed. Reg. 61292, 61315 (October 15, 2008). We have no examples of the Washington Forest Practices Board designating "critical habitat (state)" as a result of Federal critical habitat designation in Washington (Scenario 2 above), and thus have no basis to consider this as a reasonably foreseeable action. Furthermore, because we do not know what landowners may do in response to a Washington Forest Practices Board decision that is not reasonably foreseeable, we conclude that the actions that landowners may take in response to critical habitat designation are also not reasonably foreseeable. Finally, any associated environmental effects are also not reasonably foreseeable.

Of the private lands in Washington that are overlain by proposed critical habitat in this alternative, 48,000 ac have approved SHAs or HCPs. Private lands with an approved HCP or SHA are effectively exempted from the SOSEA/Median Home Range Circle requirements, as the

State determines that the landowner has provided conservation for the northern spotted owl in a different manner that has been approved by Service. As such, they do not anticipate modifying how timber harvest is carried out on those lands (IEc 2012). Furthermore, the Service has not identified any additional regulations that may be implemented by the states as a result of critical habitat designation (Appendix D). Hence, we do not anticipate designation of critical habitat to result in modification of land-use activities by private landowners in Washington with completed HCPs or SHAs.

The balance of proposed private lands (141,400 ac) all fall within the State's Spotted Owl Special Emphasis Areas. It is unknown whether the State Forest Protection Board would place additional restrictions on these lands as a result of critical habitat designation, although history indicates this is unlikely. Furthermore, it is unknown what these restrictions would be, if any, and how any potential restriction may alter land-use management. Potential State action is speculative and thus, potential changes in management of private lands in Washington that do not have completed HCPs or SHAs, and the associated environmental effects of that management, are not reasonably foreseeable.

California. A total of 1,052,300 ac of private land are proposed for designation in California. Of these, activities on 665,800 ac are already covered by final HCPs, SHAs, or conservation easements. Formal conservation agreements are not in place for the remaining 386,500 ac (including 232,600 ac where an HCP is currently being developed). All private lands, whether or not formal agreements are in place, must comply with the California Forest Practice Rules; CAL FIRE is unlikely to request additional protective measures for habitat beyond those already required by these regulations (IEc 2012). Thus, project modification resulting from changes in State approval of Timber Harvest Plans appears unlikely.

Additional potential effects on private lands

A variety of other effects could occur on private lands as a result of critical habitat designation. Per interviews with private parties (IEc 2012), the following changes in timber harvest could occur as a result of regulatory uncertainty related to the protection of northern spotted owls and their habitat:

- Harvesting existing trees as early as is economically feasible to capture their financial value in advance of presumed future regulatory limits;
- Maintaining shorter harvest rotations, which results in younger forest stands, thereby ensuring that suitable northern spotted owl habitat does not develop on private property and trigger possible additional regulation; or

- Discontinuing the use of private property for timber production and switching to development or other land uses to protect against possible future regulation that limits the property's timber production potential.

During the public comment period we received over 80 comment letters from landowners opposing designation on their property or requesting exclusion. Several of these landowners also stated that if their property was designated as critical habitat, they would harvest the trees to avoid any presumed regulatory limits. However, most of these landowners are not located within the proposed designation based on property information they provided. Similarly, public commenters believed that the designation of critical habitat would create a "perverse incentive" for landowners to manage their forests to eliminate habitat in order to avoid future regulation. It stands to reason that the intent of prematurely harvesting forests to avoid regulation implies that there was an intent to harvest those stands at some future date. Thus, these stands would likely be slated for removal with or without critical habitat designation, so the long-term effect on retention of spotted owl habitat in these examples likely would not change. Furthermore, State regulations barring take of spotted owls would still be in effect and limit such harvests, regardless of whether or not critical habitat was designated. Selling of lands or prematurely harvesting trees would be subject to many variables, including State and local regulations, timber markets, land prices and markets, and labor availability.

Landowners may also choose to enter into a conservation partnership with the Service through development and approval of an HCP or SHA; this would allow the landowners some control over the measures that will be employed to protect the spotted owl and its habitat, and some certainty regarding potential future regulation. For lands not currently covered by a conservation agreement, this was consistently identified by the Service as a potential benefit of critical habitat designation (Appendix D).

This list of potential responses to critical habitat designation encompasses a range of potential actions and is speculative. There is a high degree of uncertainty as to which, if any, of these measures landowners may implement. Consequently, we are unable to reasonably foresee potential effects on the environment from these outcomes and are unable to analyze them further as part of this analysis. Finally, because a Federal nexus rarely occurs on non-Federal lands, most projects on these lands won't be subject to the section 7 requirement to avoid adverse modification of critical habitat. Thus, changes in management and the associated environmental effects is expected to be rare and of low impact.

Summary of effects on Private lands

In total, the Service is considering designating critical habitat on 1,241,700 ac of private land in Washington and California under this alternative. These lands are not designated under the No Action Alternative. No private land in Oregon is proposed for designation under this alternative. No change in land use and associated environmental effect is expected on the private lands in California (1,052,300 ac) as a result of State reviews of Timber Harvest Plans; this would apply whether or not these lands have formal conservation agreements in place. In Washington, no changes in land use are expected to occur on the 48,000 ac of lands with completed HCPs and SHAs. Changes in land use may be possible on the remaining 141,400 ac without completed HCPs and SHAs, but it is speculative as to what restrictions, if any, may be enacted by the State Forest Practices Board, and how land use and associated environmental effects may change as a result. Furthermore, past history indicates it is unlikely the State Forest Practices Board will enact additional restrictions. Likewise, we cannot reasonably foresee how regulatory uncertainty may affect land management and the associated environmental effects on private lands in either state because potential responses by landowners are speculative. For the 527,900 ac of private lands in both states without conservation agreements, landowners may choose to develop HCPs, SHAs, or other formal conservation agreements, but we cannot reasonably foresee the number and types of agreements that may be developed, the extent of area the agreements may cover, or the associated environmental effects. We do know that the Service has been undergoing extensive negotiations with the Mendocino Redwood Company on an HCP that would cover 232,600 ac of land that would be designated as critical habitat under this alternative. However, this does not change our analysis as no change in land use and associated environmental effects are expected on private lands in California as a result of State reviews of Timber Harvest Plans. Finally, land-use management changes and the associated changes in environmental effects are likely to be minimal given the rarity of actions on non-Federal lands having a Federal nexus requiring section 7 consultation and the avoidance of adverse modification of critical habitat.

3.1.2.3 Alternative C – Revise critical habitat as described in Alternative B, but exclude all non-Federal lands with completed conservation agreements

This alternative would designate critical habitat as described in Alternative B, but would exclude all non-Federal lands with completed conservation agreements (HCPs, SHAs, and other formal agreements) currently in place (Table 2). Since the draft EA, a SHA has been completed for SDS and Broughton Lumber Companies in Washington. This new agreement adds 2,000 ac of private land with a completed conservation agreement to be considered for exclusion under this alternative. In this alternative, 48,000 ac of private land in Washington, 665,800 ac of

private land in California, and 225,000 ac of State land in Washington would be excluded (Table 2). This means a total of 938,800 ac would be excluded, with a final designation of 13,010,600 ac (Table 1, Figures 8-10).

Land ownership designated under this alternative would include Federal (12,009,400 ac), State (452,600 ac), County and Municipal (20,700 ac), and private (527,900 ac) lands. Federal land ownership would include Forest Service (9,527,100 ac), BLM (1,483,700 ac), and National Park Service (998,600 ac). State lands in Washington (8,400 ac), Oregon (228,700 ac), and California (215,500 ac) would be designated under this alternative. Additional designation would include private land in Washington (141,400 ac) and California (386,500 ac). Private lands are intended to be included in a critical habitat subunit only where private land is identified as a component of critical habitat in the subunit description within the proposed rule (77 Fed. Reg. 14062, 14067).

Our exclusion analysis (Appendix D) indicates that the benefits of exclusion outweigh the benefits of inclusion for non-Federal lands with completed conservation agreements. General reasons for this conclusion include:

1) Inclusion would result in minimal, if any, additional protections given the agreements already in place. As a result of existing agreements, provisions for spotted owl habitat maintenance and protection are either redundant with or exceed the conservation benefits afforded through the section 7 consultation process.

2) Inclusion may have a negative effect on the Service's ability to establish new partnerships to develop HCPs and SHAs, and may damage existing private and local conservation partnerships.

3) Potential educational benefits of designation were considered limited. Much awareness has arisen on lands with existing conservation agreements as a result of the development of these agreements. In addition, the existing partnerships have resulted in important contributions to the Service's understanding of the spotted owl and its habitat.

4) Exclusions would not result in extinction of the species because of the management in place under those agreements.

Compared with the No Action Alternative, this alternative would increase the overall amount of designated critical habitat by 7,698,200 ac (6,697,000 additional acres on Federal land, 452,600 ac on State land, 20,700 ac on County and Municipal land, and 527,900 ac of private land); for Federal lands, the acres of lands subject to programmed timber harvest increase by 3,012,900 ac. Land ownerships subject to critical habitat designation under this alternative that were not

designated under the No Action Alternative are private lands (527,900 ac), County and Municipal lands (20,700 ac), State lands (452,600 ac), and National Park Service (998,600 ac). In addition, Wilderness Areas and other Congressionally reserved natural areas on Forest Service and BLM lands (1,633,900 ac) are allocations that were not designated under the No Action Alternative but would be designated under this alternative. These additional acres would be subject to the land-use management described below in this alternative (Table 4).

Compared to the Proposed Action (Alternative B), this alternative would result in fewer acres of private, County and Municipal, and State lands being designated (Table 1). Private and State Lands that would be excluded under this alternative are listed in Table 2.

Federal lands—all agencies

The consequences to Federal land management and associated environmental effects under this alternative would be as described in Alternative B.

State lands

Under this alternative 225,000 ac of State lands in Washington would be excluded from designation of critical habitat because these lands are covered by an HCP. While this alternative would have fewer State lands designated as critical habitat, the effect on land-use planning and its associated environmental effects on the remaining 452,600 ac without formal conservation agreements would be the same as Alternative B, wherein it was determined that management efforts and their associated environmental effects would likely not change from the status quo on State lands were they to be designated critical habitat (see section 3.1.2.2) (IEc 2012).

Private, County, and Municipal lands

This alternative would exclude from critical habitat designation 713,800 ac of lands in Washington (48,000 ac) and California (665,800 ac) that have completed conservation agreements. Effects on land use and associated environmental effects for the remaining lands are as described in Alternative B for lands without HCPs, SHAs or other formal agreements.

3.1.2.4 Alternative D – Revise critical habitat as described in Alternative B, but exclude all non-Federal lands with completed conservation agreements, all State parks, and all Congressionally reserved natural areas

This alternative would designate critical habitat as described in Alternative B, but would exclude all non-Federal lands with completed conservation agreements (HCPs, SHAs, and other formal agreements) in place, as in Alternative C, and additionally exclude all State parks, and all Congressionally reserved natural areas (e.g., wilderness areas, national scenic areas, national parks) initially considered for designation under Alternative B (See Appendix A for list of excluded Congressionally reserved natural areas). Since the proposed rule and draft EA were released, a SHA has been completed for SDS Company and Broughton Lumber Company in Washington. This new agreement adds 2,000 ac of private land with a completed conservation agreement to be considered for exclusion under this alternative.

This alternative would exclude the 938,800 ac described in Alternative C (State and private lands with completed conservation agreements). In addition, 100 ac and 164,700 ac of State Park land in Washington and California, respectively, would be excluded. Finally, 2,632,500 ac of Congressionally reserved natural areas would be excluded, of which 998,600 ac are National Park Service lands, and the remaining 1,633,900 ac are managed by the Forest Service and BLM. A total of 3,736,100 ac would be excluded under this alternative, with a final designation of 10,213,300 ac (Table 1, Figures 11-13).

Our exclusion analysis (Appendix D) indicates that the benefits of exclusion outweigh the benefits of inclusion for non-Federal lands with completed conservation agreements, all State parks, and all Congressionally reserved natural areas. General reasons for this conclusion include:

1) Inclusion would result in minimal, if any, additional protections given the agreements already in place. As a result of existing agreements, provisions for spotted owl habitat maintenance and protection are either redundant with or exceed the conservation benefits afforded through the section 7 consultation process.

2) Inclusion may have a negative effect on the Service's ability to establish new partnerships to develop HCPs and SHAs, and may damage existing private and local conservation partnerships.

3) Potential educational benefits of designation were considered limited. Much awareness has arisen on lands with existing conservation agreements as a result of the development of these agreements. In addition, the existing partnerships have resulted in important contributions to the Service's understanding of the spotted owl and its habitat.

4) For Congressionally reserved natural areas and State parks, inclusion would provide no regulatory benefit and such minimal educational benefits that they are outweighed by the minor increase in administrative costs.

5) Exclusions would not result in extinction of the species because of the management in place under existing conservation agreements (e.g. HCPs and SHAs) or existing statutory mandates (e.g. Congressionally reserved natural areas and State parks).

Land ownership designated under this alternative would include Federal (9,376,900 ac), State (287,800 ac), County and Municipal (20,700 ac), and private (527,900 ac) lands. Federal land ownership would include Forest Service (8,000,000 ac), BLM (1,376,900 ac). State lands in Washington (8,300 ac), Oregon (228,700 ac), and California (50,800 ac) would be designated under this alternative. Additional designation would include private land in Washington (141,400 ac) and California (386,500 ac). Private lands are intended to be included in a critical habitat subunit only where private land is identified as a component of critical habitat in the subunit description.

This Alternative increases the overall amount of designated critical habitat by 4,900,900 ac (4,064,500 additional acres on Federal land, 287,800 ac on State land, 20,700 ac on County and Municipal lands, and 527,900 ac of private land) as compared to the No Action Alternative; for Federal lands, the acres of lands subject to programmed timber harvest increase by 3,012,900 ac. Land ownerships subject to critical habitat designation under this alternative that were not designated under the No Action Alternative are private (527,900 ac), County and Municipal (20,700 ac), and State (287,800 ac) lands. For Federal lands, this alternative is similar to the No Action Alternative in that no Congressionally reserved natural areas would be designated. These additional acres would be subject to the land-use management described below in this alternative (Table 4). Compared to the Proposed Action (Alternative B), this alternative would result in fewer acres of private, State, and Federal lands being designated (Table 1).

Federal lands—all agencies

Under this alternative, 2,632,500 ac of Congressionally reserved natural areas would be excluded from designation of critical habitat. For the remaining lands under this alternative (i.e., those lands not Congressionally reserved), the environmental consequences as a result of changes in Federal land management would be as described for those lands in Alternative B.

State lands

This alternative would exclude 164,800 ac of State Parks in Washington and California from designation of critical habitat. The environmental consequences for managing the remaining State lands that may be designated critical habitat under this alternative would be as described in Alternative B.

Private, County, and Municipal lands

With respect to private, County, and Municipal lands, this alternative retains the same exclusions as in Alternative C (exclude all lands with completed HCPs, SHAs, and other management agreements). Therefore, the effects of this alternative are the same as described in Alternative C.

3.1.2.5 Alternative E – Revise critical habitat as described in Alternative B, but exclude all non-Federal lands, and all Congressionally reserved natural areas

This alternative would designate critical habitat as described in Alternative B, but would exclude the 3,736,100 ac described in Alternative D (non-Federal lands with completed conservation agreements, State Parks, and Congressionally reserved natural areas). In addition, all remaining State (287,800 ac), County and Municipal (20,700), and private (527,900 ac) lands would be excluded under this alternative. Additional State lands to be excluded under this alternative are lands managed by the Washington Department of Fish and Wildlife (8,300 ac), Oregon Department of Forestry (228,700 ac), and California State Forests (50,800 ac). Additional private lands to be excluded under this alternative include 141,400 ac in Washington, and 386,500 ac in California. A total of 4,572,500 ac would be excluded, with a final designation of 9,376,900 ac for this alternative (Table 1, Figures 14-16). Land ownership designated under this alternative would include only Federal lands. Federal land ownership would include Forest Service (8,000,000 ac) and BLM (1,376,900 ac) lands.

Our exclusion analysis (Appendix D) indicates that the benefits of exclusion outweigh the benefits of inclusion for non-Federal lands with HCPs or SHAs, State parks, Congressionally reserved natural areas, and private lands. General reasons for this conclusion include:

1) For lands with conservation agreements, inclusion would result in minimal, if any, additional protections given the agreements already in place. As a result of existing agreements, provisions for spotted owl habitat maintenance and protection are either redundant with or exceed the conservation benefits afforded through the section 7

consultation process. For lands without conservation agreements, protections under section 7 consultation are expected to be limited because of the low likelihood that actions would have a Federal nexus.

2) Inclusion may have a negative effect on the Service's ability to establish new partnerships to develop HCPs and SHAs, and may damage existing private and local conservation partnerships.

3) Potential educational benefits of designation were considered limited. Much awareness has arisen on lands with existing conservation agreements as a result of the development of these agreements. In addition, the existing partnerships have resulted in important contributions to the Service's understanding of the spotted owl and its habitat. For lands without conservation agreements, landowners are already aware of the presence of the spotted owl and its needs through existing State forest practice regulations and take-avoidance requirements.

4) For lands with existing conservation agreements, exclusions would not result in extinction of the species because of the management in place under those agreements. For remaining private lands without existing agreements, protections are in place for spotted owl habitat through existing State forest practice rules and take-avoidance requirements.

5) For Congressionally reserved natural areas and State parks, inclusion would provide no regulatory benefit and such minimal educational benefits that they are outweighed by the minor increase in administrative costs.

However, our exclusion analysis could not support the exclusion of County and Municipal lands (20,700 ac), 8,300 ac of lands managed by Washington Department of Fish and Wildlife, 212,800 ac of land managed by Oregon Deparment of Forestry, and 49,800 ac of California State Forests. General reasons for this conclusion are that the conservation values of these areas are particularly high, and it is unlikely that designation would increase regulatory burdens on these lands because it is uncommon for a Federal nexus to occur (Appendix D). Thus, this alternative would exclude lands that are not supported by our analysis under Section 4(b)(2) of the ESA wherein the Secretary may exclude an area from critical habitat designation if he determines that the benefits of such an exclusion outweigh the benefits of specifying such an area as part of critical habitat. Because this alternative would exlude areas not supported by our exclusion analysis (Appendix D), it does not meet our purpose and need as well as the remaining alternatives, all of which propose exclusions that are supported by our exclusion analysis.

Compared with the No Action Alternative, this alternative would result in an increase of 4,064,500 ac in Federal lands designated as critical habitat; for Federal lands, the acres of NWFP land allocations subject to programmed timber harvest increase by 3,012,900 ac. Federal lands proposed for designation under this alternative are limited to Forest Service and BLM lands, similar to the No Action Alternative. Also similar to the No Action Alternative, this alternative would not have private, County and Municipal, or State lands designated as critical habitat (Table 4). Compared to the Proposed Action (Alternative B), this alternative would result in fewer acres of private, State, and Federal lands being designated (Table 1).

Federal lands

With respect to the Federal lands that are designated as critical habitat, this alternative is the same as Alternative D. Hence, the consequences to Federal land management and associated environmental impacts under this alternative are as described in Alternative D. Land management on the remaining Federal lands under this alternative (i.e., those lands not Congressionally reserved) would be as described in Alternative B.

State, County, Municipal, and private lands

This alternative excludes all non-Federal lands from designation of critical habitat. As a consequence of this alternative, no State, County, Municipal, or private lands would be affected by designation of critical habitat, and as such, no change in land-use management or associated environmental effects as a result of critical habitat designation would be expected.

3.1.2.6 Alternative F (Preferred Alternative) – Revise critical habitat as described in Alternative B, but exclude all lands with completed HCPs and SHAs, all private lands, all Congressionally reserved lands, all State Parks, and all private lands; revise designation on remaining lands to better incorporate habitat essential for the northern spotted owl.

Alternative F is a new alternative we developed since the draft EA. It is built from Alternative B (our Proposed Action) and responds to refinements in our exclusion analysis, as well as public comments received following the notice of availability of the draft EA and the publishing of the proposed revised rule. It is the Service's preferred alternative because it better meets our Purpose and Need in that it is consistent with our authorities and regulatory discretion and would designate areas essential to the conservation of the species but exclude lands where we

believe the benefits of exclusion are greater than the benefits of inclusion in order to minimize the impacts of the designation.

Under this alternative, we would exclude from critical habitat designation those landowners where our analysis indicates that benefits of exclusion outweigh benefits of inclusion. Those landowners include State landowners with completed HCPs or SHAs, and all private landowners, regardless of whether or not a conservation agreement is in place. We also would exclude all Congressionally Reserved natural areas and all State parks. These exclusions are based on our exclusion analysis (Appendix D) indicating that the benefits of exclusion outweigh the benefits of inclusion for these lands. General reasons for this conclusion include:

1) For lands with conservation agreements, inclusion would result in minimal, if any, additional protections given the agreements already in place. As a result of existing agreements, provisions for spotted owl habitat maintenance and protection are either redundant with or exceed the conservation benefits afforded through the section 7 consultation process. For lands without conservation agreements, protections under section 7 consultation are expected to be limited because of the low likelihood that actions would have a Federal nexus.

2) Inclusion may have a negative effect on the Service's ability to establish new partnerships to develop HCPs and SHAs, and may damage existing private and local conservation partnerships.

3) Potential educational benefits of designation were considered limited. Much awareness has arisen on lands with existing conservation agreements as a result of the development of these agreements. In addition, the existing partnerships have resulted in important contributions to the Service's understanding of the spotted owl and its habitat. For lands without conservation agreements, landowners are already aware of the presence of the spotted owl and its needs through existing State forest practice regulations and take-avoidance requirements.

4) For lands with existing conservation agreements, exclusions would not result in extinction of the species because of the management in place under those agreements. For remaining private lands without existing agreements, protections are in place for spotted owl habitat through existing State forest practice rules and take-avoidance requirements.

5) For Congressionally reserved natural areas and State parks, inclusion would provide no regulatory benefit and such minimal educational benefits that they are outweighed by the minor increase in administrative costs.

Finally, based on local knowledge of current habitat conditions provided by the Forest Service, BLM, and non-Federal landowners, we revised critical habitat designations on their lands to better meet our purpose and need of designating what is essential to the conservation of the spotted owl while minimizing effects on land use.

Total exclusions under this alternative are 189,400 ac of private land in Washington, 1,052,300 ac of private land in California, 225,100 ac of State land in Washington, and 164,700 ac of State land in California. In addition, Congressionally reserved lands would be excluded (998,600 ac NPS and 1,633,900 ac of Congressionally reserved land); a total of 4,371,400 ac would be excluded, with a final designation of 9,578,000 ac (Table 1, Figures 17-19). Land ownership of critical habitat designation under this alternative includes Federal (9,286,400 ac), State (270,900 ac), and County and Municipal (20,700 ac) lands. Federal land ownership designated under this alternative would include Forest Service (7,957,800 ac) and BLM (1,328,600 ac). State lands in Washington (8,300 ac), Oregon (212,800 ac), and California (49,800 ac) would be designated under this alternative.

Compared with the existing critical habitat designation under the 2008 rule (No Action Alternative A), this alternative increases the overall amount of designated critical habitat by 4,265,600 ac (3,974,000 additional acres of Federal land, 270,900 ac of State land, and 20,700 ac of County and Municipal land). For Federal lands, the acres of allocations programmed for timber harvest included under this alternative is 2,274,800 ac, an increase of 2,139,000 ac from the No Action Alternative.

Land ownerships subject to critical habitat designation under this alternative that were not designated under the No Action Alternative are County and Municipal lands (20,700 ac), and State lands (270,900 ac). Compared to the Proposed Action (Alternative B), this alternative would result in fewer acres of private, State, and Federal lands being designated (Table 1).

Federal lands—Other Forest Service and BLM land allocations

The effects of designating critical habitat on Forest Service and BLM lands that are not Congressionally reserved will depend on the land allocation and the planned activities that may have otherwise occurred in these allocations. All BLM and Forest Service lands within the proposed revised critical habitat are managed under the RMPs and LRMPs that incorporated the standards and guidelines of the NWFP (USDA and USDI 1994a, b). Under the NWFP, BLM and Forest Service timber-harvest practices on LSRs are consistent with proposed critical habitat objectives as these lands are currently being managed for the benefit of the spotted owl

and other species associated with old-growth. The NWFP also restricts or limits timber harvest on Riparian Reserves, consistent with proposed critical habitat objectives. Therefore, reserved lands are not likely to experience profound changes in proposed land management as a result of critical habitat designation. Consequently, no associated environmental effects are expected on these lands.

Matrix and AMA allocations, wherein timber harvest is programmed under the NWFP (2,274,800 ac), are the allocations wherein project modifications are relatively more likely to occur as a result of critical habitat designation. However, we know that in many instances the agencies have been implementing discretionary conservation measures from the Revised Recovery Plan (section 3.1.1.1). These measures provide conservation benefits to high-quality habitat and spotted owl sites on all allocations, including those programmed for timber harvest. If agencies were to apply these discretionary measures on all projects, then additional project modifications specific to critical habitat designation may affect only a subset of Matrix and AMA allocations, specifically younger stands and unoccupied spotted owl habitat, resulting in as few as 1,064,700 to 1,106,100 ac being affected under this alternative, depending on which spotted owl occupancy estimate is used (IEc 2012b unpublished data; USFWS 2012).

Specific project modifications that may be incorporated to avoid destruction or adverse modification of critical habitat in these allocations programmed for timber harvest would be at the discretion of the action agency consistent with their land-use plans and statutory authorities; modifications may range from none, to relatively minor changes, to avoidance of the action altogether. Determining the specific modification is speculative, and not reasonably foreseeable. Nor are the associated environmental effects of these projects reasonably foreseeable. In addition, while the agencies have a history of implementing recovery actions (Recovery Actions 10 and 32) from the Revised Recovery Plan that provide additional conservation benefits to the northern spotted owl in lands programmed for timber harvest, the degree to which they may continue to apply them is unknown. Because we cannot reasonably foresee the degree and extent to which the agencies will continue to apply discretionary conservation measures, we consider a range of potential changes in land-use management that the agencies may experience under this alternative. If the agencies choose not to apply voluntary conservation measures from the Revised Recovery Plan, land-use changes may occur on all of the lands programmed for timber harvest (2,274,800 ac), although, as stated above, determining specific changes as a result of critical habitat designation is speculative at this time; conversely, if the agencies choose to apply conservation measures described in the Revised Recovery Plan, then land-use changes may only affect a subset of lands programmed for timber harvest (1,064,700 to 1,106,100 ac, depending on which spotted owl occupancy estimate is used). Regardless of how the agencies choose to apply the Revised Recovery Plan, the likelihood of projects on their lands being changed substantially is extremely low given that

agencies are only required to avoid the destruction or adverse modification of critical habitat. Any determination that a project will destroy or adversely modify critical habitat is highly unlikely given past section 7 consultation history and given the existing management plans and policies under which the agencies operate.

Recovery Action 12 is another discretionary conservation recommendation from the Revised Recovery Plan that could be implemented by the Forest Service and BLM. This recovery action relates to post-fire salvage management, and recommends "conserving and restoring habitat elements that take a long time to develop (e.g., large trees, medium and large snags, downed wood)" in "lands where management is focused on development of spotted owl habitat" (USFWS 2011a). A critical habitat designation may be considered as "lands where management is focused on development of spotted owl habitat," thus action agencies may decide to modify projects that would otherwise occur in Matrix allocations under this Recovery action. Therefore, changes in management may occur for fire salvage projects in proposed critical habitat on land allocations subject to programmed timber harvest if the agencies opt to follow recommendations of the Revised Recovery Plan. Implementing the Revised Recovery Plan would be at the discretion of the land manager. Also, because the timing, extent, and severity of fire events are not predictable, we cannot provide acreages of Federal land that would fall into this category and be affected by critical habitat.

Where the Federal action agency has retained discretionary involvement or control, existing consultations on projects that may affect the proposed spotted owl critical habitat will need to be reinitiated once critical habitat has been designated. By avoiding impacts that may cause jeopardy to the spotted owl, we consider it likely that the action will also not adversely modify critical habitat because many (but not all) of these impact avoidance measures overlap both the species and its important habitat. This is most likely true in areas of spotted owl habitat that were considered occupied during the original consultation. In younger stands or areas unoccupied by northern spotted owls (i.e. 1,064,700 to 1,106,100 ac, depending on spotted owl occupancy estimate used, as described above), effects of these projects on habitat may not have been minimized and could result in additional project modification to avoid destruction or adverse modification of critical habitat.

In summary, for Federal lands, of the approximately 9.6 million ac of Federal lands proposed for critical habitat designation under this alternative, as few as 1,064,719 ac could potentially experience some changes in land-use management as a result of critical habitat designation under this alternative, assuming the action agencies implement the Revised Recovery Plan on all actions. This amount presumes a higher occupancy rate by spotted owls and may be somewhat more (1,106,100 ac) if we were to use lower occupancy estimates provided by BLM for their lands (see Section 3.1.2 Environmental Consequences). At the other end of the

spectrum, all 2,274,800 ac of matrix and AMA designated under this alternative could experience some changes in land-use management if the action agencies choose not to implement recommendations from the Revised Recovery Plan. Compared with the No Action Alternative, this is an increase of approximately 1.0 to 2.1 million ac. An unquantifiable amount of Forest Service and BLM land may also be subject to additional conservation measures where future high-severity fires may occur should the agencies follow the recommendations of the Revised Recovery Plan.

There is a wide spectrum of management options that action agencies may choose to implement to avoid adverse modification of critical habitat, ranging from no changes, to minor project-specific changes, to applying silvicultural treatments that meet ecological-forestry principles recommended in the Revised Recovery Plan. The Service cannot predict which of these or what combination of these, if any, the action agencies will pursue in critical habitat; we can only conclude that changes in land-use management could theoretically occur in some areas within a range of 1.0 to 2.1 million acres of BLM and Forest Service land, although we conclude there is an extremely low likelihood that these projects will result in a determination of adverse modification of critical habitat given past history and the existing plans and policies under which the agencies operate. Because we cannot predict the nature or extent of the changes that may be made as a result of critical habitat, the effects of Alternative F on land use and the associated environmental effects are not reasonably foreseeable and we cannot analyze them. In addition, these subsequent actions will be subject to NEPA and ESA compliance, at which time, project- or program-specific analyses can occur.

Non-Federal lands – Federal nexus

For the purpose of this analysis, we divided effects of critical habitat designation on non-Federal lands into two general categories. One category includes effects of the regulatory requirement of section 7 on these lands should a Federal nexus occur (that is, the landowner implements a project that is Federally funded or requires Federal authorization). The second category includes all other effects that are not necessarily tied to a Federal nexus. One example may be additional regulatory requirements implemented by a State agency. These two categories are not mutually exclusive.

The effects of critical habitat designation on non-Federal lands where a Federal nexus occurs stem from the consideration of the potential for destruction or adverse modification of critical habitat during the section 7 consultations. Prohibitions under Section 9 of the Act making "take" unlawful apply only to the species, not to critical habitat are binding regardless of whether there is a Federal nexus. Most ESA prohibitions that occur on non-Federal land stem

from the avoidance of take of the species as a result of its listing. Non-Federal lands may be affected by the designation of critical habitat only if a Federal nexus exists—that is, the action either requires a Federal permit or other Federal approval, or receives Federal funding (see section 1.4.3 Regulatory Mechanisms Associated with Critical Habitat). Where there is a Federal nexus, the Federal agency (and non-Federal project proponent if they seek applicant status) may need to consult with the Service under section 7 of the ESA, and may need to make modifications to their project to avoid "destruction or adverse modification" of critical habitat. Based on the Service's work with non-Federal lands, there is a low likelihood of there being a Federal nexus on many of these lands (e.g. Appendix D).

Re-initiation of existing consultations may occur to consider the potential for the project to adversely modify critical habitat. However, by minimizing the effects of proposed projects to the spotted owl and its habitat during the initial consultation, it is likely that effects to the proposed critical habitat network have also been minimized because many, though not all, of the minimization actions overlap both the species and its important habitat. Thus, additional project modifications are not anticipated to result from such consultations because project effects should have already been minimized during the initial consultation on the species (IEc 2012, Appendix B). In younger stands or areas unoccupied by northern spotted owls effects of these projects on habitat may not have been minimized and could result in additional project modification to avoid destruction or adverse modification of critical habitat. However, this is expected to be a rare event because most activities on non-Federal lands rarely have a Federal nexus (Appendix D). Furthermore, should such a nexus occur, and a determination of destruction or adverse modification of critical habitat is made, and reasonable and prudent alternatives suggested by the Service must be able to be implemented in a manner consistent with the intended purpose of the action and the scope of the proponent's legal authority and jurisdiction, and be economically and technologically feasible. For lands with existing HCPs and SHAs, project modifications are also not anticipated given the existing conservation provisions in the current agreements (Appendix D).

Effects on State lands as a result of changes in State management

Informational interviews with State agencies currently involved in managing timber harvest on State and private lands in Washington, Oregon, and California were conducted as part of the economic analysis. Managers in all three states concluded that they do not anticipate revising current management practices on State lands as a result of critical habitat overlaying their land (IEc 2012). In addition, timber harvest does not occur on lands managed by the Washington Department of Wildlife, or in Washington State Parks, and it is not anticipated to occur in California State Park lands; therefore, no environmental effects associated with changes in

land-use management are expected to occur on these lands. Hence, for the approximately 270,900 ac of State lands proposed for designation of critical habitat, State agencies do not anticipate altering management on any of these lands in response to critical habitat designation (IEc 2012). Thus, we conclude that land-use management on State lands, and any associated environmental effects, are unlikely to be affected by the designation of critical habitat for the northern spotted owl.

Effects on private lands as a result of changes in State management

This alternative excludes all private lands from designation as critical habitat. As a consequence, no private lands would be affected and no change in land-use management or associated environmental effects would occur as a result of designation under this alternative.

Effects on County and Municipal Lands as a result of changes in State management

Approximately 20,700 acres of County Parks and Municipal watershed in California would be designated as critical habitat under this alternative. Like private lands, these lands must also comply with the California Forest Practices Rules; CAL FIRE is unlikely to request additional protective measures for habitat beyond those already required by these regulations (IEc 2012). Thus, project modification and associated environmental effects resulting from changes in State approval of Timber Harvest Plans appears unlikely. In addition, the management objectives for these County Parks and Municipal watersheds are generally consistent with management objectives for spotted owls. Consequently, in the unlikely event that there is a Federal nexus requiring section 7 consultation, it is unlikely such projects could result in adverse modification to critical habitat. Thus limited changes in management and the associated environmental effects are expected on these lands under this alternative.

3.2 Affected Environment and Environmental Consequences – Effects on Fish, Wildlife, and Plant Species

3.2.1 Existing Condition

Over 1,200 terrestrial and aquatic species have been identified as associated with late-successional forests within the range of the northern spotted owl (FEMAT 1993). These species include vertebrates (fish, birds, mammals, and amphibians), mollusks (snails and clams), plants, lichens, bryophytes, and fungi. In addition, there may be as many as 7,000 species of

arthropods (e.g., species such as insects and crayfish) that are closely associated with late-successional forests (FEMAT 1993).

Essential features of proposed critical habitat are forested lands that provide the functional categories of northern spotted owl habitat (i.e., nesting, roosting, foraging, and dispersal). This habitat includes PCEs that are essential for northern spotted owls and represent components that are characteristic features of late-successional forests (e.g., complex canopy layers, large trees, snags and down wood). These features are often valued habitat characteristics for late-successional-associated species. The presence of these elements and the potential to develop or restore them indicate the value of proposed critical habitat for the northern spotted owl to many other fish, wildlife, and plant species. Whether any of these species may be found within individual critical habitat units or subunits is highly variable and will depend on a host of local and regional environmental conditions such as, but not limited to, elevation, climate, forest type and tree composition, forest management activities, and proximity to population sources. We have limited our analysis to effects on those species listed as endangered or threatened by the ESA that could occur within northern spotted owl critical habitat to ensure that the designation of critical habitat does not inhibit their conservation nor limit their potential for recovery; this is especially important for species that have different habitat needs than the spotted owl (e.g. plants and invertebrates that may rely on more open, unforested habitats). We have limited our analysis to listed species because critical habitat designation is not a ground-disturbing activity and is aimed at maintaining current environmental conditions through its mandate to avoid critical habitat destruction or adverse modification; we therefore cannot conceive of potential significant adverse effects on non-listed species. We do, however, consider the effects of critical habitat designation on barred owls because they are considered one of the primary threats to northern spotted owls (see section 1.3.6), in addition to the threat of habitat loss. We also look at the effects of the multiple alternatives on the northern spotted owl.

3.2.1.1 Northern Spotted owl

Background and species description of the northern spotted owl is provided earlier in this document (see section 1.3 Northern Spotted Owl). In the process of identifying critical habitat and what is considered essential to the spotted owl, the Service developed multiple habitat scenarios, on which population performance was tested. This process is described in section 2.2.2 Criteria for Defining Essential Habitat, and is informed by the Revised Recovery Plan (USFWS 2011a) and detailed in Dunk *et al*. (2012) (77 Fed. Reg. 14062, 14096-14100). Primary constituent elements (PCEs, see section 1.4.1 Critical Habitat) are features of critical habitat

that are essential to the conservation of the species. 50 C.F.R. § 424.12(b). These features are described in section 2.2.1 (Primary Constituent Elements) and are not repeated here.

This chapter will evaluate how managing for these features will affect not only the northern spotted owl, but also the barred owl and species that are listed as threatened or endangered under the ESA.

3.2.1.2 Other Threatened and Endangered Wildlife and Plant Species

There are 28 Federally listed threatened and endangered wildlife and plant species that may be found in spotted owl critical habitat (Table 3). Of the listed species, 17 have their own designated critical habitat found within the range of the northern spotted owl.

Ranges of the Canada lynx, gray wolf, and grizzly bear all overlap spotted owl critical habitat units in the Cascades of Washington. The PCEs of northern spotted owl critical habitat may provide for some portion of the habitat needs for these species. However, these large carnivores also require other habitat components that are not provided by spotted owl critical habitat. All three species are likely infrequent users of habitat conducive to northern spotted owls, either because they generally frequent other types of habitat, or they have low populations in the Washington Cascades. The patchy and transitional nature of the boreal forest habitats that lynx use, in addition to the limitation of their natural food source, snowshoe hare, tend to limit lynx populations in the contiguous U.S (77 Fed. Reg. 8616). Their habitat requirements are typically associated with higher elevation forests less conducive to northern spotted owl habitat; in addition, they need densely stocked young forest stands that support snowshoe hare. Such stands typically do not provide habitat for northern spotted owls. Grizzly bears use a mix of meadow and forested habitats, some of which may be essential spotted owl habitat. However, their population in the Washington Cascades is estimated to be no more than 50 bears, and perhaps as few as 10 to 20 (USFWS 1997). Wolves are habitat generalists, occurring in a variety of habitats and elevations as long as an adequate source of large ungulate (e.g., deer and elk) prey items are available (Wiles *et al.* 2011). Two wolf packs are known to inhabit the north Cascades of Washington (Wiles *et al.* 2011).

Table 3. Federally listed wildlife and plant species (other than the northern spotted owl) that could occur in the proposed action area

Common name	Scientific name	Listing status[1]	State(s) found[2]	Critical Habitat within northern spotted owl range?
MAMMALS				
Canada Lynx	*Lynx canadensis*	T	WA	Yes
Gray Wolf	*Canis lupis*	E	WA	No
Grizzly Bear	*Ursus arctos*	T	WA	Proposed
BIRDS				
Marbled murrelet	*Brachyramphus marmoratus*	T	CA, OR, WA	Yes[3]
REPTILES AND AMPHIBIANS				
California red-legged frog	*Rana draytonii*	T	CA	Yes
FISH				
Bull trout DPSs[4]	*Salvelinus confluentus*	T	OR, WA	Yes
Dolly Varden	*Salvelinus malma*	P	WA	Proposed
Lost River sucker	*Deltistes luxatus*	E	CA, OR	Yes
Shortnose sucker	*Chasmistes brevirostris*	E	CA, OR	Yes
Oregon Chub	*Oregonichthys crameri*	T	OR	Yes
Chum salmon DPSs	*Oncorhynchus keta*	T	OR, WA	Yes
Coho salmon DPSs	*Oncorhynchus kisutch*	T/E	CA, OR, WA	Yes
Steelhead DPSs	*Oncorhynchus mykiss*	T	CA, OR, WA	Yes
Chinook Salmon DPSs	*Oncorhynchus tshawytscha*	T/E	CA, OR, WA	Yes
Pacific eulachon	*Thaleichthys pacificus*	T	CA, OR, WA	Yes
INVERTEBRATES				
Insects				
Fender's blue butterfly	*Icaricia icarioides fenderi*	E	OR	Yes
Oregon silverspot butterfly	*Speyeria zerene hippolyta*	T	OR	Yes
Behren's Silverspot Butterfly	*Speyeria zerene behrensii*	E	CA	No
Crustaceans				
Shasta crayfish	*Pacifastacus fortis*	E	CA	No
PLANTS				
Gentner's fritillary	*Fritillaria gentneri*	E	OR	No
Kincaid's lupine	*Lupinus sulphureus ssp. kincaidii*	T	OR, WA	Yes
McDonald's rockcress	*Arabis macdonaldiana*	E	CA, OR	No
Nelson's checker-mallow	*Sidalcea nelsoniana*	T	OR, WA	No
Showy stickseed	*Hackelia venusta*	E	WA	No

Wenatchee Mountains checker-mallow	*Sidalcea oregana var. calva*	E	WA	Yes
Western lily	*Lilium occidentale*	E	CA, OR	No
Yreka phlox	*Phlox hirsuta*	E	CA	No
Willamette daisy	*Erigeron decumbens var. decumbens*	E	OR	Yes

[1]E = listed as Endangered; T= listed as Threatened; P = proposed for listing.
[2]CA = California; OR = Oregon; WA = Washington
[3]Critical habitat, while designated, is currently under litigation. On Jan. 25, 2012, plaintiffs American Forest Resource Council, Carpenters Industrial Council, and Douglas County, Oregon, filed suit in Federal district court, in part, challenging the rule designating marbled murrelet critical habitat. *American Forest Resource Council v. Ashe*, Civil No. 12-111-JDB (D.D.C.). On Aug. 20, 2011, the Service and the plaintiffs filed a joint motion for entry of a consent decree under which the Court would remand the murrelet critical rule to the Service for reconsideration, and the rule would be vacated pending completion of the remand. As of this writing, the Court has not ruled on this motion.
[4]DPS = Distinct Population Segment

Aquatic species (California red-legged frog, Shasta crayfish, and fish species) typically benefit from forest riparian cover that provides woody structure to streams and ponds, as well as shading from solar radiation. Though listed suckers are primarily associated with lakes in the Klamath Basin that are outside of mapped spotted owl critical habitat units, they can also be found in nearby rivers that flow through designated northern spotted owl critical habitat (76 Fed. Reg. 76337). However, they are typically not associated with water bodies in forested areas. While the Oregon chub tends to be found in warmer, slow moving river systems, they are also found in forested regions within spotted owl critical habitat.

Butterflies listed in Table 3 are primarily associated with open habitats (e.g., meadows, coastal headlands). Habitats for these species may occur in areas associated with frequent disturbances (e.g., fires or windstorms) that created or maintain these early seral conditions. In addition, these species may occur in areas with nutrient-poor soils and low site capability; these areas are typically not capable of developing or maintaining forest habitat. Locations of these species are often clustered in limited, specific areas. These lands would not contain the PCEs of northern spotted owl critical habitat, nor would many areas be able to support development of these PCEs.

Listed plants occur infrequently and are generally found in specific habitats. All listed plants in Table 3 are primarily associated with more open habitats (e.g., meadows, coastal headlands, serpentine soils, oak woodlands) than typically used by northern spotted owls. These open habitats are often associated with frequent disturbances (e.g., fires or windstorms) that created or retained these early seral conditions. Such open habitats are not typically associated with regeneration timber harvest as part of industrial timber management because harvested areas

are managed to rapidly develop into forest stands through conifer plantings and lethal control of non-desired vegetation. Listed plant species may be associated with soils that are nutrient-poor and have low site capability; these areas are typically not capable of developing or maintaining forest habitat conducive to sustaining northern spotted owls. These listed plant species are often clustered in limited, specific locations.

In summary, listed species are associated with essential spotted owl habitat to varying degrees. Marbled murrelets are the only listed species closely associated with the late-successional forests that northern spotted owls use, though they only use forested habitats for nesting, spending the rest of their time on the ocean. Listed plant and butterfly species are all closely associated with open habitats that are explicitly not included in the proposed critical habitat revision (77 Fed. Reg. 14062, 14100). Large carnivores may use spotted owl habitat for some of their life history needs, but require other habitats as well. Similarly, listed aquatic species may be found in water bodies associated with forested habitats, but may be found in other water bodies to varying degrees.

3.2.1.3 Barred Owls

Barred owls are identified as a threat to northern spotted owls and a factor contributing to declines in spotted owl demographic rates (see section 1.3.6 Threats, above). Barred owls have been found in all areas where surveys have been conducted for spotted owls. In addition, barred owls inhabit all forested areas throughout Washington, Oregon, and northern California where nesting opportunities exist, including areas outside of the specific range of the spotted owl (Kelly and Forsman 2003; Buchanan 2005; Gutiérrez *et al.* 1995, 2007; Livezey 2009). Consequently, the Service assumes barred owls now occur at some level in all areas used now or in the past by spotted owls. While barred owls may use a wide range of forest types, they can also be strongly associated with mature and older forests in areas such as the Oregon Coast Range (Wiens 2012). Larger areas of spotted owl habitat may be required to maintain sustainable spotted owl populations in the face of competition with the barred owl (Dugger *et al*. 2011; Forsman *et al.* 2011; Wiens 2012). By proposing to designate additional habitat distributed across the range of the northern spotted owl, the Service's goal would be to increase the likelihood that spotted owls would be able to persist in areas where barred owls are also present.

The long-term removal of a substantial number of barred owls, along with a suite of other recovery actions, may be assessed as a possible approach to recover the spotted owl. Before considering whether to fund and fully implement such an action, however, the Service needs to be confident this removal is feasible and would benefit spotted owls. The Service has developed

a draft Environmental Impact Statement (EIS) (77 Fed. Reg. 14036, March 8, 2012) to assess the effects of barred owl removal experiments proposed in the Revised Recovery Plan for the northern spotted owl (USFWS 2011a). Comments on the draft EIS will be considered and a final EIS and subsequent Record of Decision published thereafter. All potential actions associated with the experimental removal of barred owls are associated with recovery efforts for the northern spotted owl, and are being considered under a process that is entirely independent of the revised designation of critical habitat for the northern spotted owl under the ESA.

3.2.2 Environmental Consequences

Critical habitat designation does not dictate specific management actions nor amend existing agency management plans; it simply identifies the areas that meet the definition of critical habitat. The ESA then requires Federal agencies to ensure their actions are not likely to result in the destruction or adverse modification of that critical habitat. An action agency may go about this on a project-by-project basis or by amending its existing land-use plan, subject to the laws and management authorities under which they operate. Section 7(a)(2) of the ESA requires that Federal agencies, in consultation with and with the assistance of the Service, ensure that any action authorized, funded or carried out by that Federal agency is not likely to jeopardize the continued existence of a listed species (this is referred to as the "jeopardy standard"). Thus, in areas where northern spotted owls occur, including most areas included in this proposed rule, Federal agencies are already consulting with the Service on the potential effects of their proposed actions under the "jeopardy standard," regardless of whether these lands are currently designated as critical habitat. Even if an action may "destroy or adversely modify" critical habitat, any reasonable and prudent alternatives suggested by the Service must be able to be implemented in a manner consistent with the intended purpose of the action and the scope of the action agency's legal authority and jurisdiction, and be economically and technologically feasible.

Aside from the requirement specific to Federal agencies, critical habitat designation does not provide additional regulatory protection for a species on non-federal lands, unless the activities proposed involve Federal funding or permitting. In other words, designation of private or other non-federal lands as critical habitat has no regulatory impact on the use of that land unless there is such a Federal connection. To the extent that there is any indirect effect of designating critical habitat on Federal lands, or on non-federal lands where there is a Federal nexus, the prohibition on destruction or adverse modification would generally tend to maintain the condition of that habitat. This would tend to benefit those listed species that use these habitats. For listed species that rely more on early seral, non-forested habitats, management of critical habitat for northern spotted owls may not necessarily benefit them; however, these

species continue to be subject to protections under section 7(a)(2) of the ESA, requiring Federal agencies to ensure that their actions not jeopardize their continued existence. In addition, these species are subject to take prohibitions under section 9 of the ESA.

Although there is no regulatory impact of critical habitat designation on private lands unless proposed actions have a Federal nexus, identifying non-federal lands that are essential to the conservation of a species may nonetheless be relevant. Such identification alerts State and local government agencies and private landowners to the value of the habitat, and may help facilitate voluntary conservation partnerships such as Safe Harbor Agreements and Habitat Conservation Plans that may contribute to the recovery and delisting of the species.

3.2.2.1 Alternative A (No Action Alternative) – 2008 Designation of critical habitat

Under Alternative A, the No Action Alternative, 5,312,300 ac of land would remain designated as critical habitat for the northern spotted owl under the 2008 rule, and no additional critical habitat would be designated for this species under the ESA. Current designation of critical habitat is limited to Federal lands, with a small portion of the designation encompassing NWFP allocations subject to programmed timber harvest (135,800 ac) on Forest Service and BLM lands. Because this is the status quo, no changes to management of spotted owl habitat in these lands would occur (Table 5).

Effects to the northern spotted owl

Similar to the 2012 proposed revised rule, the 2008 rule describes PCEs as:

(1) Forest types that support the northern spotted owl across its geographic range.

(2) Nesting, roosting, foraging habitat.

(3) Dispersal habitat.

PCE number 1 must occur in concert with at least PCE number 2 or 3. In addition, PCEs include not only those areas that currently express the above characteristics, but also those areas with the capabilities of developing those characteristics. The PCEs in the 2008 rule are not described in as great a detail and specificity as they are in the 2012 rule.

Section 7 consultations would continue for proposed actions with a Federal connection based solely on the presence of designated critical habitat. Areas occupied by the northern spotted owl would continue to be subject to section 7 consultations regardless of the area's status as

critical habitat. While it is difficult to predict how or if specific actions would be changed to avoid adverse modification, such changes generally would be limited to those NWFP land allocations where timber harvest is programmed (135,8300 ac). However, voluntary implementation of Revised Recovery Plan conservation measures on all applicable projects may result in only 62,500 to 70,300 ac (IEc 2012b, unpublished data; USFWS 2012 unpublished data) being subject to additional project modifications as a result of critical habitat; the specific acres depend on which occupancy estimate is used (See Section 3.1.2 Environmental Consequences). Management of these lands is described in Section 3.1.2.2 under the subheading Federal Lands—Other Forest Service and BLM land allocations.

Modeling of northern spotted owl population performance under multiple habitat network scenarios, including the 2008 critical habitat designation, showed poor performance by the 2008 critical habitat designation relative to other scenarios that encompassed greater amounts of quality owl habitat (USFWS 2011a, Appendix C; Dunk *et al.* 2012). We incorporate this modeling by reference, and have included these documents in Appendices B and C of this EA. The modeling was used to compare the relative response of spotted owl populations to various potential critical habitat designations. These models also incorporated effects of barred owls and variation in future forest conditions that could occur from fire, climate change, or other factors. These models provided relative comparisons of long-term spotted owl population size and risk of extinction amongst other measures. Simulations from these models are not meant to be estimates of what will occur in the future, but rather provide information on trends predicted to occur under different network designs; this allowed us to compare the relative performance of various habitat scenarios. For this alternative, modeling results showed that northern spotted owl population size (1687 females at year 350) was lower and extinction risk (e.g. 47 percent of simulations with populations below 1,000 individuals) was greater than any of the other alternatives in this EA (Figures 20 and 21). Research further indicates that more habitat may be necessary to maintain sustainable populations of northern spotted owls in the face of competition with barred owls (Dugger et al. 2011; Forsman *et al*. 2011; Wiens 2012). Thus, this alternative may provide less conservation benefit for the northern spotted owl compared to the action alternatives. Furthermore, based on spotted owl population performance and the known threats to the species, this alternative is not scientifically supportable and does not meet our purpose and need.

Effects to listed wildlife and plant species

The PCEs of nesting habitat under the 2008 critical habitat rule (moderate-to-high canopy closure; multi-layered, multi-species canopy with large overstory trees; and a high incidence of large trees with various deformities) are structural features that also meet the nesting habitat

needs of marbled murrelets. Because of the habitat similarities between these two species, protections may be afforded to marbled murrelet habitat components within spotted owl critical habitat that is within the marbled murrelet range but outside of critical habitat designated for murrelets. This may be especially noticeable on Matrix and AMA lands. Currently 1,735,900 ac of the 2008 northern spotted owl critical habitat designation overlays critical habitat designated for the marbled murrelet. Critical habitat for the marbled murrelet is currently under litigation and may be vacated (see section 3.4.4 Cumulative Impacts). Should vacature occur, the nesting habitat components for marbled murrelets would generally be protected through avoidance or adverse modification of spotted owl PCEs in those areas where marbled murrelet critical habitat overlaps the 2008 spotted owl critical habitat. This 1.7 million acres of overlap will be a baseline from which to compare other alternatives to determine the amount of existing marbled murrelet critical habitat that may continue to be afforded incidental protections as a result of avoiding adverse modification of spotted owl critical habitat.

Listed butterfly and plant species in Table 3 generally require open, early seral or woodland habitats. Management of spotted owl habitat under the 2008 rule may not be conducive to these species, as it may lead to forest encroachment in some of these habitats that may be capable of developing into late-successional forests, but were generally maintained in more open conditions through disturbance events that humans have since suppressed. The 2008 critical habitat rule states that the PCE's for the northern spotted owl are not only the elements that currently express the characteristics described above, but also includes those areas with the capability of developing those characteristics. Where these species occupy habitats capable of developing spotted owl critical habitat, they may be negatively affected by critical habitat designation. However, based on past consultations under the existing 2008 critical habitat rule, maintenance and restoration of these non-forested habitats under this alternative is not totally precluded within critical habitat. The degree to which these non-forested habitats are actively maintained or developed would depend on the scale of the proposed restoration and maintenance and whether it would reduce the functional ability of the affected spotted owl habitat to provide for spotted owls. Such actions that do not destroy or adversely modify critical habitat for the northern spotted owl might still occur in these areas. Therefore, conservation and maintenance of these early-seral, listed species and their habitats is still possible under this alternative, but may be limited in scale.

For large carnivores, critical habitat in this alternative affords protections to forested habitats that may be used by these species, although these species require other habitat types to varying degrees. Similar to effects on listed butterflies and plants, management of spotted owl habitat under the 2008 rule may lead to forest encroachment in some of the non-forested habitats that large carnivores also use. To the degree that this habitat component can develop

PCEs for northern spotted owl, and management to develop those PCEs results in limiting suitable non-forest habitat valuable to large carnivore species, this alternative may have a negative effect on these species. However, based on past consultations under the existing 2008 critical habitat rule, maintenance and restoration of these non-forested habitats under this alternative is not totally precluded within critical habitat. The degree to which these non-forested habitats are maintained or restored would depend on the scale of the proposed restoration and maintenance and whether it would reduce the functional ability of the affected spotted owl habitat to provide for spotted owls. Such actions that do not destroy or adversely modify critical habitat for the northern spotted owl might still occur in these areas. Therefore, conservation and maintenance of these early-seral, listed species and their habitats is still possible under this alternative, but may be limited in scale.

Listed aquatic species rely on fully functioning aquatic ecosystems that may occur in designated critical habitat. Key components of fully functioning aquatic ecosystems include, "complex habitats consisting of floodplains, banks, channel structure (i.e. pools and riffles), water column and sub-surface waters. These are created and maintained by rocks, sediment, large wood, and favorable conditions of water quantity and quality." (FEMAT 1993). Forests contribute to the function of aquatic systems through a variety of avenues. They deliver large wood that influences channel complexity and sediment transport. Forests provide leaf and other organic particulates that influence aquatic invertebrates, common prey for many aquatic species. Forests also provide shade for streams, influencing water temperature and oxygen availability. The forests considered essential habitat for northern spotted owls also contribute these elements and provide a beneficial effect to these systems and their associated species.

Effects to the barred owl

lthough barred owls can use a broader array of forested habitats than can spotted owls, they also use forest types similar to what spotted owls use. As such, management for the PCEs for spotted owl critical habitat under the 2008 rule may provide habitat features that are beneficial to barred owls across the range of the northern spotted owl. However, because of the wide variety of forest types that barred owls can use, we predict that implementation of this alternative will have a neutral effect on barred owls.

3.2.2.2 Alternative B (Proposed Action and Environmentally Preferable Alternative) – Revise critical habitat similar to that described in the proposed revised rule (i.e. no exclusions)

Under Alternative B, the Service would designate 13,949,400 ac of critical habitat for the northern spotted owl. Designation would occur on Federal, State, and private lands (Table 1). Compared with the existing critical habitat designation (No Action Alternative), this alternative increases the overall amount of designated critical habitat by 8,637,000 ac (6,697,000 additional acres on Federal land, 677,600 ac on State land, 20,700 ac of County and Municipal lands, and 1,241,700 ac on private land). Land ownerships subject to critical habitat designation under this alternative that are not subject to designation under the No Action Alternative are private, County and Municipal, and State lands noted above, as well as National Park Service (998,600 ac) lands. In addition, Wilderness Areas and other Congressionally reserved natural areas on Forest Service and BLM lands (1,633,900 ac) are allocations that are not designated under the No Action Alternative but would be designated under this alternative. These additional acres would be subject to the prohibition on the destruction or adverse modification of northern spotted owl critical habitat (Table 5).

Effects to northern spotted owl

The 2012 proposed revised rule (77 Fed. Reg 14062, 14101) (this alternative) includes more habitat than the 2008 rule (No Action Alternative A) for the following reasons:

(1) There has been an unanticipated steep decline of the spotted owl and the barred owl has affected spotted owl population trends (Forsman *et al*. 2011). This results in spotted owls requiring larger areas of habitat to maintain sustainable populations in the face of competition with the barred owl (Dugger *et al*. 2011; Forsman *et al.* 2011; Wiens 2012);

(2) The scientific community has recommended that the conservation of more occupied and high-quality habitat is essential to the conservation of the species (Forsman *et al*. 2011);

(3) There is a need to maintain sufficient suitable habitat for northern spotted owls on a landscape level in areas prone to frequent natural disturbances, such as the drier, fire-prone regions of its range (Noss *et al*. 2006; Thomas *et al*. 2006; Kennedy and Wimberly 2009);

(4) There is a recognition that some non-Federal lands may be essential in areas where Federal lands are not sufficient to meet the conservation needs of the spotted owl.

Including more habitat in critical habitat designation would provide increased conservation benefits for northern spotted owls in the face of predicted climate change and the threat from barred owls. Hotter, drier summers and wetter nesting seasons, as predicted for the Pacific Northwest, have the potential to negatively affect northern spotted owls. The presence of high quality habitat may buffer the negative effects of climate change (see section 3.4.3 Climate Change). In addition, maintaining additional habitat distribution across the range of the species may increase the likelihood that spotted owls will persist in areas where barred owls are also present (Dugger *et al.* 2011; Forsman *et al.* 2011; Wiens 2012).

Modeling of spotted owl population performance indicates that populations would fare worse under the 2008 critical habitat designation than under this alternative (Proposed Action) (Dunk *et al*. 2012; USFWS 2011a). We incorporate this modeling by reference, and have included these documents in Appendices B and C of this EA. The modeling was used to compare the relative response of spotted owl populations to various potential critical habitat designations. These models also incorporated effects of barred owls and variation in future forest conditions that could occur from fire, climate change, or other factors. These models provided relative comparisons of long-term spotted owl population size and risk of extinction amongst other measures. Simulations from these models are not meant to be estimates of what will occur in the future, but rather provide information on trends predicted to occur under different network designs; this allowed us to compare the relative performance of various habitat scenarios.

Compared to the No Action Alternative, this alternative provides more conservation benefit to the northern spotted owl due to the greater area that would be designated, as well as the configuration of essential habitat. To be essential to the conservation of the northern spotted owl, these features need to be distributed in a spatial configuration that is conducive to persistence of populations, survival and reproductive success of resident pairs, and survival of dispersing individuals until they can recruit into a breeding population. Modeling indicated that northern spotted owl population size (3051 females at year 350) would be larger and extinction risk (3 percent of simulations with populations below 1,000 individuals) would be less compared to the No Action Alternative (Figures 20 and 21).

Including more habitat in critical habitat designation, as compared to the No Action Alternative, would provide increased conservation benefits for northern spotted owls in the face of predicted climate change in the Pacific Northwest and the threat from barred owls. Hotter, drier summers and wetter nesting seasons, as predicted for the Pacific Northwest, have the potential to negatively affect northern spotted owls. The presence of high quality habitat my buffer the negative effects of climate change (see section 3.4.3 Climate Change). In addition, maintaining additional habitat distribution across the range of the species may increase the

likelihood that spotted owls will persist in areas where barred owls are also present (Dugger *et al.* 2011; Forsman *et al.* 2011; Wiens 2012).

Of the almost 14 million acres designated under this alternative, a range of approximately 1.4 to 3.1 million ac of NWFP lands designated for programmed timber harvest may be relatively more likely than other Federal lands to provide additional conservation value for the northern spotted owl. This is because fewer protections are currently applied for spotted owls in these areas. Under this alternative, Federal agencies would need to avoid destruction or adverse modification in these areas, potentially providing additional conservation benefits to the northern spotted owl.

Effects to listed wildlife and plant species

Most of the PCEs for nesting habitat under this alternative (e.g., moderate to high canopy closure; multi-layered, multi-species canopy with large overstory trees; and a high incidence of large trees with various deformities) provide structural features that also meet the nesting structure needs of marbled murrelets. However, in some parts of the spotted owl range, PCEs that provide for foraging in the form of dense shrub and hardwood openings, or low density patches of forest, particularly in the Klamath, Northern California Interior Coast Ranges, and Redwood Coast Critical Habitat Units, may not be conducive to murrelet nesting habitat (See Section 2.2.1 Primary Constituent Elements). These vegetation pockets open up forest canopies and fragment the landscape for murrelets, inviting corvids (e.g., crows, ravens, and jays) and increasing the predation pressures on nesting murrelets, reducing the ability of this species to reproduce (Nelson *et al.* 2006). In these areas, protection of spotted owl foraging PCEs from destruction or adverse modification may not necessarily protect some of the habitat attributes required by nesting marbled murrelets. Nevertheless, avoiding adverse modification of spotted owl critical habitat may benefit marbled murrelets overall. Spotted owl critical habitat under this alternative overlaps 2,548,700 ac of marbled murrelet critical habitat. This is a 812,800 ac increase in overlap compared to the No Action Alternative. Should vacature of marbled murrelet critical habitat occur, the nesting habitat components for marbled murrelets would generally be incidentally protected through avoidance or adverse modification of spotted owl PCEs in the approximately 2.5 million acres where marbled murrelet critical habitat overlaps critical habitat designated for the spotted owl under this alternative. However, the specific effects to murrelets are not reasonably foreseeable because the specific responses by managers to critical habitat designation are not reasonably foreseeable (See section 3.1.2.2 Alternative B).

For those listed butterfly and plant species, all of which require open, early seral habitats, management of spotted owl habitat would generally not be conducive to these species. However, the proposed revised rule explicitly states that grasslands, meadows, oak woodlands, or aspen woodlands are not considered part of critical habitat if found within a mapped unit (77 Fed. Reg. 14062, 14100). Furthermore, these species are typically associated with very specific habitats (e.g. meadows, oak woodlands, sites with nutrient-poor soils) that would generally not provide the PCEs described in this alternative. Therefore, conservation and maintenance of these species and their habitats would still be possible in areas mapped as spotted owl critical habitat. As such, we conclude that designation of critical habitat for the northern spotted owl in this alternative would have a neutral effect on those species associated with open, early seral habitats. However, the specific effects are not reasonably foreseeable because the specific responses by managers to critical habitat designation are not reasonably foreseeable (See section 3.1.2.2 Alternative B).

For large carnivores, critical habitat in this alternative affords an increase in the amount of forested acres that would be designated as compared to the No Action Alternative. To the degree that these forested habitats do not limit other non-forested habitats necessary for these species, this alternative would benefit large carnivores. The proposed revised rule explicitly states that non-coniferous forest habitats such as grasslands, meadows, oak woodlands, or aspen woodlands are not considered part of critical habitat if found within a mapped unit (77 Fed. Reg. 14062, 14100). Therefore, conservation and maintenance of these habitats for the benefit of large carnivores would still be possible in areas mapped as spotted owl critical habitat. As such, we conclude that designation of critical habitat for the northern spotted owl in this alternative would have a beneficial effect on large carnivores given the increased amount of acres designated as compared to the No Action Alternative, as well as the provision for retention of specific non-forested habitats that may be beneficial to these species. However, the specific effects are not reasonably foreseeable because the specific responses by managers to critical habitat designation are not reasonably foreseeable (See section 3.1.2.2 Alternative B).

For the listed aquatic species, critical habitat in this alternative provides forested habitat that contributes to the function of aquatic ecosystems, as described in the No Action Alternative. We conclude that the designation of critical habitat for the northern spotted owl under this alternative (Proposed Action) would provide an increased benefit as compared to the No action Alternative, given the increased amount of acres designated. However, the specific effects are not reasonably foreseeable because the specific responses by managers to critical habitat designation are not reasonably foreseeable (See section 3.1.2.2 Alternative B).

Effects to the barred owl

Although barred owls can use a broader array of forested habitats than can spotted owls, they also use forest types similar to what spotted owls use. As such, management for the PCEs for spotted owl critical habitat under this alternative may provide habitat features that are beneficial to barred owls across the range of the northern spotted owl. Additional critical habitat may allow for coexistence of the two species, potentially reducing competition (Dugger *et al.* 2011; Forsman *et al*. 2011; Wiens 2012). In order to reduce or not increase this potential competitive pressure while the threat from barred owls is being addressed, the Revised Recovery Plan now recommends conserving and restoring older, multi-layered forests across the range of the spotted owl. This alternative provides the largest area of designated critical habitat. Because of the wide variety of forest types that barred owls can use, we predict that implementation of this alternative will have a neutral effect on barred owls. However, designating additional critical habitat that is distributed across the range of the northern spotted owl may increase the likelihood of management actions being taken that will enable spotted owls to persist in areas where barred owls are also present.

3.2.2.3 Alternative C - Revise critical habitat as described in Alternative B, but exclude all non-Federal lands with completed conservation agreements

Alternative C would designate 13,010,600 ac of critical habitat on Federal, State, and private lands. Non-Federal lands with completed HCPs, SHAs, and other completed conservation agreements would be excluded from designation (Table 2). Under this alternative, 938,800 fewer acres of private and State lands would be designated as critical habitat compared to Alternative B. Private and State Lands that would be excluded under this alternative are listed in Table 2. A summary of effects of this alternative are described in Table 5.

Effects to northern spotted owl

Compared to the No Action Alternative, this alternative would provide more conservation benefit to the northern spotted owl due to the larger area designated. The exclusion of private and State lands with HCPs, SHAs, and other conservation agreements results in 938,800 fewer acres of critical habitat than what would be designated under the Proposed Action (Alternative B). This represents fewer acres of lands that have the potential for added conservation benefit through a possible section 7 nexus that would not otherwise occur without critical habitat designation. However, spotted owl population modeling results for this alternative would be the same as those of Alternative B (northern spotted owl population size of 3,051 females at

year 350, and extinction risk of 3 percent of simulations with populations below 1,000 individuals) (Figures 20 and 21). This is a result of a modeling assumption that spotted owl habitat quality for lands managed under HCPs, SHAs, and other conservation agreements would change through time at the same rate as lands designated as critical habitat (Dunk *et al.* 2012); that is, habitat change through time is treated the same for lands designated as critical habitat, lands with HCPs, SHAs, and other conservation agreements. Thus, in effect, the model "sees" no difference between this alternative and Alternative B in terms of spotted owl habitat performance because the model assumes that lands excluded under this alternative are expected to exhibit the same spotted owl population performance as if they were designated as critical habitat. This is further supported by exclusion analyses of these lands wherein planning agreements in place are expected to continue to support northern spotted owls on these lands (Appendix D).

Compared to the No Action Alternative, this alternative provides more conservation benefit to the northern spotted owl due to the greater area that would be designated, as well as the configuration of essential habitat. To be essential to the conservation of the northern spotted owl, these features need to be distributed in a spatial configuration that is conducive to persistence of populations, survival and reproductive success of resident pairs, and survival of dispersing individuals until they can recruit into a breeding population. Of the approximately 13 million acres designated under this alternative, areas within a range of approximately 1.4 to 3.1 million ac of NWFP lands designated for programmed timber harvest may be relatively more likely than other Federal lands to provide additional conservation value for the northern spotted owl. This is because fewer protections are currently applied for spotted owls in these areas. Under this alternative, Federal agencies would need to avoid destruction or adverse modification in these areas, potentially providing additional conservation benefits to the northern spotted owl.

Including more habitat in critical habitat designation, as compared to the No Action Alternative, would provide increased conservation benefits for northern spotted owls in the face of predicted climate change in the Pacific Northwest and the threat from barred owls. Hotter, drier summers and wetter nesting seasons, as predicted for the Pacific Northwest, have the potential to negatively affect northern spotted owls. The presence of high quality habitat my buffer the negative effects of climate change (see section 3.4.3 Climate Change). In addition, maintaining additional habitat distribution across the range of the species may increase the likelihood that spotted owls will persist in areas where barred owls are also present (Dugger *et al.* 2011; Forsman *et al.* 2011; Wiens 2012).

Effects to listed wildlife and plant species

Most of the PCEs for nesting habitat under this alternative (e.g., moderate to high canopy closure; multi-layered, multi-species canopy with large overstory trees; and a high incidence of large trees with various deformities) provide structural features that also meet the nesting structure needs of marbled murrelets. However, in some parts of the spotted owl range, PCEs that provide for foraging in the form of dense shrub and hardwood openings, or low density patches of forest, particularly in the Klamath, Northern California Interior Coast Ranges, and Redwood Coast Critical Habitat Units, may not be conducive to murrelet nesting habitat (See Section 2.2.1 Primary Constituent Elements). These vegetation pockets open up forest canopies and fragment the landscape for murrelets, inviting corvids (e.g., crows, ravens, and jays) and increasing the predation pressures on nesting murrelets, reducing the ability of this species to reproduce (Nelson *et al.* 2006). In these areas, protection of spotted owl foraging PCEs from destruction or adverse modification may not necessarily protect some of the habitat attributes required by nesting marbled murrelets. Nevertheless, avoiding adverse modification of spotted owl critical habitat may benefit marbled murrelets overall.

Spotted owl critical habitat under this alternative overlaps 2,486,100 ac of marbled murrelet critical habitat. This is a 750,200 ac increase compared with the No Action Alternative. Should vacature of marbled murrelet critical habitat occur, the nesting habitat components for marbled murrelets would generally be incidentally protected through avoidance or adverse modification of spotted owl PCEs in the almost 2.5 million ac where marbled murrelet critical habitat overlaps critical habitat designated for the spotted owl under this alternative.

Effects of this alternative on other listed wildlife and plant species remain as described under Alternative B, except that fewer acres would be designated as critical habitat under this alternative. That is, neutral effects to listed plant and butterfly species, and beneficial effects to large carnivores and aquatic species relative to the No Action Alternative. However, the specific effects to all listed species are not reasonably foreseeable because the specific responses by managers to critical habitat designation is not reasonably foreseeable (See section 3.1.2.2 Alternative B). This alternative still provides an increase in critical habitat designation as compared to the No Action Alternative, thus increasing the land area where these effects can occur.

Effects to the barred owl

Effects of this alternative on barred owls remain as described under Alternative B, except that fewer acres would be designated as critical habitat under this alternative. The exclusion of private and State lands with HCPs, SHAs, and other conservation agreements results in 936,800

fewer acres of critical habitat compared with what would be designated in Alternative B. Because of the wide variety of forest types that barred owls can use, we conclude that implementation of this alternative will have a neutral effect on barred owls. However, designating additional critical habitat that is distributed across the range of the northern spotted owl may increase the likelihood of management actions being taken that will enable spotted owls to persist in areas where barred owls are also present.

3.2.2.4 Alternative D - Revise critical habitat as described in Alternative B, but exclude all non-Federal lands with completed conservation agreements, all State parks, and all Congressionally reserved natural areas

Alternative D would designate 10,213,300 ac of critical habitat on Federal, State, and private lands. As in Alternative C, non-Federal lands with completed HCPs, SHAs, and other completed conservation agreements would be excluded from designation. In addition, State Parks would be excluded as part of this alternative. Also, Congressionally reserved Federal lands (e.g., Wilderness areas, National Park Service lands, Wild and Scenic Areas) would be excluded (Appendix A). Under this alternative, 3,736,100 fewer acres of Federal, private, and State lands would be designated as critical habitat compared to Alternative B. However, this still represents an increase of 4,900,900 ac (287,800 ac of State land, 20,700 ac of County and Municipal lands, 527,900 ac of private land, and an increase in 4,064,500 ac of Federal land) in critical habitat designation as compared to Alternative A (No Action Alternative) (Table 5).

Effects to northern spotted owl

This alternative provides more conservation benefit to the northern spotted owl compared to the No Action Alternative because of the increase in 4,900,900 ac of area proposed for designation. The exclusion of: (1) private lands with HCPs, SHAs, and other conservation agreements; (2) State Parks; and (3) Congressionally reserved natural areas on Federal lands results in 3,736,100 fewer acres of critical habitat that would be designated under this alternative as compared to the Proposed Action (Alternative B). Management on excluded State Parks and Congressionally reserved natural areas is generally already conducive to the conservation of the northern spotted owl, and provides similar conservation benefits to the owl. However, by excluding State Parks, there is a reduced incentive for those units to enter into a conservation partnership with the Service that may otherwise occur under Alternatives B and C.

Spotted owl population modeling results for this alternative would be the same as those of Alternative B (northern spotted owl population size of 3,051 females at year 350, and extinction risk of 3 percent of simulations with populations below 1,000 individuals) (Figures 20 and 21). This is a result of a modeling assumption that spotted owl habitat quality for lands managed under HCPs, SHAs, and other conservation agreements would change through time at the same rate as lands designated as critical habitat (Dunk *et al*. 2012); that is, habitat change through time is treated the same for lands designated as critical habitat, lands with HCPs, SHAs, and other conservation agreements. This same assumption also applies for State Parks and for Congressionally reserved natural areas, based on their past and ongoing management. Thus, in effect, the model "sees" no difference between this alternative and Alternative B in terms of spotted owl habitat performance because the model assumes that lands excluded under this alternative are expected to exhibit the same spotted owl population performance as if they were designated as critical habitat. This is further supported by our exclusion analysis of these lands wherein planning agreements in place with the Service (e.g. lands with HCPs and SHAs), or statutory mandates (e.g. wilderness areas and NPS lands) provide for continued management that supports northern spotted owl habitat on these lands (Appendix D).

Compared to the No Action Alternative, this alternative provides more conservation benefit to the northern spotted owl due to the greater area that would be designated, as well as the configuration of essential habitat. To be essential to the conservation of the northern spotted owl, these features need to be distributed in a spatial configuration that is conducive to persistence of populations, survival and reproductive success of resident pairs, and survival of dispersing individuals until they can recruit into a breeding population. Of the 10.2 million acres designated under this alternative, areas within a range of approximately 1.4 to 3.1 million ac of NWFP lands designated for programmed timber harvest may be relatively more likely than other Federal lands to provide additional conservation value for the northern spotted owl. This is because fewer protections are currently applied for spotted owls in these areas. Under this alternative, Federal agencies would need to avoid destruction or adverse modification in these areas, potentially providing additional conservation benefits to the northern spotted owl.

Including more habitat in critical habitat designation would provide increased conservation benefits for northern spotted owls in the face of predicted climate change and the threat from barred owls. Hotter, drier summers and wetter nesting seasons, as predicted for the Pacific Northwest, have the potential to negatively affect northern spotted owls. The presence of high quality habitat may buffer the negative effects of climate change (see section 3.4.3 Climate Change). In addition, maintaining additional habitat distribution across the range of the species may increase the likelihood that spotted owls will persist in areas where barred owls are also present (Dugger *et al.* 2011; Forsman *et al.* 2011; Wiens 2012).

The exclusion of Congressionally reserved natural areas would affect the adverse modification analysis done under section 7. Pursuant to the ruling in *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service*, 378 F.3d 1059, 1075-76 (9th Cir. 2004), the Service may only consider lands designated as critical habitat when determining whether a proposed action will impact the conservation function of a unit. Therefore, reducing the size of critical habitat by excluding these areas could make it relatively more likely that proposed actions in designated areas would rise to the level of "destruction or adverse modification of critical habitat."

Effects to listed wildlife and plant species

Most of the PCEs for nesting habitat under this alternative (e.g., moderate to high canopy closure; multi-layered, multi-species canopy with large overstory trees; and a high incidence of large trees with various deformities) provide structural features that also meet the nesting structure needs of marbled murrelets. However, in some parts of the spotted owl range, PCEs that provide for foraging in the form of dense shrub and hardwood openings, or low density patches of forest, particularly in the Klamath, Northern California Interior Coast Ranges, and Redwood Coast Critical Habitat Units, may not be conducive to murrelet nesting habitat (See Section 2.2.1 Primary Constituent Elements). These vegetation pockets open up forest canopies and fragment the landscape for murrelets, inviting corvids (e.g., crows, ravens, and jays) and increasing the predation pressures on nesting murrelets, reducing the ability of this species to reproduce (Nelson *et al.* 2006). In these areas, protection of spotted owl foraging PCEs from destruction or adverse modification may not necessarily protect some of the habitat attributes required by nesting marbled murrelets. Nevertheless, avoiding adverse modification of spotted owl critical habitat may benefit marbled murrelets overall.

Spotted owl critical habitat under this alternative overlaps 2,269,300 ac of marbled murrelet critical habitat. This is a 533,400 ac increase compared to the No Action Alternative. Should vacature of marbled murrelet critical habitat occur, the nesting habitat components for marbled murrelets would generally be incidentally protected through avoidance or adverse modification of spotted owl PCEs in the approximately 2.3 million acres where marbled murrelet critical habitat overlaps critical habitat designated for the spotted owl under this alternative.

Effects of this alternative on other listed wildlife and plant species remain as described under Alternative B, except that fewer acres would be designated as critical habitat under this alternative. That is, neutral effects to listed plant and butterfly species, and beneficial effects to large carnivores and aquatic species relative to the No Action Alternative. However, the specific effects to all listed species in this analysis are not reasonably foreseeable because the

specific responses by managers to critical habitat designation is not reasonably foreseeable (See section 3.1.2.2 Alternative B). This alternative still provides an increase in critical habitat designation as compared to the No Action Alternative, thus increasing the land area where these effects can occur.

Effects to the barred owl

Effects of this alternative on barred owls remain as described under Alternative B, except that fewer acres would be designated as critical habitat under this alternative. The exclusion of: (1) private lands with HCPs, SHAs, and other conservation agreements; (2) State Parks; and (3) Congressionally reserved natural areas on Federal lands results in 3,736,100 fewer acres of critical habitat designated under this alternative compared to what would be designated under Alternative B. Because of the wide variety of forest types that barred owls can use, we conclude that implementation of this alternative will have a neutral effect on barred owls. However, designating additional critical habitat that is distributed across the range of the northern spotted owl may increase the likelihood of management actions being taken that will enable spotted owls to persist in areas where barred owls are also present.

3.2.2.5 Alternative E – Revise critical habitat as described in Alternative B, but exclude all non-Federal lands, and all Congressionally reserved natural areas

Alternative E would designate 9,376,900 ac of critical habitat on Federal lands only. This alternative would incorporate the exclusions described in Alternative D (all private and State lands with conservation agreements, all State Parks, and all Congressionally reserved natural areas). In addition, all non-Federal lands originally proposed, regardless of whether HCPs, SHAs, or other conservation agreements are in place on those properties, are excluded from critical habitat designation under this alternative. When compared with the No Action Alternative, this alternative is an increase in designation of critical habitat on Federal lands by 4,064,500 ac. As compared to the proposed action (Alternative B) this alternative would result in fewer acres designated on Federal (2,632,500 ac), private (1,241,700 ac), and State (677,600 ac) (Table 5).

Effects to northern spotted owl

This alternative would designate the least amount of acres as critical habitat compared to the other action alternatives as a result of excluding 4,572,500 acres; however, it continues to

provide more conservation benefit to the northern spotted owl compared to the No Action Alternative because of the increase in 4,064,500 ac of area proposed for designation. Under this alternative, the exclusion of all non-Federal lands, as well as Congressionally reserved natural areas, results in 4,572,500 fewer acres of critical habitat than what would be designated under the Proposed Action (Alternative B).

Spotted owl population modeling results for this alternative (northern spotted owl population size of 1872 females at year 350, and extinction risk of 42 percent of simulations with populations below 1,000 individuals) (Figures 20 and 21) indicate somewhat better population performance as compared with the No Action Alternative, but poorer performance as compared with the Proposed Action (Alternative B). This is a result of not including within a critical habitat designation under this alternative approximately 836,400 ac of non-Federal land (private lands and State Forests) that do not have formal conservation agreements equivalent to the benefits of section 7(a)(2) consultation under the ESA, and may be managed to further reduce spotted owl habitat. Thus, the model assumes these 836,400 ac of lands will exhibit a poorer spotted owl population performance if not designated as critical habitat than if these lands are designated as critical habitat (Dunk et al. 2012). Modeling assumptions for this alternative were the same as for Alternative D, wherein spotted owl habitat quality for lands managed under HCPs, SHAs, and other conservation agreements, as well as State Parks and Congressionally reserved lands, would change through time at the same rate as lands designated as critical habitat (Dunk *et al.* 2012). In addition, this assumption of a habitat change rate that is similar to critical habitat was also applied to 232,600 acres of private lands managed by Mendocino Redwood Company that would be excluded under this alternative; this is a result of existing management plans on these lands that provides conservation benefits equaling or exceeding the benefit of section 7(a)(2) consultation under the ESA (Appendix D).

Compared to the No Action Alternative, this alternative provides more conservation benefit to the northern spotted owl due to the greater area that would be designated, as well as the configuration of essential habitat. To be essential to the conservation of the northern spotted owl, these features need to be distributed in a spatial configuration that is conducive to persistence of populations, survival and reproductive success of resident pairs, and survival of dispersing individuals until they can recruit into a breeding population. Of the 9.4 million acres designated under this alternative, areas within a range of approximately 1.4 to 3.1 million ac of NWFP lands designated for programmed timber harvest may be relatively more likely than other Federal lands to provide additional conservation value for the northern spotted owl. This is because fewer protections are currently applied for spotted owls in these areas. Under this alternative, Federal agencies would need to avoid destruction or adverse modification in these areas, potentially providing additional conservation benefits to the northern spotted owl.

Including more habitat in critical habitat designation under this alternative, as compared to the No Action Alternative, would provide increased conservation benefits for northern spotted owls in the face of predicted climate change and the threat from barred owls. Hotter, drier summers and wetter nesting seasons, as predicted for the Pacific Northwest, have the potential to negatively affect northern spotted owls. The presence of high quality habitat my buffer the negative effects of climate change (see section 3.4.3 Climate Change). In addition, maintaining additional habitat distribution across the range of the species may increase the likelihood that spotted owls will persist in areas where barred owls are also present (Dugger *et al.* 2011; Forsman *et al.* 2011; Wiens 2012).

The exclusion of Congressionally reserved natural areas would affect the adverse modification analysis done under section 7. Pursuant to the ruling in *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service*, 378 F.3d 1059, 1075-76 (9th Cir. 2004), the Service may only consider lands designated as critical habitat when determining whether a proposed action will impact the conservation function of a unit. Therefore, reducing the size of critical habitat by excluding these areas could make it relatively more likely that proposed actions in designated areas would rise to the level of "destruction or adverse modification of critical habitat."

Effects to listed wildlife and plant species

Most of the PCEs for nesting habitat under this alternative (e.g., moderate to high canopy closure; multi-layered, multi-species canopy with large overstory trees; and a high incidence of large trees with various deformities) provide structural features that also meet the nesting structure needs of marbled murrelets. However, in some parts of the spotted owl range, PCEs that provide for foraging in the form of dense shrub and hardwood openings, or low density patches of forest, particularly in the Klamath, Northern California Interior Coast Ranges, and Redwood Coast Critical Habitat Units, may not be conducive to murrelet nesting habitat (See Section 2.2.1 Primary Constituent Elements). These vegetation pockets open up forest canopies and fragment the landscape for murrelets, inviting corvids (e.g., crows, ravens, and jays) and increasing the predation pressures on nesting murrelets, reducing the ability of this species to reproduce (Nelson *et al.* 2006). In these areas, protection of spotted owl foraging PCEs from destruction or adverse modification may not necessarily protect some of the habitat attributes required by nesting marbled murrelets. Nevertheless, avoiding adverse modification of spotted owl critical habitat may benefit marbled murrelets overall.

Spotted owl critical habitat under this alternative overlaps 2,137,500 ac of marbled murrelet critical habitat. This is a 401,600 ac increase compared to the No Action Alternative. Should vacature of marbled murrelet critical habitat occur, the nesting habitat components for

marbled murrelets would generally be incidentally protected through avoidance or adverse modification of spotted owl PCEs in the 2.1 million ac where marbled murrelet critical habitat overlaps critical habitat designated for the spotted owl under this alternative.

Effects of this alternative on other listed wildlife and plant species remain as described under Alternative B, except that fewer acres would be designated as critical habitat under this alternative. That is, neutral effects to listed plant and butterfly species, and beneficial effects to large carnivores and aquatic species relative to the No Action Alternative. However, the specific effects to all listed species in this analysis are not reasonably foreseeable because the specific responses by managers to critical habitat designation is not reasonably foreseeable (See section 3.1.2.2 Alternative B). This alternative still provides an increase in critical habitat designation as compared to the No Action Alternative, thus increasing the land area where these effects can occur.

Effects to the barred owl

Effects of this alternative on barred owls remain as described under Alternative B, except that fewer acres would be designated as critical habitat, and it is limited to Federal lands under this alternative. The exclusion of Congressionally reserved natural areas on Federal lands, as well as all State and private lands, results in 4,572,500 fewer acres of critical habitat being designated as compared to Alternative B. Habitat management on State lands and on private lands with conservation agreements was not projected to change in response to designation of critical habitat. Because of the wide variety of forest types that barred owls can use, we conclude that implementation of this alternative will have a neutral effect on barred owls. However, designating additional critical habitat that is distributed across the range of the northern spotted owl may increase the likelihood of management actions being taken that will enable spotted owls to persist in areas where barred owls are also present.

3.2.2.6 Alternative F (Preferred Alternative) – Revise critical habitat as described in Alternative B, but exclude all lands with completed HCPs and SHAs, all private lands, all Congressionally reserved lands, all State Parks, and all private lands; revise designation on remaining lands to better incorporate habitat essential for the northern spotted owl.

Alternative F is a new alternative we developed since the draft EA. It is built from Alternative B (our Proposed Action) and responds to refinements in our exclusion analysis, as well as public comments received following the notice of availability of the draft EA and the publishing of the proposed revised rule. It is the Service's preferred alternative because it better meets our

Purpose and Need in that it is consistent with our authorities and regulatory discretion and would designate areas essential to the conservation of the species but exclude lands where we believe the benefits of exclusion are greater than the benefits of inclusion in order to minimize the impacts of the designation.

Under this alternative, the Service would designate 9,578,000 ac of critical habitat for the northern spotted owl. Designation would occur on Federal, State, County and Municipal lands (Table 1). Compared with the existing critical habitat designation (No Action, Alternative A), this alternative increases the overall amount of designated critical habitat by 4,265,600 ac (3,974,000 additional acres of Federal land, 270,900 ac of State land, and 20,700 ac of County and Municipal land). Land ownerships subject to critical habitat designation under this alternative that are not subject to designation under the No Action Alternative are State, County, and Municipal. These additional acres would be subject to the prohibition on the destruction or adverse modification of northern spotted owl critical habitat (Table 5).

Effects to northern spotted owl

Compared to the No Action Alternative, this alternative provides more conservation benefit to the northern spotted owl due to the greater area that would be designated, as well as the configuration of essential habitat. To be essential to the conservation of the northern spotted owl, these features need to be distributed in a spatial configuration that is conducive to persistence of populations, survival and reproductive success of resident pairs, and survival of dispersing individuals until they can recruit into a breeding population. Of the 9.6 million acres designated under this alternative, areas within a range of approximately 62,500 to 135,800 ac of NWFP lands designated for programmed timber harvest may be relatively more likely than other Federal lands to provide additional conservation value for the northern spotted owl. This is because fewer protections are currently applied for spotted owls in these areas. Under this alternative, Federal agencies would need to avoid destruction or adverse modification in these areas, potentially providing additional conservation benefits to the northern spotted owl.

Spotted owl population modeling results for this alternative (northern spotted owl population size of 3,224 females at year 350, and extinction risk of 3 percent of simulations with populations below 1,000 individuals) (Figures 20 and 21) indicate better population performance as compared with the No Action Alternative, and similar performance as compared with the Proposed Action (Alternative B). This result appears counterintuitive considering that this alternative excludes 295,300 ac of lands for which the model assumed greater habitat change rates than what would occur had they been designated as critical habitat. This, however, appears to have been compensated for by the refinement of the

designation on Federal lands to better incorporate high value habitat and remove lower value habitat from potential designation as critical habitat. Modeling assumptions for this alternative were the same as for Alternative D, wherein spotted owl habitat quality for lands managed under HCPs, SHAs, and other conservation agreements, as well as State Parks and Congressionally reserved lands, would change through time at the same rate as lands designated as critical habitat (Dunk *et al*. 2012). In addition, this assumption of a habitat change rate that is similar to critical habitat was also applied to 232,600 acres of private lands managed by Mendocino Redwood Company that would be excluded under this alternative; although this ownership does not have an HCP or SHA, the existing management plan provides conservation benefits that equal or exceed the benefit of section 7(a)(2) consultation under the ESA (Appendix D).

Including more habitat in critical habitat designation, as compared to the No Action Alternative, would provide increased conservation benefits for northern spotted owls in the face of predicted climate change and the threat from barred owls. Hotter, drier summers and wetter nesting seasons, as predicted for the Pacific Northwest, have the potential to negatively affect northern spotted owls. The presence of high quality habitat my buffer the negative effects of climate change (see section 3.4.3 Climate Change). In addition, maintaining additional habitat distribution across the range of the species may increase the likelihood that spotted owls will persist in areas where barred owls are also present (Dugger *et al.* 2011; Forsman *et al.* 2011; Wiens 2012).

The exclusion of Congressionally reserved natural areas would affect the adverse modification analysis done under section 7. Pursuant to the ruling in *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service*, 378 F.3d 1059, 1075-76 (9th Cir. 2004), the Service may only consider lands designated as critical habitat when determining whether a proposed action will impact the conservation function of a unit. Therefore, reducing the size of critical habitat by excluding these areas could make it relatively more likely that proposed actions in designated areas would rise to the level of "destruction or adverse modification of critical habitat."

Effects to listed wildlife and plant species

Management for most of the PCEs for nesting habitat under this alternative (e.g., moderate to high canopy closure; multi-layered, multi-species canopy with large overstory trees; and a high incidence of large trees with various deformities) provides structural features that also meet the nesting structure needs of marbled murrelets. However, in some parts of the spotted owl range, PCEs that provide for foraging in the form of dense shrub and hardwood openings, or low density patches of forest, particularly in the Klamath, Northern California Interior Coast

Ranges, and Redwood Coast Critical Habitat Units, may not be conducive to murrelet nesting habitat. These vegetation pockets open up forest canopies and fragment the landscape for murrelets, inviting corvids (e.g., crows, ravens, and jays) and increasing the predation pressures on nesting murrelets, reducing the ability of this species to reproduce (Nelson *et al.* 2006). In these areas, managing for some spotted owl PCEs may not benefit marbled murrelets and may not necessarily protect the habitat attributes required by nesting murrelets. Nevertheless, avoiding adverse modification of spotted owl critical habitat may benefit marbled murrelets overall.

Spotted owl critical habitat under this alternative overlaps 2,268,400 ac of marbled murrelet critical habitat. This is a 532,500 ac increase compared to the No action Alternative. Should vacature of marbled murrelet critical habitat occur, the nesting habitat components for marbled murrelets would generally be incidentally protected through avoidance or adverse modification of spotted owl PCEs in the approximately 2.3 million ac where marbled murrelet critical habitat overlaps critical habitat designated for the spotted owl under this alternative. However, the specific effects to murrelets are not reasonably foreseeable because the specific responses by managers to critical habitat designation are not reasonably foreseeable (See section 3.1.2.2 Alternative B).

For those listed butterfly and plant species, all of which require open, early seral habitats, management of spotted owl habitat would generally not be conducive to these species. However, the proposed revised rule explicitly states that grasslands, meadows, oak woodlands, or aspen woodlands are not considered part of critical habitat if found within a mapped unit (77 Fed. Reg. 14062, 14100). Furthermore, these species are typically associated with very specific habitats (e.g. meadows, oak woodlands, sites with nutrient-poor soils) that would generally not provide the PCEs described in this alternative. Therefore, conservation and maintenance of these species and their habitats would still be possible in areas mapped as spotted owl critical habitat. As such, we conclude that designation of critical habitat for the northern spotted owl in this alternative would have a neutral effect on those species associated with open, early seral habitats. However, the specific effects are not reasonably foreseeable because the specific responses by managers to critical habitat designation are not reasonably foreseeable (See section 3.1.2.2 Alternative B).

For large carnivores, critical habitat in this alternative affords an increase in the amount of forested acres that would be designated as compared to the No Action Alternative. To the degree that these forested habitats do not limit other non-forested habitats necessary for these species, this alternative would benefit large carnivores. The proposed revised rule explicitly states that non-coniferous forest habitats such as grasslands, meadows, oak woodlands, or aspen woodlands are not considered part of critical habitat if found within a mapped unit (77

Fed. Reg. 14062, 14100). Therefore, conservation and maintenance of these habitats for the benefit of large carnivores would still be possible in areas mapped as spotted owl critical habitat. As such, we conclude that designation of critical habitat for the northern spotted owl in this alternative would have a beneficial effect on large carnivores. We conclude that the designation of critical habitat for the northern spotted owl under this alternative would provide an increased benefit to large carnivores given the increased amount of acres designated as compared to the No Action Alternative, as well as the provision for retention of specific non-forested habitats that may be beneficial to these species. However, the specific effects are not reasonably foreseeable because the specific responses by managers to critical habitat designation are not reasonably foreseeable (See section 3.1.2.2 Alternative B).

For the listed aquatic species, critical habitat in this alternative provides forested habitat that contributes to the function of aquatic ecosystems, as described in the No Action Alternative. We conclude that the designation of critical habitat for the northern spotted owl under this alternative (Proposed Action) would provide an increased benefit as compared to the No action Alternative, given the increased amount of acres designated. However, the specific effects are not reasonably foreseeable because the specific responses by managers to critical habitat designation are not reasonably foreseeable (See section 3.1.2.2 Alternative B).

Effects to the barred owl

Although barred owls can use a broader array of forested habitats than can spotted owls, they also use forest types similar to what spotted owls use. As such, management for the PCEs for spotted owl critical habitat under this alternative may provide habitat features that are beneficial to barred owls across the range of the northern spotted owl. Additional critical habitat may allow for coexistence of the two species, potentially reducing competition (Dugger *et al.* 2011; Forsman *et al*. 2011; Wiens 2012). In order to reduce or not increase this potential competitive pressure while the threat from barred owls is being addressed, the Revised Recovery Plan now recommends conserving and restoring older, multi-layered forests across the range of the spotted owl. Because of the wide variety of forest types that barred owls can use, we predict that implementation of this alternative will have a neutral effect on barred owls. However, designating additional critical habitat that is distributed across the range of the northern spotted owl may increase the likelihood of management actions being taken that will enable spotted owls to persist in areas where barred owls are also present.

3.3 Affected Environment and Environmental Consequences – Effects of Changes in Linear road maintenance/repair and energy transmission projects on the Environment

3.3.1 Existing Condition

This chapter evaluates how the designation of northern spotted owl critical habitat will affect the design and implementation of linear road maintenance/repair and energy transmission projects and their associated environmental affects. Linear road maintenance/road-building projects and energy transmission projects (e.g., gas pipelines, electrical lines, etc.) are routinely permitted by the Federal Highway Administration or the Department of Energy and may cross Forest Service and/or BLM lands where authorization is required. Given the clear Federal nexuses, the Service routinely enters the section 7 consultation process with these lead agencies, regardless of the land ownership upon which the project occurs. Consultations involve in-depth discussions to help the action agency decide how to best design proposed actions of these types in a manner that will be consistent with its responsibilities under section 7 of the ESA while still meeting the needs of the original project; this may include project design modifications that minimize the take of spotted owls.

We are currently working with applicants on at three section 7 consultations on energy-transportation projects and their associated rights-of-way that could affect lands under consideration for critical habitat designation for the spotted owl. These energy projects include two natural-gas pipelines and one electricity-transmission power line, all of which require the complete removal of forest structure within their rights-of-way. All projects pass through proposed critical habitat units. The natural-gas pipeline projects would require an approximately 100-foot-wide right-of-way corridor where all trees would initially be removed, but then allowed to regrow to original forested habitat conditions over time. One project crosses the Oregon Cascades and Coast Ranges in southern Oregon, between Klamath Falls and Coos Bay. The other crosses the Oregon Coast Range in northern Oregon as it goes between Centralia, Washington, and Astoria, Oregon. The electricity-transmission project would require an approximately 250-foot-wide right-of-way corridor where all trees would be removed and not be allowed to regrow to original habitat conditions; these areas would remain cleared. This project crosses the Oregon Cascades between Boardman and Salem. Rights-of-way for all three projects would resemble long, narrow, clearcuts. All projects are still in the planning stages with draft EIS's still under development. In addition, final biological assessments initiating formal section 7 consultation under the ESA have not yet been submitted by the applicants on any projects.

3.3.2 Environmental Consequences

Effects Common to All Alternatives

When the Service enters the section 7 consultation process on timber sale projects, there are often timber harvest design options the action agency can consider that will reduce the impacts to spotted owls by modifying the location of where trees are removed or left in the stand. Within unoccupied spotted owl habitat in critical habitat the Service might, for example, recommend retention of habitat elements that would benefit spotted owl habitat development. However, with road construction/maintenance and linear energy transmission projects, there may be fewer such opportunities because these types of projects require complete forest removal to meet their purpose. In addition, these areas are maintained in perpetuity in an early seral condition, and are not expected to develop into spotted owl habitat for the life of the project. In these cases, the Service works with the project proponent to minimize impacts to spotted owls and critical habitat through early involvement in the planning process. This provides the Service the chance to recommend those routes that have the least impact on spotted owls and spotted owl habitat and still meet the project's goals.

At the scale energy-transmission projects are planned, it would be highly unlikely for there to be impacts to spotted owl critical habitat but not to spotted owls (e.g., a project limited entirely to younger forest). Therefore, we anticipate consultations will be formal in nature, due the presence of owls, and will include effects resulting in take of spotted owls to be minimized to the extent possible which may, except for timing restrictions, serve to minimize impacts to critical habitat as well. With these minimizations in place for spotted owls the designation of critical habitat would not likely have much, if any additional impact on the design or location of energy-transmission projects.

3.3.2.1 Alternative A (No Action Alternative) – 2008 Designation of critical habitat

Under Alternative A, the No Action Alternative, 5,312,300 ac of land would remain designated as critical habitat for the northern spotted owl under the 2008 rule, and no additional critical habitat would be designated for this species under the ESA. The current designation of critical habitat is limited to Federal lands; most of this existing designation overlays NWFP land allocations that are reserve lands, but there are 221,300 ac of Matrix and AMA (areas allocated for timber harvest) within the 2008 designation of critical habitat. This acreage figure includes Riparian Reserves that overlay these allocations (See section 3.1.1.1 Federal Lands, for description of land allocations).

Selecting the no action alternative would result in the least amount of acres designated as critical habitat, with more widely spaced critical habitat units. Such a distribution may make it less likely that the above types of projects would affect designated critical habitat. In addition, because the 2008 critical habitat designation did not include any non-federal lands, a project proponent could avoid critical habitat by planning their project exclusively on non-federal lands.

Where road maintenance/road-building projects and energy transmission projects are likely to intersect with designated critical habitat we have determined there would be either little additional opportunity or little need to modify the design or location of the projects to minimize impacts to critical habitat. This is primarily because any project of this magnitude (i.e., large area and complete forest removal) that impacts spotted owl critical habitat often has effects to spotted owls; effects to owls are minimized to the maximum extent practicable through the informal consultation process while still meeting the goals of the proposed project. There are few modifications that benefit spotted owls that do not also benefit spotted owl critical habitat, except altering the project timing to avoid disturbing individual spotted owls. The only minimization measures that may need to be applied for the sake of critical habitat, in addition to those being already implemented for the owl itself would be the recommended retention and management of habitat elements that would benefit spotted owl habitat development in unoccupied stands. The flexibility to implement these recommendations on projects that require the complete removal of vegetation (where roads are placed or for design or safety reasons around energy transmission corridors) is limited or non-existent. Therefore, it is unlikely there would be additional minimizations applied to a project solely for the sake of critical habitat under this alternative.

3.3.2.2 Alternative B (Proposed Action and Environmentally Preferable Alternative) – Revise critical habitat similar to that described in the proposed revised rule (i.e. no exclusions)

Under Alternative B, the Service would designate 13,949,400 ac of critical habitat for the northern spotted owl. Designation under this alternative would occur on Federal, State, and private lands (Table 1). Compared with the No Action Alternative (existing critical habitat designation from 2008 rule), this alternative would increase the overall amount of designated critical habitat by 8,637,000 ac (6,697,000 additional acres on Federal land, 677,600 ac on State land, 20,700 ac on County and Municipal lands, and 1,241,700 ac of private land). Land ownerships subject to critical habitat designation under this alternative that are not designated under the No Action Alternative are private and State lands noted above, and National Park Service (998,600 ac) lands. Included in the above Federal acres are Wilderness Areas and other Congressionally reserved natural areas on Forest Service and BLM lands (1,633,900 ac) that are

not designated under the No Action Alternative but would be designated under this alternative. These additional acres would be subject to the land-use management described in section 3.1.1.1

Alternative B represents an approximately 163 percent increase in the acres included in the critical habitat network from Alternative A. With this increase in acres there is a proportional increase in the likelihood that a road maintenance/road-building project or energy transmission project would intersect critical habitat. However, this effect may be exaggerated somewhat because these projects are not likely to go through some of these lands given the existing statutory limitations and management emphases. For example, putting such developments through Wilderness Areas would require an act of Congress. This alternative has the highest likelihood of intersecting energy or transportation corridor projects of any of the action alternatives. Where road maintenance/road-building projects or energy transmission projects intersect critical habitat under this alternative, effects to these activities would be the same as that described under Alternative A (Table 6).

3.3.2.3 Alternative C - Revise critical habitat as described in Alternative B, but exclude all non-Federal lands with completed conservation agreements

Alternative C would result in designating 13,010,600 ac of critical habitat on Federal, State, and private lands. Private and state lands with completed HCPs, SHAs, and other completed conservation agreements would be excluded from designation. Compared with the No Action Alternative (existing critical habitat designation from 2008 rule), this alternative would increase the overall amount of designated critical habitat by 7,698,200 ac (6,697,000 additional acres on Federal land, 452,600 ac on State land, 20,700 ac on County and Municipal lands, and 527,900 ac of private land). Land ownerships subject to critical habitat designation under this alternative that are not designated under the No Action Alternative are private and State lands noted above, and National Park Service (998,600 ac) lands. Included in the above Federal acres are Wilderness Areas and other Congressionally reserved natural areas on Forest Service and BLM lands (1,633,900 ac) that are not designated under the No Action Alternative but would be designated under this alternative. These additional acres would be subject to the land-use management described in section 3.1.1.1

Under this alternative, 938,800 fewer acres of non-Federal lands would be designated as critical habitat compared to the Proposed Action (Alternative B). Private and State Lands that would be excluded under this alternative are listed in Table 2.

This alternative represents an approximately 145 percent increase in the acres that would be included in the critical habitat network compared to Alternative A. This increase in acres from

Alternative A could increase the likelihood that a road maintenance/road-building project or energy transmission project would intersect critical habitat. Compared with the Proposed Action (Alternative B), 7 percent fewer acres would be included as critical habitat under this alternative, decreasing the likelihood that a road maintenance/road-building projects or energy transmission project might intersect with critical habitat. However, this effect may be exaggerated somewhat because these projects are not likely to go through some of these lands given the existing statutory limitations and management emphases. For example, putting such developments through Wilderness Areas would require an act of Congress. Where road maintenance/road-building projects or energy transmission projects intersect critical habitat under this alternative, effects to these activities would be the same as that described under Alternative A (Table 6).

3.3.2.4 Alternative D - Revise critical habitat as described in Alternative B, but exclude all non-Federal lands with completed conservation agreements, all State parks, and all Congressionally reserved natural areas

Alternative D would result in designating 10,213,300 ac of critical habitat on Federal, State, and private lands. As in Alternative C, private and state lands with completed HCPs, SHAs, and other completed conservation agreements would be excluded from designation. In addition, State Parks would be excluded as part of this alternative. Also, Congressionally reserved Federal lands (e.g., Wilderness areas, National Park Service lands, Wild and Scenic Areas) would be excluded (Appendix A). Compared with the No Action Alternative (existing critical habitat designation from 2008 rule), this alternative would increase the overall amount of designated critical habitat by 4,900,900 ac (4,064,500 additional acres on Federal land, 287,800 ac on State land, 20,700 ac on County and Municipal lands, and 527,900 ac of private land). Land ownerships subject to critical habitat designation under this alternative that are not designated under the No Action Alternative are private and State lands noted above. These additional acres would be subject to the land-use management described in section 3.1.1.1

Under this alternative, 3,736,100 fewer acres of private, State, and Federal lands would be designated as critical habitat compared to the Proposed Action (Alternative B). Private and State Lands that would be excluded under this alternative are listed in Table 2.

Alternative D represents an approximately 92 percent increase in acres that would be included in the critical habitat network compared to the No Action Alternative (Alternative A). This increase in acres compared with the No Action Alternative could increase the likelihood that a road maintenance/road-building project or energy transmission project would intersect critical habitat. Compared with the Proposed Action (Alternative B), 27 percent fewer acres would be

included as critical habitat under this alternative, decreasing the likelihood that a road construction/maintenance and energy transmission project might intersect with critical habitat. Where road maintenance/road-building projects or energy transmission projects intersect critical habitat under this alternative, effects to these activities would be the same as that described under Alternative A (Table 6).

3.3.2.5 Alternative E – Revise critical habitat as described in Alternative B, but exclude all non-Federal lands, and all Congressionally reserved natural areas

Alternative E would result in designating 9,376,900 ac of critical habitat on Federal lands only. As in Alternative D, Federal lands that are Congressionally reserved would also be excluded under this alternative. All State lands originally proposed would be excluded under this alternative. In addition, all private lands originally proposed, regardless of whether HCPs, SHAs, or other conservation agreements are in place on those properties, would be excluded from critical habitat designation under this alternative. Compared with the No Action Alternative, there would be an increase of 4,064,500 ac of critical habitat on Federal lands under this alternative. As compared to the proposed action (Alternative B) 4,572,500 fewer acres of land (Federal (2,632,500 ac), private (1,241,700 ac), County and Municipal (20,700 ac), and State (677,600 ac)) would be designated as critical habitat under this alternative.

This alternative represents an approximately 77 percent increase in the acres that would be included in the critical habitat network compared to Alternative A. This increase in acres from Alternative A could increase the likelihood that a road maintenance/road-building project or energy transmission project would intersect critical habitat. Compared with the Proposed Action (Alternative B), 33 percent fewer acres would be included as critical habitat under this alternative, decreasing the likelihood that a road maintenance/road-building projects or energy transmission project might intersect with critical habitat. Where road maintenance/road-building projects or energy transmission projects intersect critical habitat under this alternative, effects to these activities would be the same as that described under Alternative A (Table 6).

3.3.2.6 Alternative F (Preferred Alternative) – Revise critical habitat as described in Alternative B, but exclude all lands with completed HCPs and SHAs, all private lands, all Congressionally reserved lands, all State Parks, and all private lands; revise designation on remaining lands to better incorporate habitat essential for the northern spotted owl.

Alternative F is a new alternative we developed since the draft EA. It is built from Alternative B (our Proposed Action) and responds to refinements in our exclusion analysis, as well as public

comments received following the notice of availability of the draft EA and the publishing of the proposed revised rule. It is the Service's preferred alternative because it better meets our Purpose and Need in that it is consistent with our authorities and regulatory discretion and would designate areas essential to the conservation of the species but exclude lands where we believe the benefits of exclusion are greater than the benefits of inclusion in order to minimize the impacts of the designation.

Under this alternative, the Service would designate 9,578,000 ac of critical habitat for the northern spotted owl. Designation would occur on Federal, State, County, and Municipal lands (Table 1). Compared with the No Action Alternative (existing critical habitat designation from 2008 rule), this alternative would increase the overall amount of designated critical habitat by 4,265,600 ac (3,974,000 additional acres on Federal land, 270,900 ac on State land, and 20,700 ac of County and Municipal lands). Land ownerships subject to critical habitat designation under this alternative that are not designated under the No Action Alternative are the County, Municipal, and State lands noted above. These additional acres would be subject to the land-use management described in section 3.1.1.1

This alternative represents an approximately 80 percent increase in the acres that would be included in the critical habitat network compared to Alternative A. This increase in acres from Alternative A could increase the likelihood that a road maintenance/road-building project or energy transmission project would intersect critical habitat. Compared with the Proposed Action (Alternative B), 31 percent fewer acres would be included as critical habitat under this alternative, decreasing the likelihood that a road maintenance/road-building projects or energy transmission project might intersect with critical habitat and become subject to the provisions of section 7. Where road maintenance/road-building projects or energy transmission projects intersect critical habitat under this alternative, effects to these activities would be the same as that described under Alternative A (Table 6).

TABLE 4. SUMMARY OF EFFECTS, BY ALTERNATIVE, OF PROPOSED CRITICAL HABITAT DESIGNATION ON LAND-USE MANAGEMENT. EFFECTS ARE CATEGORIZED BY OWNERSHIP, LAND ALLOCATION, LOCATION, AND PRESENCE OR LACK OF CONSERVATION AGREEMENTS.

Category of ownership, allocation, location, and conservation agreements	**Alternative B** **Proposed Action** **Environmentally Preferable Alternative**	**Alternative C**	**Alternative D**	**Alternative E**	**Alternative F** **Preferred Alternative**
FEDERAL					
Congressionally Reserved Lands (National Park Service, Wilderness Areas, etc.).	**Acres Proposed:** 2,632,500 ac (998,600 ac NPS and 1,633,900 ac of Congressionally Reserved land on FS and BLM). This is a 2,632,500 ac increase over the No Action alternative. **Effects:** Land-use management and associated environmental effects not expected to change for these lands because current management is generally consistent with critical habitat management.	**Acres Proposed and Effects:** Same as Alternative B	**Acres Proposed:** 0 acres. Same as No Action Alternative **Effects:** No effect	**Acres Proposed and Effects:** Same as Alternative D	**Acres Proposed and Effects:** Same as Alternative D

Category of ownership, allocation, location, and conservation agreements	Alternative B Proposed Action Environmentally Preferable Alternative	Alternative C	Alternative D	Alternative E	Alternative F Preferred Alternative
Forest Service and BLM land allocations that are not Congressionally Reserved Lands	**Acres Proposed:** 9,376,900 ac This is a 4,064,500 ac increase over the no action alternative **Effects** Some areas within 3,148,700 ac of Matrix and AMA lands where timber harvest is programmed are relatively more likely than other Federal lands to experience management effects as a result of critical habitat designation; this potential effect could, however, be limited to areas within 1,400,100 to 1,459,900 ac (depending on owl occupancy rate used) if action agencies choose to apply discretionary conservation measures recommended for the northern spotted owl in the Revised Recovery Plan. However, these effects are not reasonably foreseeable. Land-use management not expected to change in remaining NWFP land allocations (reserves and lands not otherwise programmed for timber harvest) because management on these lands assumed to already be consistent with critical habitat management.	**Acres Proposed and Effects:** Same as Alternative B	**Acres Proposed and Effects:** Same as Alternative B	**Acres Proposed and Effects:** Same as Alternative B	**Acres Proposed:** 9,208,100 ac This is a 3,895,800 ac increase over the no action alternative **Effects** Some areas within 2,274,800 ac of Matrix and AMA lands where timber harvest is programmed are relatively more likely than other Federal lands to experience management effects as a result of critical habitat designation; this potential effect could, however, be limited to areas within 1,064,700 to 1,106,100 ac (depending on owl occupancy rate used) if action agencies choose to apply discretionary conservation measures recommended for the northern spotted owl in the Revised Recovery Plan. However, these effects are not reasonably foreseeable. Land-use management not expected to change in remaining NWFP land allocations (reserves and lands not otherwise programmed for timber harvest) because management on these lands assumed to already be consistent with critical habitat management.

Category of ownership, allocation, location, and conservation agreements	Alternative B Proposed Action Environmentally Preferable Alternative	Alternative C	Alternative D	Alternative E	Alternative F Preferred Alternative
STATE					
All State lands	**Acres Proposed:** 677,600 ac This is an increase in 677,600 ac of State land compared to No Action Alternative **Effects:** States predict no change in land management with critical habitat designation, regardless of agency or whether a formal conservation agreement is in place.	**Acres Proposed:** 452,600 ac This is an increase in 452,600 ac of State land compared to No Action Alternative **Effects:** Same as in Alternative B, but on fewer acres.	**Acres Proposed:** 287,800 ac This is an increase in 287,800 ac of State land compared to No Action Alternative. **Effects:** Same as in Alternative B, but on fewer acres.	**Acres Proposed:** 0 acres Same as No Action Alternative **Effects:** No effect	**Acres Proposed:** 270,900 ac This is an increase in 270,900 ac of State land compared to No Action Alternative **Effects:** States predict no change in land management with critical habitat designation, regardless of agency or whether a formal conservation agreement is in place.

Category of ownership, allocation, location, and conservation agreements	Alternative B Proposed Action Environmentally Preferable Alternative	Alternative C	Alternative D	Alternative E	Alternative F Preferred Alternative
COUNTY and MUNICIPAL					
All County and Municipal	**Acres Proposed:** 20,700 ac This is an increase of 20,700 ac of private land compared to No Action Alternative. **Effects:** Subject to same regulations as private lands. Regulatory uncertainty may occur, but specific regulations and subsequent land-use management responses and their associated environmental impact are not reasonably foreseeable. As County parks and Municipal watersheds, the management objectives for these lands do not typically include commercial timber harvest, minimizing potential regulatory uncertainty.	**Acres Proposed and Effects:** Same as Alternative B.	**Acres Proposed and Effects:** Same as Alternative B.	**Acres Proposed:** 0 ac **Effects:** No effect.	**Acres Proposed and Effects:** Same as Alternative B.

Category of ownership, allocation, location, and conservation agreements	Alternative B Proposed Action Environmentally Preferable Alternative	Alternative C	Alternative D	Alternative E	Alternative F Preferred Alternative
PRIVATE					
All private lands	**Acres Proposed:** 1,241,700 ac This is an increase in 1,241,700 ac of private land compared to No Action Alternative **Effects:** Regulatory uncertainty may occur, but specific regulations and subsequent land-use management responses and their associate environmental impacts are not reasonably foreseeable.	**Acres Proposed:** 527,900 ac This is an increase in 527,900 ac of private land compared to No Action Alternative **Effects:** Same as Alternative B, but on fewer acres.	**Acres Proposed and Effects:** Same as Alternative C	**Acres Proposed:** 0 Same as No Action Alternative **Effects:** No effect	**Acres Proposed and Effects:** Same as Alternative E.
All private lands in California under a conservation agreement.	**Acres proposed:** 665,800 ac **Effects:** Changes in land-use management as a result of State requirements are unlikely. Activities covered under an existing agreement generally consistent with spotted owl habitat conservation and recovery, so no expected changes in land-use management.	**Acres Proposed:** 0 ac Same as No Action Alternative **Effects:** No effect	**Acres Proposed and Effects:** Same as Alternative C	**Acres Proposed and Effects:** Same as Alternative C	**Acres Proposed and Effects:** Same as Alternative C

Category of ownership, allocation, location, and conservation agreements	Alternative B Proposed Action Environmentally Preferable Alternative	Alternative C	Alternative D	Alternative E	Alternative F Preferred Alternative
All private lands in California not under a conservation agreement.	**Acres proposed:** 386,500 ac **Effects:** Changes in land-use management as a result of State requirements are unlikely. Actions that require an incidental take permit from the Service would require development of an HCP. This Federal nexus would require section 7 consultation wherein destruction of adverse modification of critical habitat would be prohibited. However, an adverse modification finding considered unlikely. Landowners may choose to enter into a formal conservation agreement with the Service or another entity, which may influence land management.	**Acres Proposed and Effects:** Same as Alternative B	**Acres Proposed and Effects:** Same as Alternative B	**Acres proposed:** 0 Same as No Action Alternative **Effects:** No effect	**Acres proposed:** 0 Same as No Action Alternative **Effects:** No effect
Private lands in Washington under a conservation agreement.	**Acres proposed:** 48,000 ac **Effects:** Changes in land-use management as a result of State requirements are unlikely. Activities covered under an existing agreement generally consistent with spotted owl habitat conservation and recovery, so no expected changes in land-use management.	**Acres proposed:** 0 ac Same as No Action Alternative **Effects:** No effect	**Acres Proposed and Effects:** Same as Alternative C	**Acres Proposed and Effects:** Same as Alternative C	**Acres Proposed and Effects:** Same as Alternative C

Category of ownership, allocation, location, and conservation agreements	Alternative B Proposed Action Environmentally Preferable Alternative	Alternative C	Alternative D	Alternative E	Alternative F Preferred Alternative
Private lands in Washington not under a conservation agreement.	**Acres proposed:** 141,400 ac **Effects:** State Forest Practices Board may enact additional restrictions on these landowners, though they have not done so in the past. Subsequent land-use management responses and associated environmental impacts are not reasonably foreseeable. Actions that require an incidental take permit from the Service would require development of an HCP. This Federal nexus would require section 7 consultation wherein destruction of adverse modification of critical habitat would be prohibited. However, an adverse modification finding considered unlikely. Landowners may choose to enter into a formal conservation agreement with the Service or another entity, which may influence land management.	**Acres Proposed and Effects:** Same as Alternative B	**Acres Proposed and Effects:** Same as Alternative B	**Acres proposed:** 0 Same as No Action Alternative **Effects:** No effect	**Acres proposed:** 0 Same as No Action Alternative **Effects:** No effect

TABLE 5. SUMMARY OF EFFECTS, BY ALTERNATIVE, OF PROPOSED CRITICAL HABITAT DESIGNATION ON FISH, WILDLIFE, AND PLANT SPECIES.

Species Affected (affected area)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F- Preferred Alternative
	13,949,400 ac proposed This is a 8,637,000 ac increase over the No Action Alternative	13,010,600 acres proposed This is a 7,698,200 ac increase over the No Action Alternative	10,213,300 acres proposed This is a 4,900,900 ac increase over the No Action Alternative	9,376,900 acres proposed This is a 4,064,500 ac increase over the No Action Alternative	9,578,000 acres proposed. This is a 4,265,600 ac increase over the No Action Alternative.
Northern Spotted Owl (range-wide)	**Effects:** Increased conservation benefit compared to No Action given increased acres designated. Modeling results indicate a population size of 3,051 females at year 350 and an extinction risk of 3 percent of simulations with populations below 1,000 individuals.	**Effects:** Increased conservation benefit compared to No Action given increased acres designated. Modeling results same as Alternative B.	**Effects:** Increased conservation benefit compared to No Action given increased acres designated. Modeling results Same as Alternative B.	**Effects:** Increased conservation benefit compared to No Action given increased acres designated. Modeling results indicate a population size of 1,872 females at year 350 and an extinction risk of 42 percent of simulations with populations below 1,000 individuals).	**Effects:** Increased conservation benefit compared to No Action given increased acres designated. Modeling results indicate a population size of 3,224 females at year 350 and an extinction risk of 3 percent of simulations with populations below 1,000 individuals).
Northern Spotted Owl (Federal)	**Effects:** Areas within a range of 1.4 to 3.1 million acres of Federal land allocations subject to programmed timber harvest will have relatively greatest chance for change in conservation value for the species.	**Effects:** Areas within a range of 1.4 to 3.1 million acres of Federal land allocations subject to programmed timber harvest will have relatively greatest chance for change in conservation value for the species.	**Effects:** Areas within a range of 1.4 to 3.1 million acres of Federal land allocations subject to programmed timber harvest will have relatively greatest chance for change in conservation value for the species.	**Effects:** Areas within a range of 1.4 to 3.1 million acres of Federal land allocations subject to programmed timber harvest will have relatively greatest chance for change in conservation value for the species.	**Effects:** Areas within a range of 1.1 to 2.2 million acres of Federal land allocations subject to programmed timber harvest will have relatively greatest chance for change in conservation value for the species.

	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F- Preferred Alternative
Species Affected (affected area)	13,949,400 ac proposed This is a 8,637,000 ac increase over the No Action Alternative	13,010,600 acres proposed This is a 7,698,200 ac increase over the No Action Alternative	10,213,300 acres proposed This is a 4,900,900 ac increase over the No Action Alternative	9,376,900 acres proposed This is a 4,064,500 ac increase over the No Action Alternative	9,578,000 acres proposed. This is a 4,265,600 ac increase over the No Action Alternative.
Northern Spotted Owl (non-Federal)	**Effects:** On 1,940,000 ac of non-federal lands, critical habitat designation: (1) provides a potential for added conservation benefit through section 7 if a Federal nexus occurs; and (2) alerts landowner of the conservation benefit of the area to the species	**Effects:** On 1,001,200 ac of non-federal lands, critical habitat designation: (1) provides a potential for added conservation benefit through section 7 if a Federal nexus occurs; and (2) alerts landowner of the conservation benefit of the area to the species	**Effects:** On 836,400 ac of non-federal lands, critical habitat designation: (1) provides a potential for added conservation benefit through section 7 if a Federal nexus occurs; and (2) alerts landowner of the conservation benefit of the area to the species	**Effects:** No effect because no non-Federal lands designated under this alternative.	**Effects:** On 291,600 ac of non-federal lands, critical habitat designation: (1) provides a potential for added conservation benefit through section 7 if a Federal nexus occurs; and (2) alerts landowner of the conservation benefit of the area to the species

	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F- Preferred Alternative
Species Affected (affected area)	13,949,400 ac proposed This is a 8,637,000 ac increase over the No Action Alternative	13,010,600 acres proposed This is a 7,698,200 ac increase over the No Action Alternative	10,213,300 acres proposed This is a 4,900,900 ac increase over the No Action Alternative	9,376,900 acres proposed This is a 4,064,500 ac increase over the No Action Alternative	9,578,000 acres proposed. This is a 4,265,600 ac increase over the No Action Alternative.
Northern Spotted Owl (private lands)	**Effects:** For the 527,900 acres of private land with no existing conservation agreement, management of these lands in response to critical habitat designation may have a mix of beneficial and deleterious responses. However, predicting landowner response and associated effect on spotted owl is speculative and not reasonably foreseeable. Designation may provide incentive for landowner to enter into conservation partnership with the Service.	**Effects:** For the 527,900 acres of private land with no existing conservation agreement, management of these lands in response to critical habitat designation may have a mix of beneficial and deleterious responses. However, predicting landowner response and associated effect on spotted owl is speculative and not reasonably foreseeable. Designation may provide incentive for landowner to enter into conservation partnership with the Service.	**Effects:** For the 527,900 acres of private land with no existing conservation agreement, management of these lands in response to critical habitat designation may have a mix of beneficial and deleterious responses. However, predicting landowner response and associated effect on spotted owl is speculative and not reasonably foreseeable. Designation may provide incentive for landowner to enter into conservation partnership with the Service.	**Effects:** No Effect	**Effects:** No effect

	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F- Preferred Alternative
Species Affected (affected area)	13,949,400 ac proposed This is a 8,637,000 ac increase over the No Action Alternative	13,010,600 acres proposed This is a 7,698,200 ac increase over the No Action Alternative	10,213,300 acres proposed This is a 4,900,900 ac increase over the No Action Alternative	9,376,900 acres proposed This is a 4,064,500 ac increase over the No Action Alternative	9,578,000 acres proposed. This is a 4,265,600 ac increase over the No Action Alternative.
Marbled murrelet	**Effects:** Increased area protections of PCEs (through avoidance of adverse modification) that also provide suitable murrelet nesting habitat is beneficial to murrelets. However, protections for some foraging PCEs for spotted owls in certain critical habitat units may not protect some of the habitat attributes required by nesting marbled murrelets. Overlaps 2,548,700 ac of marbled murrelet critical habitat, an increase of 812,800 ac over the No Action Alternative.	**Effects:** Same as Alternative B Scale of effects is less than Alternative B due to decreased acreage of critical habitat designation. Overlaps 2,486,100 ac of marbled murrelet critical habitat, an increase of 750,200 ac over the No Action Alternative.	**Effects:** Same as Alternative B Scale of effects is less than Alternative C due to decreased acreage of critical habitat designation. Overlaps 2,269,300 ac of marbled murrelet critical habitat, an increase of 533,400 ac over the No Action Alternative.	**Effects:** Same as Alternative B Scale of effects is less than Alternative D due to decreased acreage of critical habitat designation. Overlaps 2,137,500 ac of marbled murrelet critical habitat, an increase of 401,600 ac over the No Action Alternative.	**Effects:** Same as Alternative B Scale of effects is less than Alternative D due to decreased acreage of critical habitat designation, but greater than Alternative E due to increased acreage of critical habitat designation. Overlaps 2,268,400 ac of marbled murrelet critical habitat, an increase of 532,500 ac over the No Action Alternative.

	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F- Preferred Alternative
Species Affected (affected area)	13,949,400 ac proposed This is a 8,637,000 ac increase over the No Action Alternative	13,010,600 acres proposed This is a 7,698,200 ac increase over the No Action Alternative	10,213,300 acres proposed This is a 4,900,900 ac increase over the No Action Alternative	9,376,900 acres proposed This is a 4,064,500 ac increase over the No Action Alternative	9,578,000 acres proposed. This is a 4,265,600 ac increase over the No Action Alternative.
Large carnivores	**Effects:** Increased protections of PCEs (through avoidance of adverse modification) would also provide some additional habitat benefits to these species. However, these species require other habitat features not provided by spotted owl critical habitat.	**Effects:** Same as Alternative B Scale of effects is less than Alternative B due to decreased acreage of critical habitat designation.	**Effects:** Same as Alternative B Scale of effects is less than Alternative C due to decreased acreage of critical habitat designation.	**Effects:** Same as Alternative B Scale of effects is less than Alternative D due to decreased acreage of critical habitat designation.	**Effects:** Same as Alternative B Scale of effects is less than Alternative D due to decreased acreage of critical habitat designation, but greater than Alternative E due to increased acreage of critical habitat designation.
Aquatic species	**Effects:** Increased protection of PCEs (through avoidance of adverse modification) would also provide some additional habitat benefits to these species. However, these species require other habitat features not provided by spotted owl critical habitat.	**Effects:** Same as Alternative B Scale of effects is less than Alternative B due to decreased acreage of critical habitat designation.	**Effects:** Same as Alternative B Scale of effects is less than Alternative C due to decreased acreage of critical habitat designation.	**Effects:** Same as Alternative B Scale of effects is less than Alternative D due to decreased acreage of critical habitat designation.	**Effects:** Same as Alternative B Scale of effects is less than Alternative D due to decreased acreage of critical habitat designation, but greater than Alternative E due to increased acreage of critical habitat designation.

	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F- Preferred Alternative
Species Affected (affected area)	13,949,400 ac proposed This is a 8,637,000 ac increase over the No Action Alternative	13,010,600 acres proposed This is a 7,698,200 ac increase over the No Action Alternative	10,213,300 acres proposed This is a 4,900,900 ac increase over the No Action Alternative	9,376,900 acres proposed This is a 4,064,500 ac increase over the No Action Alternative	9,578,000 acres proposed. This is a 4,265,600 ac increase over the No Action Alternative.
Plants and butterflies	**Effects:** Protection of the PCEs for spotted owl habitat (through avoidance of adverse modification) generally not conducive to these species, which are associated with more open meadows or woodlands. However, the proposed revised rule specifically states these habitats found within a unit boundary are not considered critical habitat. Conservation and maintenance of these areas would still be possible. Predict a neutral effect on these species.	**Effects:** Same as Alternative B Scale of effects is less than Alternative B due to decreased acreage of critical habitat designation.	**Effects:** Same as Alternative B Scale of effects is less than Alternative C due to decreased acreage of critical habitat designation.	**Effects:** Same as Alternative B Scale of effects is less than Alternative D due to decreased acreage of critical habitat designation.	**Effects:** Same as Alternative B Scale of effects is less than Alternative D due to decreased acreage of critical habitat designation, but greater than Alternative E due to increased acreage of critical habitat designation.

	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F- Preferred Alternative
Species Affected (affected area)	13,949,400 ac proposed This is a 8,637,000 ac increase over the No Action Alternative	13,010,600 acres proposed This is a 7,698,200 ac increase over the No Action Alternative	10,213,300 acres proposed This is a 4,900,900 ac increase over the No Action Alternative	9,376,900 acres proposed This is a 4,064,500 ac increase over the No Action Alternative	9,578,000 acres proposed. This is a 4,265,600 ac increase over the No Action Alternative.
Barred owls	**Effects:** Protection of PCEs for spotted owl habitat (through avoidance of adverse modification) may also provide habitat beneficial to barred owls. However, because the species is a habitat generalist, they also use areas that do not contain these features. Thus, we predict a neutral effect on barred owls. However, with increased protection of habitat conducive to spotted owls, competition from barred owls may decrease.	**Effects:** Same as Alternative B Scale of effects is less than Alternative B due to decreased acreage of critical habitat designation.	**Effects:** Same as Alternative B Scale of effects is less than Alternative C due to decreased acreage of critical habitat designation.	**Effects:** Same as Alternative B Scale of effects is less than Alternative D due to decreased acreage of critical habitat designation.	**Effects:** Same as Alternative B Scale of effects is less than Alternative D due to decreased acreage of critical habitat designation, but greater than Alternative E due to increased acreage of critical habitat designation.

TABLE 6. SUMMARY OF EFFECTS, BY ALTERNATIVE, OF PROPOSED CRITICAL HABITAT DESIGNATION ON LINEAR ROAD MAINTENANCE/REPAIR AND ENERGY TRANSMISSION PROJECTS.

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F Preferred Alternative
13,949,400 ac proposed This is a 8,637,000 ac increase over the No Action Alternative	13,010,600 acres proposed This is a 7,698,200 ac increase over the No Action Alternative	10,213,300 acres proposed This is a 4,900,900 ac increase over the No Action Alternative	9,376,900 acres proposed This is a 4,064,500 ac increase over the No Action Alternative	9,578,000 acres proposed. This is a 4,265,600 ac increase over the No Action Alternative.
Effects: This alternative represents a 163 percent increase over the No Action Alternative in terms of area included as critical habitat. Would likewise predict a proportionate increase in the likelihood that projects would intersect critical habitat. However estimate may be slightly exaggerated given that the statutory authority for some land allocations (e.g. Wilderness Areas) may limit these projects. Unlikely to be additional modifications applied to the project that would not also be applied to protect the spotted owl itself. However, locations of future projects are speculative, so specific effects of designation on these projects and their associated environmental effect are not reasonably foreseeable.	**Effects:** This alternative represents a 145 percent increase over the No Action Alternative in terms of area included as critical habitat. Would likewise predict a proportionate increase in the likelihood that projects would intersect critical habitat. However estimate may be slightly exaggerated given that the statutory authority for some land allocations (e.g. Wilderness Areas) may limit these projects. Unlikely to be additional modifications applied to the project that would not also be applied to protect the spotted owl itself. However, locations of future projects are speculative, so specific effects of designation on these projects and their associated environmental effect are not reasonably foreseeable.	**Effects:** This alternative represents a 92 percent increase over the No Action Alternative in terms of area included as critical habitat. Would likewise predict a proportionate increase in the likelihood that projects would intersect critical habitat. Unlikely to be additional modifications applied to the project that would not also be applied to protect the spotted owl itself. However, locations of future projects are speculative, so specific effects of designation on these projects and their associated environmental effect are not reasonably foreseeable.	**Effects:** This alternative represents a 77 percent increase over the No Action Alternative in terms of area included as critical habitat. Would likewise predict a proportionate increase in the likelihood that projects would intersect critical habitat. Unlikely to be additional modifications applied to the project that would not also be applied to protect the spotted owl itself. However, locations of future projects are speculative, so specific effects of designation on these projects and their associated environmental effect are not reasonably foreseeable.	**Effects:** This alternative represents an 80 percent increase over the No Action Alternative in terms of area included as critical habitat. Would likewise predict a proportionate increase in the likelihood that projects would intersect critical habitat. Unlikely to be additional modifications applied to the project that would not also be applied to protect the spotted owl itself. However, locations of future projects are speculative, so specific effects of designation on these projects and their associated environmental effect are not reasonably foreseeable.

3.4 Additional Effects

3.4.1 Social and Economic Conditions

An economic analysis of the proposed revised critical habitat designation for the northern spotted owl has been developed (IEc 2012). The scope of the economic analysis includes all areas included in the proposed revised rule (77 Fed. Reg. 14062). The economic analysis uses as its baseline for comparison only the protections afforded to the owl by listing it as a threatened species, not subsequent protections that are in place as a result of the 2008 designation of critical habitat. That is, the economic analysis assesses the effects of the proposed revised critical habitat designation as compared with no critical habitat being designated on the landscape. This baseline differs from that used in NEPA, where the baseline (No Action Alternative) is the current situation that includes the 2008 critical habitat designation, with no other actions taken.

The economic analysis concluded that potential incremental changes in timber harvest practices could occur on 1.4 million acres of Forest Service and BLM land, and on an additional 307,000 acres of private land; no incremental changes in harvests on State lands were expected. The analysis could not quantify the change in timber harvest value that could occur on non-Federal lands. On Federal lands, however, the analysis considered a breadth of possible outcomes ranging from a potential reduction in timber harvest due to voluntary agency restrictions on actions in designated critical habitat, to essentially no change from current practices, to a potential increase in timber harvest relative to current conditions resulting from the possible implementation of ecological forestry practices (IEc 2012); this translated into a potential change in annualized timber harvest value ranging from -$6.1 million to +$3.1 million when compared to a "no critical habitat" baseline, representing a worst- and best-case scenario. Because there is no change in the Federal timber acres affected in Alternatives B through E, these values remain the same for these alternatives. This range would be somewhat smaller for Alternative F, given the slightly reduced acreage of Federal lands available for timber harvest in this alternative. These values would also be smaller when compared to the No Action alternative discussed in this environmental assessment.

The analysis presented a range of potential effects on Federal lands because the actual effects are speculative and not reasonably foreseeable (IEc 2012). DOI NEPA implementation regulations define reasonably foreseeable future action as, "activities not yet undertaken, but sufficiently likely to occur, that a Responsible Official of ordinary prudence would take such activities into account in reaching a decision. . . . Reasonably foreseeable future actions do not include those actions that are highly speculative or indefinite." (73 Fed. Reg. 61292, October 15,

2008). Reasonably foreseeable future actions are those that are probable, based on known opportunities or trends. Projecting what private landowners will do in response to critical habitat designation is speculative (See discussion under heading, “Effects on private lands as a result of changes in State management” in Section 3.1.2.2). While we have described a possible range of effects on Federal lands, we do not know where projects will be proposed that may be subject to section 7 as a result of northern spotted owl critical habitat, or what project modifications, if any, may be necessary to comply with section 7. We also cannot predict how agencies choose to manage in the face of critical habitat designation because these decisions will be made by those agencies in accord with their own land management authorities. We further note the focus of the analysis in this environmental assessment is to determine whether preparation of an EIS is necessary. The CEQ regulations state that " economic or social effects are not intended by themselves to require preparation of an environmental impact statement” (40 CFR 1508.14). Therefore, we have not undertaken to further analyze them here.

3.4.2 Indian Lands and Trust Resources

The United States has a trust responsibility and treaty obligations to Indian tribes and members of those tribes. Tribal trust resources are natural resources that are retained by or reserved for Indian tribes through treaties, statutes, judicial decisions, and executive orders. The United States is entrusted with these resources for the benefit of Indian tribes.

We included Indian lands in our modeling of potential critical habitat networks. Although some Indian lands identified in our habitat modeling demonstrated the potential to contribute to the conservation of the northern spotted owl, our analysis did not suggest that these areas were essential to conserve the northern spotted owl (77 Fed. Reg. 14062, 14142). Thus, the proposed revision of critical habitat does not overlay Indian lands in any of our alternatives and does not affect these lands.

3.4.3 Climate Change

Our analyses under the National Environmental Policy Act include consideration of ongoing and projected changes in climate. The terms “climate” and “climate change” are defined by the Intergovernmental Panel on Climate Change (IPCC). “Climate” refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007). The term “climate change” thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended

period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007). Various types of changes in climate can have direct or indirect effects on species. These effects may be positive, neutral, or negative and they may change over time, depending on the species and other relevant considerations, such as the effects of interactions of climate with other variables (e.g., habitat fragmentation) (IPCC 2007). In our analyses, we use our expert judgment to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

In the Pacific Northwest, mean annual temperatures increased 1.5 ^{o} F in the 20th century and are expected to continue to warm from 0.2^{o} to 1° F per decade (Mote and Salathe 2010). Global climate models project an increase of 1 to 2 percent in annual average precipitation, with some models predicting wetter autumns and winters with drier summers (Mote and Salathe 2010). Regional models of potential climate changes are much more variable, but the models generally indicate a warming trend in mean annual temperature, reduced snowpack, and increased frequency of extreme weather events (Salathe *et al.* 2010). Downscaled regional climate models, such as those presented by *http://www.climatewizard.org* have tremendous variation in projections for annual changes in temperature or precipitation depending upon the climate model or scenario. Averaged values across large areas generally indicate a general warming trend in mean annual temperature consistent with the climate projections reported by Salathe *et al*. (2010).

On the cooler, moister west side of the Cascades, the summer water deficit is projected to increase two- to three-fold over current conditions (Littell 2009). East of the Cascade Crest, summer soil deficits may not change as much or may even moderate slightly over current conditions (Elsner *et al.* 2009). Researchers expect some ecosystems to become more water-limited, more sensitive to variability in temperature, and more prone to disturbance (McKenzie *et al.* 2009). There is evidence that the productivity of many high-elevation forests, where low summer temperature and winter snowpack limits the length of the growing season, is increasing in the Pacific Northwest as temperatures rise, potentially increasing the elevation of the tree line (Graumlich *et al.* 1989; Case and Peterson 2009). Conversely, productivity and tree growth in many low-elevation Pacific Northwest forests is likely to decrease due to the longer, warmer summers (Case and Peterson 2009). This may result in a change in species composition or reduction in the acreage of existing low-elevation forests.

The Revised Recovery Plan provides a detailed discussion of the possible environmental impacts to the habitat of the northern spotted owl from the projected effects of climate change (USFWS 2011a). Climate change may modify disturbance regimes across the range of the spotted owl, resulting in substantial changes to the frequency and extent of habitat disruption by natural events. For example, in drier, more fire-prone regions of the owl's range, habitat conditions

will likely be more dynamic, and more active management may be required to reduce the risk of the essential physical or biological features from fire, insects, disease, and climate change as well as to promote regeneration following disturbance. Both the frequency and intensity of wildfires and mountain pine beetle (*Dendroctonus ponderosae*) outbreaks are expected to increase over the next century in the Pacific Northwest (Littell *et al.* 2010).

Predicted climate changes in the Pacific Northwest have implications for forest disturbances that are important for maintaining late seral old growth habitats. For example, fire activity is expected to increase in all major forest types in Oregon, and areas burned by fire in the Pacific Northwest are likely to increase substantially in the coming century (Hessburg *et al.* 2005, 2007; Kennedy and Wimberly 2009; Littell *et al.* 2009, 2010; Shafer *et al.* 2010). The gradual loss of late seral old growth habitats over the past century is linked to fire suppression and lack of disturbance. Natural landscape resilience mechanisms have been decoupled by fire exclusion and wildfire suppression activities (Hessburg *et al.* 2005; Moritz *et al.* 2011). Increased wildfire or insect disturbances associated with climate change are likely to have negative effects on spotted owl habitat due to increases in early seral habitat. Because wildfires typically result in a mosaic of burned and unburned areas, it is unlikely that increased incidence of wildfires associated with climate change would result in the loss of multiple populations across large areas within the species or subspecies range.

Though there is uncertainty with how climate change may specifically alter fire regimes, McKenzie *et al.* (2004) proposed several inferences that can be made given our understanding of fire-climate interactions and our understanding of vegetation response to fire. The first inference is that warmer and drier summers will produce more frequent and extensive fires. Second is that reduced snowpack and earlier snowmelt will likely extend the time span of moisture deficits in water-limited systems. Finally, drought stress on plants will increase as a result of the drier conditions and longer moisture deficits, increasing their vulnerability to other multiple disturbances such as fire and insects; these disturbances often have a synergistic effect.

Climate change is affecting the location, size and intensity of insect outbreaks, which in turn affect fire and other forest processes (Joyce *et al.* 2008; Kurz *et al.* 2008; Littell *et al.* 2009, 2010; Latta *et al.* 2010; Spies *et al.* 2010). Warming temperatures have led to mountain pine beetle outbreaks, with large-scale effects in some western forests, including in the eastern Cascades. In warmer winters more mountain pine beetles survive and shorten their generation time, resulting in larger and more severe outbreaks. Drought can heighten the susceptibility of host trees to attack (Littell *et al.* 2010). Littell *et al.* (2010) suggest that the greatest likelihood of mountain pine beetle attack is when conditions are hot and dry combined with a fairly short period of extreme vapor pressure deficit, when trees are most vulnerable. In the future,

outbreaks are projected to increase at higher elevations and decrease at lower elevations (Littell *et al.* 2010), with uncertain implications for spotted owls. Littell *et al.* (2010) have projected that the combination of increased tree susceptibility and mountain pine beetle outbreaks could lead to the loss of pine species in the eastern Cascades as early as the 2040s. Mixed conifer stands in the eastern Cascades, which include pine species, provide den sites and food resources for bushy-tailed woodrats, an important prey species of spotted owls (Lehmkuhl *et al.* 2006a). Warmer winters have also been shown to increase the incidence of Swiss needle cast, a fungal disease in Douglas-fir on the Oregon coast (Manter *et al.* 2005) inhibiting tree growth, and causing severe chlorosis and defoliation. We are uncertain how much this will affect spotted owl habitat.

Recent bark beetle outbreaks have exceeded the magnitude of outbreaks documented during the prior 125 years in parts of the U.S. (Raffa *et al.* 2008). It appears that human activities have influenced recent increases in bark beetle activity (Logan and Powell 2001; Logan *et al.* 2003). Changing climate, particularly increased temperature and drought, combined with management that has favored continuous, uninterrupted distributions of host tree species (*e.g.,* Douglas-fir and true fir species), tend to foster outbreaks (Hicke and Jenkins 2008; Raffa *et al.* 2008). Unusually hot and dry weather is already responsible for increased insect outbreaks in forests in several North American localities, from pinyon pine in the southwest U.S. (Breshears *et al.* 2005) to lodgepole pine forests in British Columbia where the beetle outbreak is larger than any recorded in Canada (Carroll *et al.* 2004 as cited in Whitehead *et al.* 2006; Taylor *et al.* 2006).

With respect to forest pathogens, Kliejunas *et al.* (2009) summarize the literature on the relationship between climate change and tree diseases in western North America. They note that while there is great uncertainty with how specific pathogens will respond to climate change, general inferences can be made, all of which can vary by ecosystem and specific climate conditions. Similar to forest insects, pathogen distributions are expected to change, including invasion of new areas by nonnative pathogens. The epidemiology of plant diseases is also expected to change, complicating the prediction of disease outbreaks. The rate that pathogens evolve and overcome host resistance may increase in a rapidly changing climate. With increasing temperatures, we should expect an increase in overwintering survival of pathogens, as well as an increase in disease severity. Predicted drought stress on many host species will increase their vulnerability to, and exacerbate the effect of, many pathogens. Finally, with the exception of extremely dry conditions, climate change may alter fungal pathogens that could have a profound change on rates of wood decay, shortening the length of time valuable legacies like down wood can be retained in the ecosystem (Yin 1999).

Changes to the range and composition of current vegetation species are expected as local climates transform and become more favorable for some species and less favorable for others (van Mantgem *et al.* 2009; Allen *et al.* 2010; Haugo *et al.* 2010; Littell *et al.* 2010; Shafer *et al.* 2010). Increased mortality rates of trees have already been attributed to drought and heat stress caused by increasing temperatures (van Mantgem *et al.* 2009; Allen *et al.* 2010). With respect to animal species, climate change can increase the success of introduced or invasive species in colonizing new territory (Dale *et al.* 2001). Invasive animal species are more likely to be generalists, such as the barred owl, than specialists, such as the spotted owl and adapt more successfully to a new climate than natives (Dukes and Mooney 1999).

While a change in forest composition or extent is likely as the result of climate change, the rate of that change is uncertain. In forests with long-lived dominant tree species, mature individuals can survive these stresses, so effects of climate on forest composition and structure would most likely occur over a longer time scale (100 to 500 years) in some areas than disturbances such as wildfire or insect outbreaks (25 to 100 years) (McKenzie *et al.* 2009). Some changes appear to be already occurring. Regional warming and consequent drought stress appear to be the most likely drivers of an increase in the mortality rate of trees in recent decades in the western United States. The increase was evident across regions (Pacific Northwest, California), elevations (*i.e.*, topography), tree size, type of trees, and fire-return-intervals (van Mantgem *et al.* 2009). Finally, several studies imply that some areas on the landscape may resist climate-driven disturbances that may affect spotted owls and their habitat (Camp *et al.* 1997; Daley *et al.* 2009).

Spotted owls can be affected by changes in weather and climate directly, or through changes in forest composition, prey species abundance and distribution that may result from climate change. The influence weather and climate on spotted owl populations was evidenced in northern California (Franklin *et al*. 2000), Oregon (Olson *et al*. 2005; Dugger *et al*. 2005), and Washington (Glenn 2009). Wet, cold weather during the winter or nesting season, particularly the early nesting season, has been shown to negatively affect spotted owl reproduction (Olson *et al*. 2004; Dugger *et al*. 2005), survival (Franklin *et al*. 2000; Olson *et al*. 2004; Glenn 2009), and recruitment (Franklin *et al*. 2000). Drought or hot temperatures during the previous summer have also reduced spotted owl recruitment and survival (Franklin *et al*. 2000; Glenn 2009). The presence of high-quality habitat appears to buffer the negative effects of cold, wet springs and winters on survival of spotted owls as well as ameliorate the effects of heat. High-quality habitat might help maintain a stable prey base, thereby reducing the cost of foraging during the early breeding season when energetic needs are high (Carey *et al*. 1992; Franklin *et al*. 2000).

Population trends in birds of prey have frequently been associated with prey availability (Newton 1979) as well as with average annual or seasonal temperature and precipitation (Nicholl *et al*. 2003). Population sizes of northern flying squirrels, deer mice, and other mammal species that comprise spotted owl diets are often characterized by large annual variations in population size driven primarily by food availability (Ransome and Sullivan 1997; Waters and Zabel 1998; Gomez *et al*. 2005). Variation in weather can have substantial influence on food availability for small mammals. Small mammal populations have shown declines during drought (Spevak 1983), and population dynamics have been shown to be associated with regional climate cycles (Lima *et al*. 2001). Northern flying squirrels, the primary prey of northern spotted owls, feed primarily on hypogeous fungi (Gomez *et al*. 2005), which are most abundant during wet conditions particularly during late summer and fall (Luoma *et al*. 2003). While it is not clear how variation in weather or climate change affect small mammals in the Pacific Northwest, it is likely that effects of climate on spotted owls are related to how climatic conditions affect their prey.

Predicted effects of climate change in the Pacific Northwest in the 21st century include warmer, wetter winters and hotter, drier summers (Parson *et al*. 2001). Global climate models project an average increase in annual temperature of 2.0 ^{o} F by the 2020s, 3.2 ^{o} F by the 2040s, and 75.3to ^{o} F by the 2080s, compared to the average from 1970-1999 (Mote and Salathe 2010). Precipitation is projected to increase as well, but with the increase greatest in winter and potentially a decrease during the summer, resulting in an overall decrease in water availability. The increase in summer water limitation increases the risk of fire activity and creates drought stress on trees, making them more susceptible to insect and pathogen attacks. Even on the relatively humid west slope of the Cascade Range, forests are often constrained by water deficiencies during dry summers (Parson *et al*. 2001). Although global climate change has the potential to cause fundamentally different climate patterns with unpredictable consequences on population dynamics of the Northern Spotted Owl, results from demographic studies that looked at climate (Franklin *et al*. 2000; Olson *et al*. 2004; Dugger *et al*. 2005; Glenn *et al*. 2010, 2011a, b) suggest that both hotter, drier summers and wetter winters and nesting seasons have the potential to negatively affect spotted owls.

Just as climate change may affect spotted owls and their forest habitats, increased conservation of spotted owl habitat through the designation of critical habitat will also affect climate change. Forests play an important role in the global carbon cycle through their ability to store carbon in the live and dead wood, as well as the soil (Malmsheimer *et al.* 2008, Ryan *et al.* 2010). Annual U.S. fossil fuel emissions have been offset 12-19 percent because of carbon removed from the atmosphere as a result of forest growth or wood product storage (Ryan *et al.* 2010). The world's forests contain 80 percent of all above-ground carbon (Dixon *et al.* 1994). Forests of the Pacific Northwest are among the highest in the world in terms of their potential to store

additional carbon because many of the forests are long-lived and maintain relatively high productivity and biomass for decades and even centuries (Hudiburg *et al.* 2009).

Several strategies have been proposed for using forests to increase carbon sequestration and slow the amount of carbon dioxide entering the atmosphere and contributing to climate change (Ryan *et al.* 2010). These strategies include retaining existing forests, establishing or reestablishing forests in unforested areas, and implementing forest management practices that decrease carbon loss (e.g. lengthen harvest intervals, reduce the volume removed during harvest, treat stands to reduce risk of loss to fire) or increase forest growth. The ESA requirement to not destroy or adversely modify critical habitat is consistent with several of these strategies, particularly the retention of existing forests and reduction of carbon losses. Thus, designation of critical habitat for the northern spotted owl may reduce the amount of carbon dioxide that enters the atmosphere and contributes to climate change. Conversely, forests absorb more solar radiation than other types of land cover, having a warming effect on the land and air; this effect on the climate, however, is generally not a strong as the effects of carbon dioxide emissions (Ryan *et al.* 2010). Thus, the overall net effect of forest retention as a result of critical habitat designation is expected to help ameliorate the effects of climate change, primarily through the sequestration of carbon.

3.4.4 Cumulative Impacts

In this section we focus on past, ongoing, and future actions that, when combined with the proposed action, may affect the environment.

The northern spotted owl was listed as a threatened species on June 26, 1990 (55 Fed. Reg. 26114). One requirement of the ESA, under section 7(a)(2), is that Federal agencies must, in consultation with and with the assistance of the Service, ensure that any action authorized, funded or carried out by that Federal agency is not likely to jeopardize the continued existence of a listed species (this is referred to as the "jeopardy standard"). Once finalized, the effect of designation of critical habitat for a listed species is to add an independent requirement that Federal agencies ensure that their actions are not likely to result in the destruction or adverse modification of that critical habitat. Thus, in areas where northern spotted owls occur, including most areas included in this critical habitat rule, Federal agencies such as the Forest Service and BLM are already consulting with the Service on the potential effects of their proposed actions under the "jeopardy standard," regardless of whether these lands are currently designated as critical habitat. Similarly on non-federal lands, the listing of the northern spotted owl prevents landowners from "take" of a listed species without obtaining a permit from the Service. Thus, on those lands where northern spotted owls occur,

conservation measures must already be applied to conserve spotted owls, either through section 7 consultation for Federal actions, or obtaining a Section 10 permit from the Service for non-Federal actions.

The Revised Recovery Plan for the Northern Spotted Owl was completed in September 2011 (USFWS 2011a). The plan establishes recovery criteria and contains multiple recovery actions recommended to conserve and recover the northern spotted owl. Recovery plans are not regulatory and implementation of recovery actions is discretionary. Given that it has only recently been finalized, there has been limited opportunity to implement the recommendations within it. As such, a track record has not yet been established to help determine to what extent recommendations within the Revised Recovery Plan will be implemented across the range of the northern spotted owl. The publication of the draft EIS to test experimental removal of barred owls (described below) is based on one of the recovery actions recommended in the Recovery Plan that may be implemented, depending on the alternative the Service selects in the final EIS. Workgroups described under recovery actions in the plan have been formed and are working on actions to assist the Service with spotted owl recovery. The Service is actively working with action agencies to address ways to best implement recovery actions that recommend retention of high quality habitat and conservation of spotted owl sites (see section 3.1.1.1 Federal Lands (Forest Service, BLM, and National Park Service). Federal agencies are beginning to implement discretionary measures described in the Revised Recovery Plan, which would provide conservation and recovery benefits to the spotted owl. However, it is still too early to foresee the degree and extent to which recommendations within the Revised Recovery Plan will be implemented across the range of the northern spotted owl.

The Revised Recovery Plan for the Northern Spotted Owl also recommends the application of active forest management to restore forest ecosystem structure, composition, and processes. processes. In response to public comment regarding the appropriateness of this activity, we have clarified the relationship between this revised recovery plan recommendation and its application within spotted owl critical habitat. Its discussion in the revised critical habitat rule is provided primarily for consideration by Federal, State, local, and private land managers, as they make decisions on the management of forest land under their jurisdictions and through their normal processes. This critical habitat rule does not take any action or adopt any policy, plan or program in relation to active forest management. Many areas of critical habitat do not require active management, and active forest management within such areas could negatively impact northern spotted owls. We are not encouraging land managers to consider active management in areas of high-quality owl habitat or occupied owl sites; rather, we encourage management actions that will maintain and restore ecological function where appropriate. In some areas, forest stands are not on a trajectory to develop into high-value habitat, ecological processes have been disrupted by human actions, or projected climate change is expected to further

disrupt or degrade desired forest conditions. In these areas, land managers may choose to implement active management, as recommended in the Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011), to improve ecological health and development of forest conditions more favorable to northern spotted owls and other biodiversity. However, such management is not mandated by the Service and is not required as a result of this critical habitat rule. Such management is at the discretion of the individual land manager, subject to their operating authorities. As noted above, however, it is still too early to foresee the degree and extent to which the active management recommendation within the Revised Recovery Plan will be implemented across the range of the northern spotted owl.

The BLM is beginning another revision of their resource management plans(BLM 2012), in part because of new science related to forest resiliency that has been applied in the northern spotted owl Revised Recovery Plan. BLM announced their notice of intent to develop an Environmental Impact Statement on March 9, 2012 (77 Fed. Reg. 14414), with scoping concluding on June 7, 2012. Though still in the very early stages of planning (that is, just concluding scoping) BLM has indicated a shift towards use of ecological forestry actions to further northern spotted owl conservation. While this action may likely benefit northern spotted owls, the extent and degree to which their resource management plans direct the implementation of these actions, and potentially other recommendations from the Revised Recovery Plan, is not reasonably foreseeable. As details of these actions develop, they will be subject to NEPA analysis, as will the individual projects implemented under these revised resource management plans; more specifics will be available in those analyses to more accurately determine effects.

While the Forest Service still continues to operate under the NWFP within the range of the northern spotted owl, the Okanogan-Wenatchee National Forest is undergoing a revision of their land use management plan. This forest covers over 4 million ac in the eastern Washington Cascades, and most of it overlays the range of the northern spotted owl. The forest has a proposed action (USFS 2011) and is in the process of developing their draft Environmental Impact Statement, which is due out the first half of 2013. Key features of their proposed action relevant to spotted owl critical habitat are:

(1) A shift in focus from commodity production to ecosystem restoration.

(2) Addressing spotted owl recovery and better integrating habitat conservation with disturbance processes, climate change, and barred owl establishment by moving from smaller scale analyses and projects to incorporating a landscape-scale approach. The forest proposes managing habitat across the landscape, rather than limited to reserve areas, in configurations that are most likely to be, “sustainable, appropriately connected, and most resilient to changing climatic conditions.” (USFS 2011, p. 39).

(3) Managing for spotted owl habitat, at the forest-wide scale, on 30 to 75 percent of the habitat capable lands, depending on forest type. Seventy-five percent of the habitat would be within a 1.8 mile radius of a northern spotted owl activity center.

The Forest's proposed action, as described above, mirrors recommendations from the Revised Recovery Plan for northern spotted owl conservation in dry-forest ecosystems and may provide additional conservation benefit to northern spotted owls. However, the forest is still developing their draft Environmental Impact Statement and it remains to be seen whether and to what degree these features are included in the final management plan. As details of these actions develop, they will be subject to NEPA analysis, as will the individual projects implemented under the revised forest plan; more specifics will be available in these analyses to more accurately determine effects.

Critical habitat designated for the marbled murrelet, is currently under litigation. On Jan. 25, 2012, plaintiffs American Forest Resource Council, Carpenters Industrial Council, and Douglas County, Oregon, filed suit in Federal district court, in part, challenging the rule designating marbled murrelet critical habitat. *American Forest Resource Council v. Ashe*, Civil No. 12-111-JDB (D.D.C.). On Aug. 20, 2011, the Service and the plaintiffs filed a joint motion for entry of a consent decree under which the Court would remand the murrelet critical rule to the Service for reconsideration, and the rule would be vacated pending completion of the remand. As of this writing, the Court has not ruled on this motion. Should the motion be granted, this would result in the removal of critical habitat for the marbled murrelet on the landscape until the Service completes a revision of the rule. Effects of such an action would be a reduction in murrelet habitat protection by removing the requirement for Federal agencies to not destroy or adversely modify critical habitat. Protection for most of the critical habitat PCEs for nesting spotted owl habitat under all action alternatives (e.g., moderate to high canopy closure; multi-layered, multi-species canopy with large overstory trees; and a high incidence of large trees with various deformities) through avoiding their destruction or adverse modification may provide structural features that also meet the nesting structure needs of marbled murrelets. Thus, critical habitat designation for the northern spotted owl may provide some ancillary benefits to marbled murrelets. However, in some parts of the spotted owl range, PCEs that provide for foraging in the form of dense shrub and hardwood openings, or low density patches of forest, particularly in the Klamath, Northern California Interior Coast Ranges, and Redwood Coast Critical Habitat Units, may not provide features beneficial to nesting murrelets. These vegetation pockets open up forest canopies and fragment the landscape for murrelets, inviting corvids (e.g., crows, ravens, and jays) and increasing the predation pressures on nesting murrelets, reducing the ability of this species to reproduce (Nelson *et al.* 2006). In these areas, protection of some spotted owl PCEs through the avoidance of adverse modification may not provide the habitat attributes needed by nesting marbled murrelets. Should the motion for

remand of marbled murrelet critical habitat be granted, the protections of marbled murrelet critical habitat would not be in place in these areas. However, where spotted owl critical habitat overlaps murrelet critical habitat, it may provide incidental protections to habitat attributes necessary for nesting marbled murrelets through the avoidance of destruction or adverse modification of spotted owl PCEs that also support nesting murrelets.

The current designation of spotted owl critical habitat overlaps 1,735,900 ac of marbled murrelet critical habitat. All Action Alternatives result in an increase in overlap of marbled murrelet habitat compared to the No Action Alternative, ranging from a minimum of approximately 2.1 million ac of overlap for Alternative E, to a maximum of approximately 2.5 million ac for Alternative B. Thus, even if the vacature of marbled murrelet critical habitat occured, compared to the No Action Alternative, all action alternatives provide an increase in the area of incidental protections that may be afforded to marbled murrelets through the avoidance of destruction or adverse modification of critical habitat for spotted owls, and would generally benefit murrelets. Even in those areas outside of critical habitat, the marbled murrelet would continue to be protected under section 7 (Federal actions must avoid jeopardizing the species) and section 9 (prohibition of take of the species without a permit) of the ESA. That is, habitat that is currently occupied will be protected through the consultation process and jeopardy analysis for actions with a Federal nexus (section 7 of the ESA), and the ESA section 9 prohibitions against "take" and the incidental-take-permitting process will also protect both occupied and unoccupied habitat.

The Mendocino Redwood Company is currently negotiating a Habitat Conservation Plan (HCP) with the Service, which covers over approximately 234,100 ac in California. Approximately 232,600 ac of this landownership is considered essential habitat for the northern spotted owl and subject to designation as critical habitat, but would be excluded under Alternatives E and F. Currently conservation and protection measures for the northern spotted owl exist in the company's Spotted Owl Resource Plan/Management Plan (SORP) (Appendix D). The SORP is intended to serve as a bridge document to reduce resource impacts to both the northern spotted owl and its habitat until the completion of the HCP. As such, ensuing conservation benefits to the northern spotted owl once the HCP is finalized should be similar to those benefits occurring under the existing SORP.

The Service is currently preparing an Environmental Impact Statement (EIS) that will serve as the basis for a decision on whether to move forward with a study on the experimental removal of barred owls. This potential action stems from the recommendation of the Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011), and is separate from the process of designating revised critical habitat. Barred owls are an identified threat to spotted owls, and their effect on spotted owl populations were considered as part of the modeling of spotted owl

population performance. Modeling outputs indicated the need for conservation of increased amounts of suitable habitat as probabilities for barred owl encounters increased (Dunk *et al.* 2012). Thus, designating additional critical habitat that is distributed across the range of the northern spotted owl may increase the likelihood of management actions being taken that will enable spotted owls to persist in areas where barred owls are also present. As such, we have used the best available science regarding barred owl effects on spotted owls in developing our Proposed Action and alternatives. In contrast, results of any experimental removal study done under the barred owl EIS (presuming an action alternative is chosen) are from 4 to 10 years out, and do not apply to our current decision regarding critical habitat designation.

Within the range of the northern spotted owl, the west coast distinct population segment (DPS) of the fisher (*Martes pennanti*) is a terrestrial forest species currently on the candidate list. It is currently being evaluated for listing under the ESA; a decision on whether to list the fisher and designate its critical habitat will be put forth by September 30, 2014. The fisher has habitat requirements that closely correspond with the northern spotted owl. Fishers use the same or similar features as the PCEs identified for the spotted owl (e.g., moderate to dense forest canopy; complex forest structure; large, deformed or deteriorating trees and logs; cavities in large trees) (Lofroth *et al*. 2010). Designation of critical habitat for the fisher could occur on lands outside of any potential critical habitat designation for the spotted owl, adding critical habitat designation to habitat similar to the spotted owl. However, this analysis is ongoing and we cannot reasonably predict whether the fisher and its associated critical habitat will ultimately be protected under the ESA. Hence, predicting specific cumulative effects of a potential designation without knowing how much and where is speculative and not reasonably foreseeable.

4.0 COUNCIL ON ENVIRONMENTAL QUALITY ANALYSIS OF SIGNIFICANCE

The primary purpose of preparing an environmental assessment under NEPA is to determine whether an action would have significant impacts on the human environment. If significant impacts may result from an action, then an environmental impact statement is required (40 CFR 1502.3). Whether an action exceeds a threshold of significance is determined by analyzing the context and the intensity of the action (40 CFR 1508.27). Context refers to the setting of the action and potential impacts of that action. The context of a significance determination may be society as a whole (human, national), the affected region, the affected interests, or the locality. Intensity refers to the severity of the impacts.

We considered the direct, indirect and cumulative effects of multiple alternatives for revising critical habitat for the northern spotted owl on land-use management, spotted owls, listed species, barred owls, and on linear road maintenance/repair and energy transmission projects. We have also considered public comments received during the comment period, none of which provided additional information that either changed the outcome of our analysis or required a finding that our action would have significant impact. The following analysis of significance is focused on Alternative F - our preferred alternative; this alternative is what we have determined best meets our purpose and need, is consistent with our authorities and generally responds to public comments received.

4.1 Context

The range of the northern spotted owl within the United States encompasses approximately 57 million acres, of which 24.3 million acres (43 percent) is Federal land, and 32.7 million acres are non-Federal land (FEMAT 1993). Under the No Action Alternative, the current designation of critical habitat for the northern spotted owl includes 29 critical habitat units located across California, Oregon, and Washington. A total of approximately 5,312,300 ac are currently designated as critical habitat under the no action alternative, with units located only on Forest Service and BLM land. With Alternative F, our preferred alternative, the designation of critical habitat for the northern spotted owl would include 11 critical habitat units, divided into 60 subunits located in California, Oregon, and Washington. A total of 9,578,000 ac would be designated under this alternative. This alternative adjusts critical habitat to better incorporate habitat essential for the northern spotted owl while reducing potential land-use conflict in order to better meet our purpose and need. We have also excluded from designation lands for which the benefits of exclusion outweigh the benefits of inclusion and which would not result in extinction of the species (lands with HCPs or SHAs, all private lands, Congressionally Reserved Areas, and State Parks).

For purposes of NEPA, the direct effect of critical habitat designation is to identify areas that meet the definition of critical habitat, which has no effect on environmental conditions on the ground. Any other impacts from the designation would be indirect. In this case, the primary indirect effect is to require federal agencies to consult under section 7 of the ESA on actions they authorize, fund, or carry out to ensure that they are not likely to destroy or adversely modify critical habitat. The potential future indirect impacts to the environment caused by the application of section 7 are not reasonably foreseeable at this time because we do not know: (1) what actions other federal agencies, in accordance with their own missions and statutory and regulatory authorities, will request to consult on; (2) how those actions may be modified as

a result of section 7 consultation, if at all; or (3) how or whether the agencies might modify their management proactively to avoid destroying or adversely modifying critical habitat.

Non-federal lands may be indirectly affected by the requirements of section 7 only if a Federal nexus exists—that is, the action either requires a Federal permit or other Federal approval, or receives Federal funding (see section 1.4.3 Regulatory Mechanisms Associated with Critical Habitat). Where there is a Federal nexus, the Federal agency (and non-Federal project proponent if they seek applicant status) may need to consult with the Service under section 7 of the ESA, and must ensure that the project will avoids "destruction or adverse modification" of critical habitat. There is a low likelihood of there being a Federal nexus on many of these lands (IEc 2012, see also Appendix D of this document), and the results of any such consultations are speculative because we do not know where, when or what action might be proposed. While we acknowledge the possibility in this environmental assessment that there could be other indirect effects to non-Federal lands, these effects are also speculative.

As described in Section 3.1, the types, locations, and magnitudes of actions landowners may take in response to designation of critical habitat are not reasonably foreseeable, and the combined effects of those actions on the environment cannot be predicted. For Federal lands, we describe a possible range of actions that agencies might take to avoid destruction or adverse modification of critical habitat in those land allocations programmed for timber harvest. However, we note that specific project modifications, if any, would be at the discretion of the agency, consistent with their land-use plans and statutory authorities, and that determining specific modifications and their degree of implementation is speculative and not reasonably foreseeable. Similarly, on non-federal lands, we concluded that responses to critical habitat designation are also not reasonably foreseeable and the effects of those actions on the environment cannot be predicted. We conclude this because we cannot reasonably foresee where and how many projects may occur on these non-federal lands, whether these projects would involve a federal action and thus be subject to ESA section 7, the degree to which projects would be modified to reduce effects on critical habitat, the degree to which other regulatory entities may take some action, or the degree to which market and other economic forces may push or stall the demand for timber products. However, State lands that would be designated as critical habitat under Alternative F are unlikely to be affected based on interviews with State managers who concluded that they do not anticipate revising their current management as a result of designating critical habitat (IEc 2012). The County and Municipal lands designated as critical habitat under Alternative F are also unlikely to be affected as their management objectives to not typically involve commercial timber harvest or substantial habitat modification.

We note that the primary indirect effect of critical habitat designation is to require federal agencies to consult under section 7 of the ESA on actions they authorize, fund, or carry out to ensure that they are not likely to destroy or adversely modify critical habitat. We have also described how the indirect impacts caused by the application of section 7 are not reasonably foreseeable. Although we cannot reasonably foresee the effects of section 7 application, past history indicates that few projects actually result in adverse modification to critical habitat. Particularly in areas considered occupied by northern spotted owls, conservation measures may already be in place as a result of the species' listed status. Furthermore, a determination that a project is likely to "destroy or adversely modify" critical habitat is made based on the effects to the designation as a whole. In other words, for a proposed action to result in a finding of adverse modification of critical habitat, it would have to appreciably reduce the conservation value of spotted owl critical habitat to such an extent that it would affect the ability of critical habitat network to serve its intended recovery role. Thus the project would likely have to alter large areas of critical habitat or restrict spotted owl connectivity through such areas. In 20 years of conducting consultations on northern spotted owl critical habitat, we have never made an adverse modification determination. Furthermore, an analysis of over 4,000 biological opinions done for listed fish species nationwide between 2005 and 2009 indicated only 2 percent resulted in adverse modification determinations, and none of these opinions resulted in an adverse modification without also resulting in a determination that the project jeopardized the species (Owen 2012). This indicates the rarity of adverse modification determinations in biological opinions. This potential for an adverse modification determination is further reduced on non-federal lands considering that these lands would only be subject to ESA section 7 if their action has a Federal nexus, which is an uncommon occurrence (Appendix D).

The focus of this environmental assessment is to determine whether preparation of an EIS is necessary. The CEQ regulations state that, "economic or social effects are not intended by themselves to require preparation of an environmental impact statement" (40 C.F.R. 1508.14). Although an economic analysis of the proposed revised critical habitat designation for the northern spotted owl was completed (IEc 2012) (see section 3.4.1 Social and Economic Conditions), we have not undertaken a further analysis of those effects here. Considering the context, we find that the impacts of additional critical habitat designation under Alternative F are not anticipated to be significant.

4.2 Intensity

Intensity, as defined by CEQ, refers to the severity of impact. The following 10 points identified by CEQ were considered in evaluating intensity:

4.2.1 Impacts that may be both beneficial and adverse.

In considering the intensity of impacts, CEQ regulations require considering impacts that may be both beneficial and adverse. "A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial." 40 C.F.R. 1508.27(b)(1). Designation of critical habitat for the northern spotted owl under Alternative F may provide multiple benefits to spotted owls and to other listed species, as analyzed earlier in this document. Designation of critical habitat for the northern spotted owl would protect from adverse modification by federal actions those PCEs that are beneficial to spotted owls as well as those other listed species that require or are associated with similar habitat components. Avoiding adverse modification of critical habitat may indirectly benefit these other listed species, but the impacts are not likely to be significant since these listed species are already subject to ESA protections. Furthermore, the specific effects are not reasonably foreseeable for the reasons described above in "Context".

For early seral species that require open areas (e.g. meadows, coastal headlands, serpentine soils), effects of designation are likely be neutral (i.e. not significant) as these specific habitats located within mapped critical habitat units are not considered critical habitat and may thus be retained for these early seral species.

In the case of marbled murrelets, which require highly intact forest stands for nesting, avoiding adverse modification of spotted owl critical habitat may benefit marbled murrelets overall, although PCEs for spotted owl critical habitat in the Klamath, Northern California Interior Coast Range, and Redwood Coast Critical Habitat Units (i.e. younger or more open stands for foraging habitat) may not be conducive to nesting murrelets. Much of this area is outside the range of murrelets, but in those areas of overlap, protection of these spotted owl PCEs from adverse modification may not necessarily protect some of the habitat attributes required by nesting marbled murrelets in those areas. However, because of the existing ESA protections resulting from the murrelet's listed status, we conclude that the effects of avoiding adverse modification of spotted owl critical habitat on the marbled murrelet will not be significant but would be generally beneficial or neutral; however specific effects are not reasonably foreseeable for the reasons described above

4.2.2. Public health and safety.

This designation will not have a significant impact on human health or safety. Concern was raised during the public comment period that designation of critical habitat would increase the

risk of catastrophic wildfire. This is not a significant risk for two reasons. First, the designation of critical habitat does not mandate or prohibit any particular type of land management. Land managers will continue to manage their lands pursuant to their normal authorities, except that federal actions may not violate section 7 of the Act. Secondly, during emergency wildfire activities, Service and Department policy states that emergency Section 7 consultation efforts must not delay or obstruct fire suppression efforts (Fish and Wildlife Service Policy Memorandum, September 21, 1995; Department of Interior Memorandum, August 20, 2001). In other words, where fires are threatening human life or property, Section 7 efforts must not prevent or delay these suppression efforts. Therefore, we foresee no potential for there to be a significant effect on public health and safety as a result of critical habitat designation.

4.2.3. Unique characteristics of the geographic area.

"Unique characteristics" are generally limited to those that have been identified through the land use planning process or other legislative, regulatory, or planning process. Examples of such areas include: 1) prime and unique farmlands as defined by 7 CFR 657.5; 2) caves designated under 43 CFR 37; 3) wild and scenic rivers, both designated and suitable; 4) designated wilderness areas and wilderness study areas; and 5) areas of critical environmental concern designated under 43 CFR 1610.7-2. Although areas proposed as critical habitat may be in proximity to or overlap these areas, no adverse impacts will occur because designation of critical habitat involves no ground-disturbing activities. In general, these unique areas either do not have PCEs consistent with spotted owl critical habitat (e.g. farmlands or caves), or management of these areas is already generally consistent with management necessary to conserve spotted owl habitat.

4.2.4. Highly Controversial Impacts.

We are required to consider the degree to which impacts of the action are likely to be highly controversial (40 CFR 1508.27(b)(4)). Controversy in this context means disagreement about the nature of the impacts to the environment, not expressions of opposition to the proposed action or preference among the alternatives. Hence, we must focus our analysis on the impacts of critical habitat designation on the environment. Disagreement over land-use or management per se (e.g., how designation might alter the management choices landowners ultimately make) does not equate to controversial or significant impacts to the environment. The revision of spotted owl critical habitat will not cause significant impacts to the human environment either directly or indirectly. As described elsewhere in this document (See Section 1.4.3 Regulatory Mechanisms associated with Critical Habitat), designation of critical habitat is

not a ground disturbing action and does not alter environmental conditions on the ground. The designation of critical habitat does not directly or indirectly change or condition land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. It does not allow government or public access to non-Federal lands. It does not impose broad rules or restrictions on land use, nor does it prohibit any land-use activity. The primary indirect effect of designation is to require Federal agencies to consult under section 7 of the ESA on actions they authorize, fund, or carry out to ensure their actions do not destroy or adversely modify critical habitat. In the event an action may destroy or adversely modify critical habitat, any reasonable and prudent alternative suggested by the Service must be able to be implemented in a manner consistent with the intended purpose of the action and the scope of the action agency's legal authority and jurisdiction, and be economically and technologically feasible. As such, the designation of critical habitat does not change the environmental status quo and, as a result, does not result in significant or highly controversial impacts to the environment.

Public commenters and peer reviewers were divided on the ecological effects of active forest management and forest restoration as described in the proposed revised rule. Much of the concern from those opposed to active management within critical habitat units derived from a false assumption that critical habitat designation would require these activities and would allow or encourage activities inconsistent with the objectives and standards and guidelines of the late-successional reserves of the NWFP. We did not propose any change to the NWFP in the proposed rule, nor does the Service have the authority to change the land management plans of other agencies. We have clarified this in the final rule, stating that actions within critical habitat would also need to be consistent with the objectives and standards and guidelines of all relevant agency management plans. In addition, although the proposed critical habitat rule refers to the active management recommendations of the Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011), the critical habitat rule itself does not mandate or require any specific type of management by any agency or entity. It discusses the concept of active forest management only for future consideration by land managers as they make their own land management decisions. Finally, because all federal activities in designated critical habitat, regardless of objective, must avoid its destruction or adverse modification, the discussion of active forest management and restoration does not override the necessity to meet section 7(a)(2) requirements of the ESA. The only statutory requirement resulting from the designation of critical habitat is that Federal agencies ensure that their actions are not likely to result in the "destruction or adverse modification" of critical habitat, as that term is used in its statutory context, after consultation with the Service. Based on these clarifications regarding the discussion of active forest management in the preamble to the rule, we do not consider the impacts of the rule to be significant or highly controversial for this reason.

4.2.5. Uncertain, unique, or unknown risks.

The Service has designated critical habitat for over 600 species listed under the ESA on a variety of Federal and non-Federal land ownerships. Furthermore, critical habitat has been designated for the northern spotted owl since 1992. Designation of critical habitat under Alternative F (Preferred Alternative) would differ from past designations because non-Federal lands would be included. However, the only foreseeable effect of designation of critical habitat is that federal agencies must avoid destroying or adversely modifying it as required by section 7 of the ESA. In that sense, the designation of critical habitat simply preserves the environmental status quo. There are no known effects of critical habitat designation that are considered uncertain or involve unique or unknown risks.

4.2.6. Precedent-setting aspects.

The designation of additional critical habitat by the Service for the conservation of threatened species is not a precedent-setting action with significant effects. The Service has designated critical habitat for over 600 species listed under the ESA on a variety of Federal and non-Federal land ownerships. Critical habitat designations have far exceeded that proposed for the spotted owl in terms of acreage. For example, designation of critical habitat for the Canada lynx (*Lynx canadensis*) (74 FR 8616, February 25, 2009) exceeded 24.9 million acres across six states. Designation of private land under that rule exceeded 7.5 million acres of private land (over 5.5 million acres in the State of Maine alone) and 2.1 million acres of State land (including 1.4 million acres of State lands in Minnesota). Thus, the scale of designation of critical habitat for the northern spotted owl does not exceed what has been designated historically for other species and does not establish a precedent for future actions with significant impacts.

4.2.7. Cumulative effects.

We have analyzed cumulative impacts by combining the impacts of the Selected Alternative with other past, present, and reasonably foreseeable future actions conducted by the Service and others within the critical habitat. Other activities considered included activities related to implementation of the Revised Recovery Plan for the Northern Spotted Owl, revision of natural resource and land use management plans for certain Federal lands, the ongoing negotiation of an HCP with a large private landowner, possible implementation of a Service led barred owl experimental removal program, the current lawsuit over marbled murrelet critical habitat and its possible vacature, and potential new ESA listings of species with habitats similar to designated spotted owl critical habitat. As described in the cumulative effects section, we do

not foresee any significant effects of this action when combined with effects of past, present, and reasonably foreseeable future actions.

During the public comment period, we received a comment stating that the barred owl NEPA analysis is being improperly segmented from the critical habitat NEPA analysis and that a single EIS should be done to address the entire proposal. We do not believe this is inappropriate segmentation because the decision to be made as part of the barred owl EIS is what experimental research, if any, may be done to test the effectiveness and feasibility of barred owl removal; this is not a decision about how to manage barred owls, but an information gathering decision to understand effects of specific removal experiments. Experiments may last from 4 to 10 years. Assuming an action alternative is selected in the current barred owl EIS, a separate NEPA analysis would follow the experimental results using that information to decide whether or how to manage barred owls to reduce their effects on northern spotted owls. Effects of critical habitat designation are not dependent on which alternative is chosen in the current barred owl EIS. Likewise, the selection of an alternative in the current barred owl EIS is not dependent on where critical habitat is designated. Thus, these actions are not connected actions requiring a single EIS. However, if, through experimental removal studies or otherwise, we learn how to manage barred owls for the benefit of spotted owls, and if such management efforts are undertaken and result in a reduction in the amount of habitat essential to the conservation of the northern spotted owl, the Service may at that point consider revising critical habitat.

4.2.8. Effects on eligibility for listing in the National Register of Historic Places.

This designation will have no impact on National Register of Historic Places or other cultural sites because it is not a ground-disturbing action. Nor will it affect the eligibility of sites to be listed in this register because such listings are not expected to affect critical habitat.

4.2.9. Endangered species effects.

In general, there will be little or no impact to threatened or endangered species except for the northern spotted owl, for which effects should be beneficial because the rule will implement consultation on federal actions to ensure they are not likely to destroy or adversely modify critical habitat . There are 28 other federally listed threatened and endangered wildlife and plant species that may be found in spotted owl critical habitat and 17 of these species have their own designated critical habitat found within the range of the northern spotted owl. Depending on the degree of overlap, some of these species may benefit from the application of

the prohibition on adverse modification of northern spotted owl critical habitat. However, because each of these species is already subject to ESA protections, these benefits are not likely to be significant. Furthermore, most of these 28 species are infrequent or less frequent users of habitat conducive to northern spotted owls and thus any impacts are likely to be insignificant. Even where the habitat requirements for a species may differ from the spotted owl, the fact that each species has its own section 7 and 9 protections will render any potential negative impacts insignificant. Furthermore, specific effects are not reasonably foreseeable for the reasons discussed above.

Marbled murrelets are the only listed species closely associated with the late-successional forests that northern spotted owls use, though they only use forested habitats for nesting, spending the rest of their time on the ocean. In most areas within the range of the murrelet, protecting the PCEs of northern spotted owl critical habitat through avoiding their destruction or adverse modification may also benefit murrelets. However, in some parts of the spotted owl range, PCEs that provide for foraging in the form of dense shrub and hardwood openings, or low density patches of forest may not be conducive to murrelet nesting habitat. These vegetation pockets open up forest canopies and fragment the landscape for murrelets, increasing the predation pressures on nesting murrelets and reducing their ability to reproduce (Nelson *et al.* 2006). In these areas of more open or lower density forests, protection of these spotted owl PCEs from adverse modification may not necessarily protect some of the habitat attributes required by nesting marbled murrelets. However, marbled murrelets are still afforded protections under the ESA, requiring Federal agencies to avoid jeopardizing the species under section 7; in addition, all project proponents, regardless of the presence of a Federal nexus, require permits for any action that may result in “take” of the species. Therefore, because these baseline protections are in place, any impacts from this designation are expected to be insignificant. Furthermore, the additional acreage of spotted owl critical habitat designation compared to the No Action Alternative may provide additional incidental protections for murrelet nesting features through the avoidance of adverse modification of spotted owl critical habitat. This would occur regardless of whether the marbled murrelet critical habitat rule is vacated.

Large carnivores may use spotted owl habitat for some of their life history needs, but require other habitats as well. Similarly, listed aquatic species may be found in water bodies associated with forested habitats, but may be found in other water bodies to varying degrees. For these two groups of species, critical habitat designation may provide some additional benefits, but they are not likely to be significant for the reasons discussed above, and specific effects are not reasonably foreseeable. Management of the PCEs for spotted owl habitat are generally not conducive to listed species of plants and butterflies, which are associated with more open meadows or woodlands, however, the rule states these habitats are not considered critical

habitat if found within a unit boundary. Thus, this critical habitat designation will have a neutral (i.e. insignificant) effect on these species, but specific effects are not reasonably foreseeable.

4.2.10 Violation of environmental protection laws.

This designation of critical habitat will not violate any Federal, State, or local laws or requirements imposed for the protection of the environment. Furthermore, this action, by its purpose and need, is designed to meet the mandates of the Endangered Species Act.

4.3 Summary of Significance Analysis

We have considered the direct, indirect, and cumulative effects of designating critical habitat for the northern spotted owl as described in Alternative F (Preferred Alternative) and have determined that this action will not have a significant effect on the human environment. We have also considered public comments received during the comment period. We describe the context and intensity of this action above and summarize here our reasoning for why implementation of Alternative F will not have a significant effect on the environment.

Designation of critical habitat is not a ground-disturbing action. The direct effect of designation is the identification of those areas on the landscape that meet the definition of critical habitat for the northern spotted owl, which has no effect on environmental conditions on the ground. All other effects that may occur as a result of this identification would occur later in time and would be indirect effects under NEPA. For this action, the primary indirect effect is to require Federal agencies to consult under section 7 of the ESA on actions they authorize, fund, or carry out to ensure that their actions are not likely to destroy or adversely modify critical habitat as those terms are used in section 7. In the event an action may "destroy or adversely modify" critical habitat, any reasonable and prudent alternatives suggested by the Service must be able to be implemented in a manner consistent with the intended purpose of the action and the scope of the action agency's legal authority and jurisdiction, and be economically and technologically feasible. In this sense, the designation of critical habitat does not change the environmental status quo; it only requires federal agencies to avoid adverse modification of the designated areas.

Even if some actions later in time may be considered indirect effects of this designation, we cannot assess them because they are not reasonably foreseeable. We do not know: (1) what actions other Federal agencies, in accordance with their own missions and statutory and

regulatory authorities will request to consult on; (2) how actions may be modified as a result of section 7 consultation, if at all; or (3) how or whether the agencies might modify their management proactively to avoid destroying or adversely modifying critical habitat. Similarly for non-Federal lands, we do not know: (1) what actions will be undertaken that would have a Federal nexus; (2) how or if they may modify their actions proactively to avoid destroying or adversely modifying critical habitat; or (3) how or whether State, County, or Municipal landowners will respond. Despite these uncertainties, State lands that would be designated as critical habitat under Alternative F are unlikely to be affected based on interviews with State managers who concluded that they do not anticipate revising their current management as a result of designating critical habitat (IEc 2012). The County and Municipal lands designated as critical habitat under Alternative F are also unlikely to be affected as their management objectives do not typically involve commercial timber harvest or substantial habitat modification. There will be no effects to private landowners as these lands have been excluded under Alternative F.

We have considered the context of designation as proposed under Alternative F (Preferred Alternative). We have considered the intensity of the effects of designation as proposed under Alternative F (Preferred Alternative). We have considered both beneficial and adverse effects of the action and determine they are not significant. The action will not significantly affect public health and safety, nor will there be a significant effect on unique characteristics in the area. We have determined that designation of critical habitat is not precedent-setting and would not result in uncertain, unique, or unknown risks and determined. We have considered the effects of past, present, and reasonably foreseeable future actions, in combination with our Preferred Alternative, and determined these cumulative impacts are not significant. Designation of critical habitat under the Preferred Alternative would not violate any environmental protection law as it is not a ground disturbing activity; nor would it affect the eligibility for listing sites in the National Register of Historic Places. Finally, we have considered effects to endangered species and found that designation of critical habitat under the Preferred Alternative would have a neutral or beneficial effect on listed species.

We also considered the degree to which impacts of the action may be highly controversial and found that they are not. We concluded that the designation of critical habitat is not a ground disturbing activity, does not change the environmental status quo and, as a result, does not result in significant or highly controversial impacts to the environment. We have also clarified the relationship of active forest management with critical habitat and with the NWFP to address misunderstandings brought forth in public comments; as a result of these clarifications, we do not consider the impacts to be significant or highly controversial.

For the above reasons, we conclude that the designation of critical habitat for the northern spotted owl as described in Alternative F (Preferred Alternative) of this Environmental Assessment would not have a significant impact on the human environment.

5.0 COMPLIANCE, CONSULTATION AND COORDINATION WITH OTHERS

5.1 Compliance with Other Laws and Regulations

The Proposed Rule for critical habitat designation describes numerous laws and policies that are considered during the rulemaking process (77 Fed. Reg. 14062, 14143-14147).

5.1.1 Permits Required for Implementation

The action of designating critical habitat does not require a permit. Designation of critical habitat occurs through a rule-making process under the Administrative Procedures Act and the Endangered Species Act.

5.2 Consultation and Coordination with Others

The designation of revised critical habitat for northern spotted owl has been coordinated with the States of California, Oregon, and Washington; Tribes; other Federal agencies (U.S. Forest Service, Bureau of Land Management, National Park Service, and Department of Defense); Congressionals in affected areas; all 60 counties within the range of the northern spotted owl; and other interested parties through letters, faxes, e-mails, telephone calls, meetings, and our website. The Service initiated tribal consultation on this project through a consultation letter sent to sovereign nations within the range of the northern spotted owl. We notified all potentially affected Counties and States and met with key stakeholders (environmental groups and timber industry representatives), representatives of all three states, County commissioners, and representatives from the Forest Service, BLM, and Department of Defense.

5.3 Environmental Justice

Federal agencies are required to "identify and address disproportionately high and adverse human health and environmental effects" of their programs and actions on minority populations and low-income populations, as directed by Executive Order 12398 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations). The areas under consideration for this assessment are rural. This assessment has not identified any adverse human health or environmental effects unique to minority or low-income human populations in the affected areas.

5.4 Public Review and Comments

The proposed rule revising designation of critical habitat for the northern spotted owl was published in the Federal Register March 8, 2012 with an initial 90-day comment period (77 Fed. Reg. 14062). The comment period was subsequently extended for another 30 days. The draft EA was announced in the Federal Register on June 1, 2012 (77 Fed. Reg. 32483) and made available to the public for a 30-day comment period. During that public comment period, we held seven public meetings (two in California, two in Washington, and three in Oregon) and one public hearing in Oregon. At all of these events we accepted public comment on the draft environmental assessment, as well as the proposed revised rule and the draft economic analysis. At the public meetings we presented information and answered questions from the public on the rule, the environmental assessment, and the economic analysis. Public comments received specific to this environmental assessment will be published in the final revised critical habitat rule. They are also included in this document (Appendix E).

The Service provided written and/or electronic notice of the availability of the draft environmental assessment, the proposed revised critical habitat rule, and the draft economic analysis to interested individuals including Native American Tribes, private landowners, County officials, congressional offices, State forest and wildlife agencies, Federal agencies (Forest Service, Bureau of Land Management, National Park Service, and Department of Defense),and other potentially interested parties. These documents were also posted on the Service's Oregon Fish and Wildlife Office website.

5.5 List of Contributors

The principal authors on this document are staff of the Oregon Fish and Wildlife Office, and staff from the Mountain Prairie Regional Office, U.S. Fish and Wildlife Service. Staff from the

Pacific Regional office of the U.S. Fish and Wildlife Service and from the Pacific Northwest Regional Office of the Department of the Interior Office of the Solicitor provided review and assistance.

FIGURE 1. ELEVEN REGIONS AND FOUR ZONES OF HABITAT ASSOCIATIONS OF NORTHERN SPOTTED OWLS IN WASHINGTON, OREGON, AND CALIFORNIA.

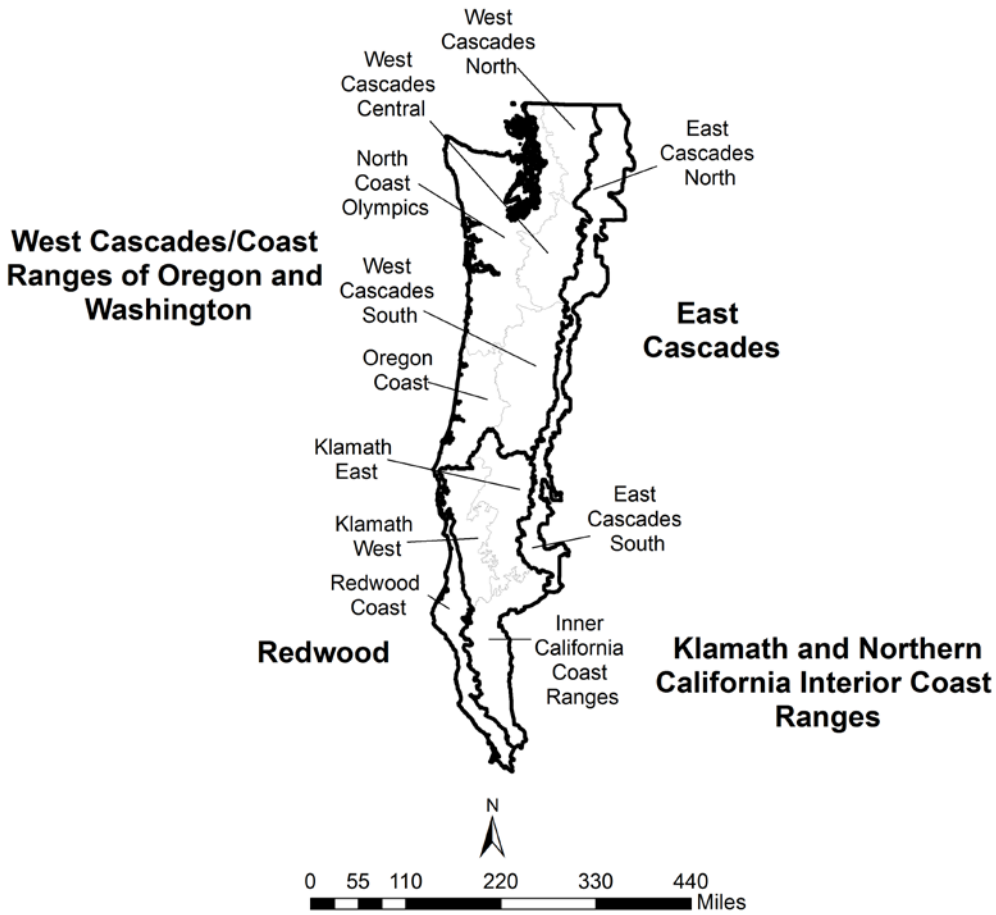


FIGURE 2. ALTERNATIVE A (NO ACTION) MAP OF CRITICAL HABITAT UNITS IN WASHINGTON (2008 CRITICAL HABITAT RULE).

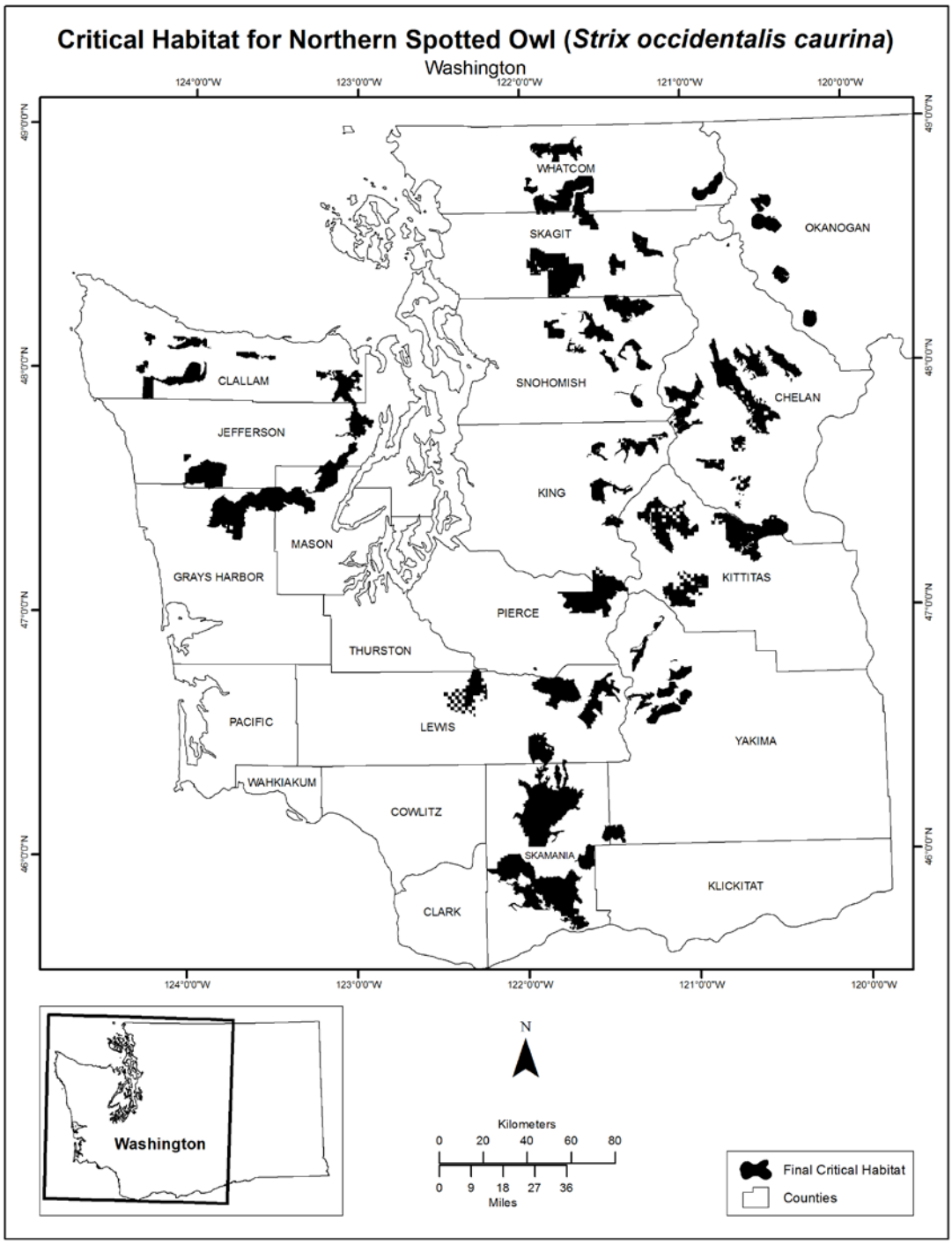


FIGURE 3. ALTERNATIVE A (NO ACTION) MAP OF CRITICAL HABITAT UNITS IN OREGON (2008 CRITICAL HABITAT RULE).

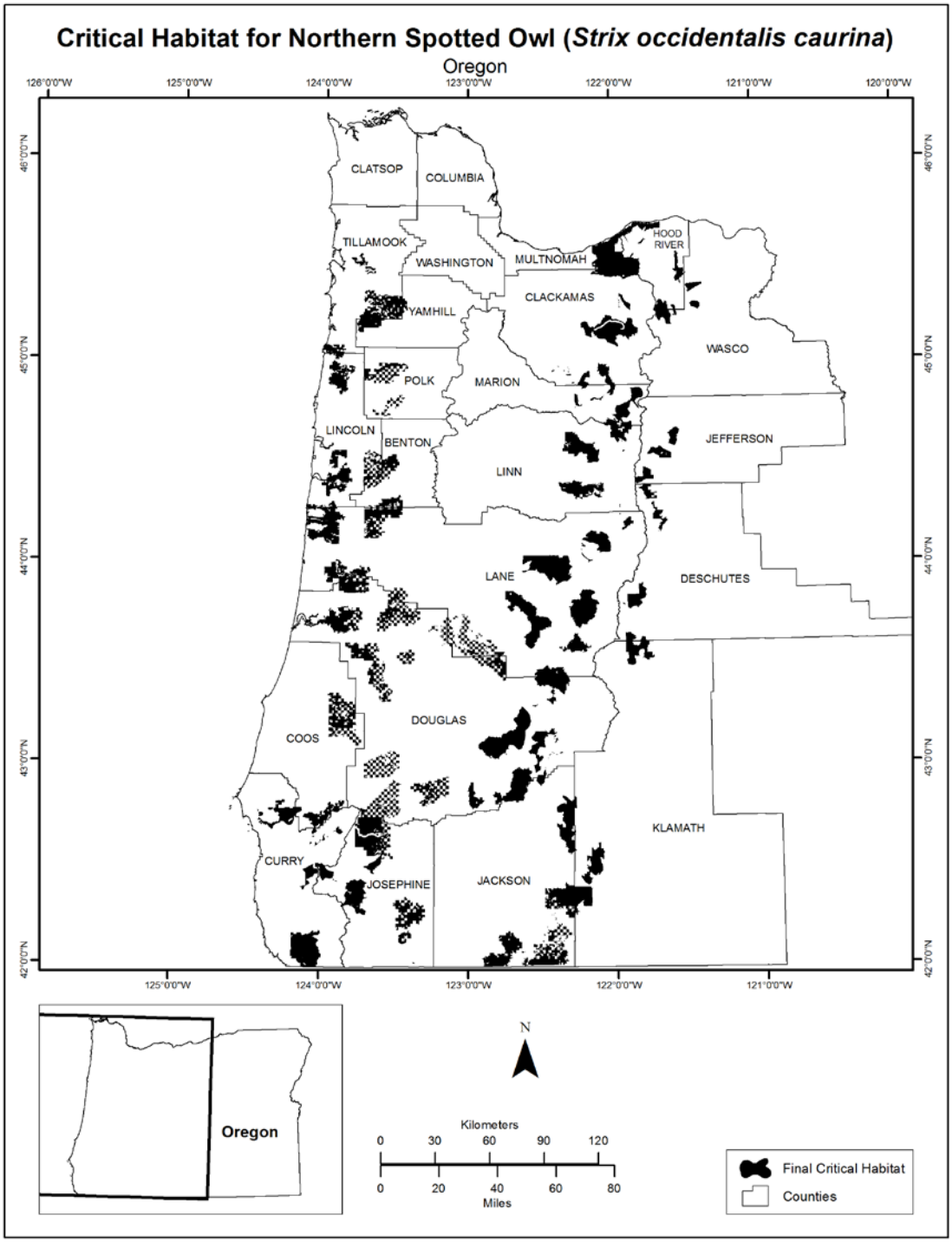


FIGURE 4. ALTERNATIVE A (NO ACTION) MAP OF CRITICAL HABITAT UNITS IN CALIFORNIA (2008 CRITICAL HABITAT RULE).

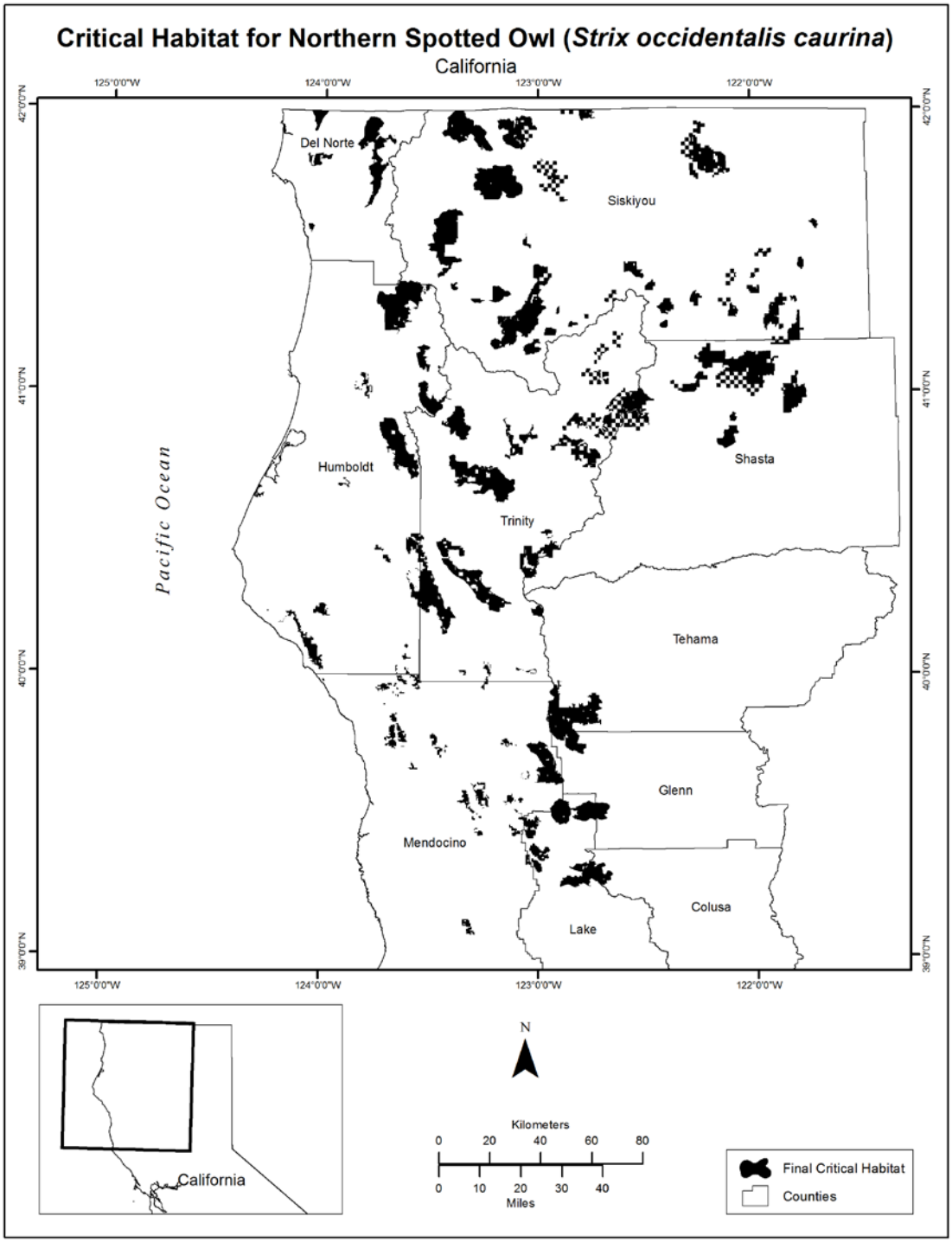


FIGURE 5. ALTERNATIVE B MAP OF CRITICAL HABITAT UNITS IN WASHINGTON (PROPOSED ACTION).

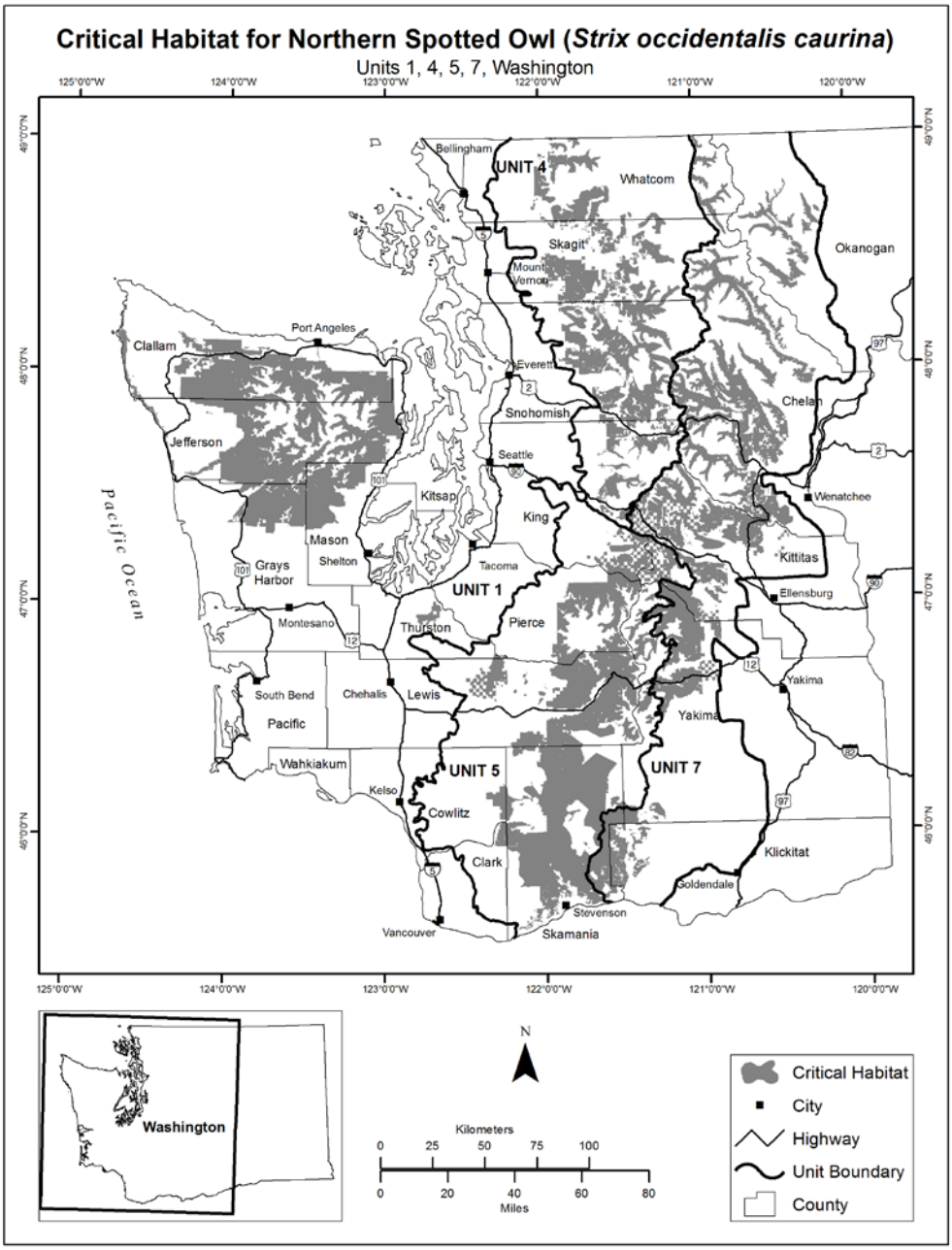


FIGURE 6. ALTERNATIVE B MAP OF CRITICAL HABITAT UNITS IN OREGON (PROPOSED ACTION).

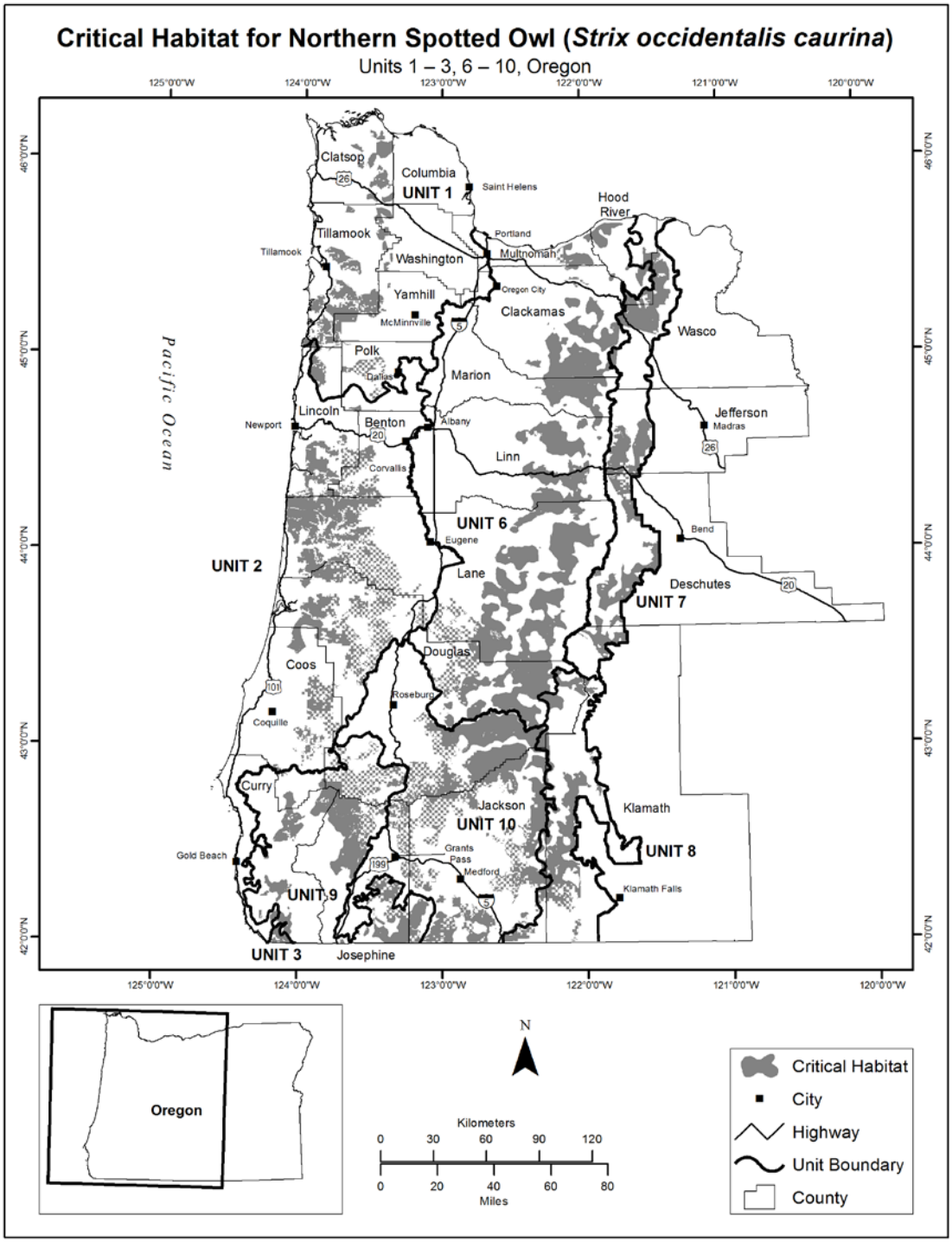


FIGURE 7. ALTERNATIVE B MAP OF CRITICAL HABITAT UNITS IN CALIFORNIA (PROPOSED ACTION).

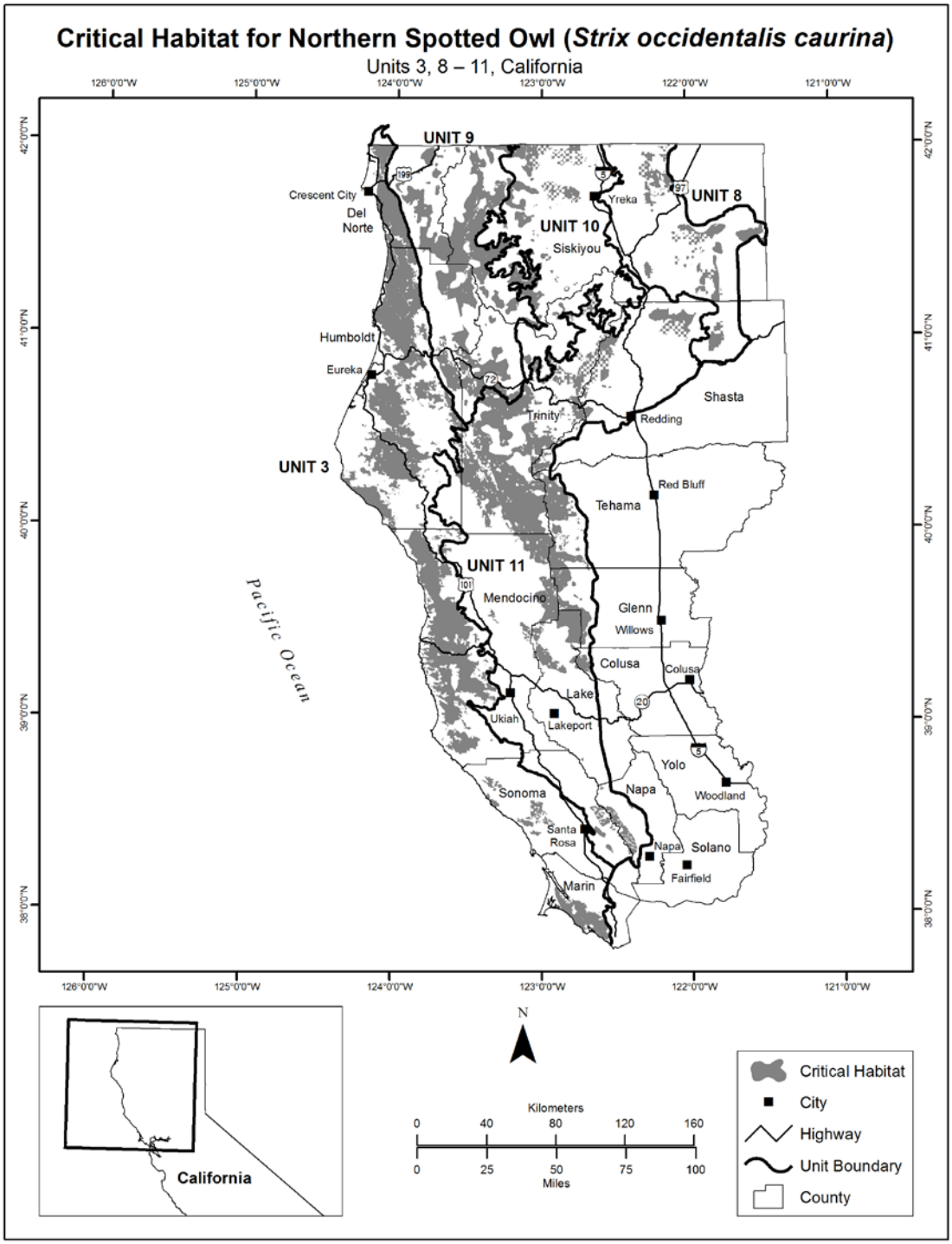


FIGURE 8. ALTERNATIVE C MAP OF CRITICAL HABITAT UNITS IN WASHINGTON.

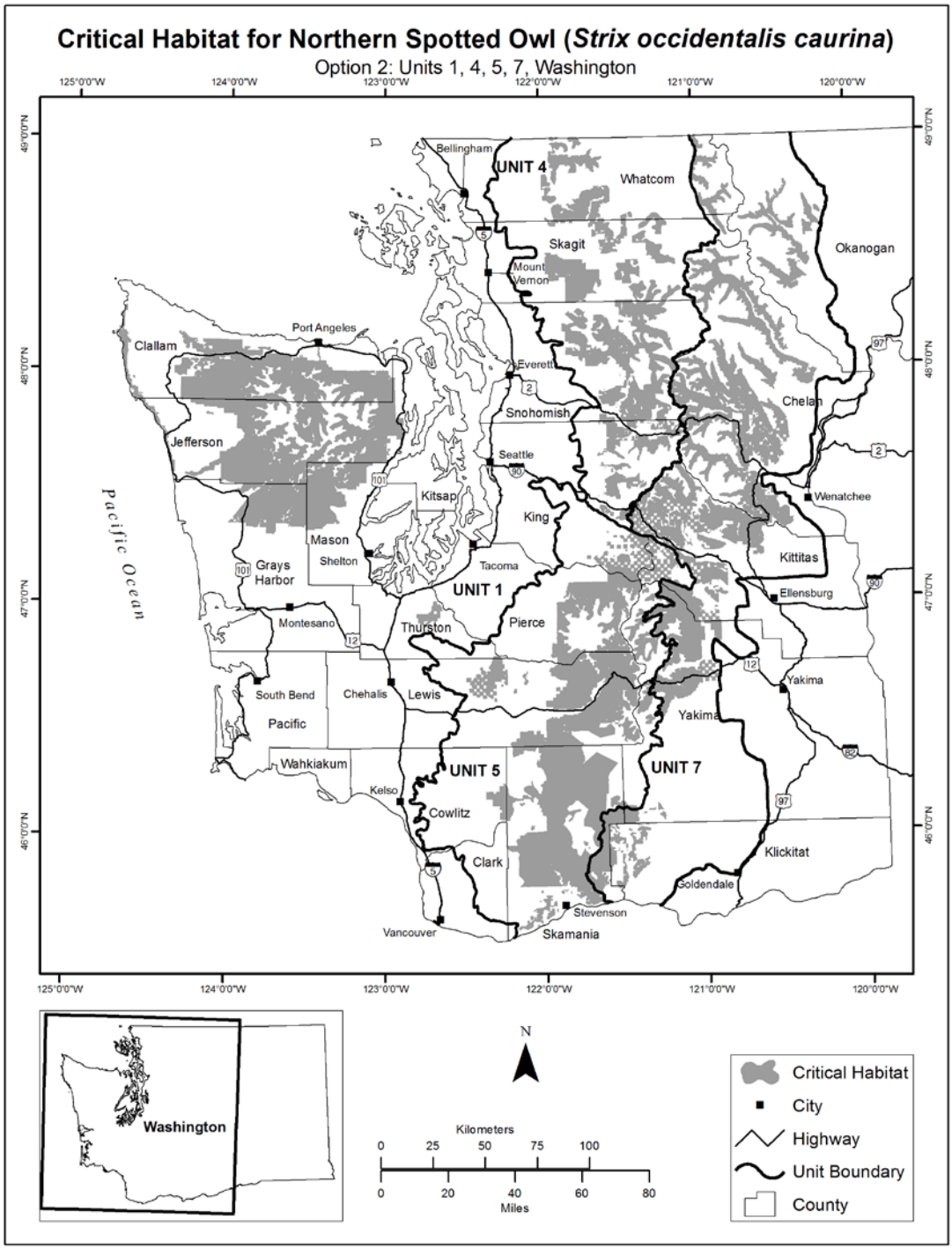


FIGURE 9. ALTERNATIVE C MAP OF CRITICAL HABITAT UNITS IN OREGON.

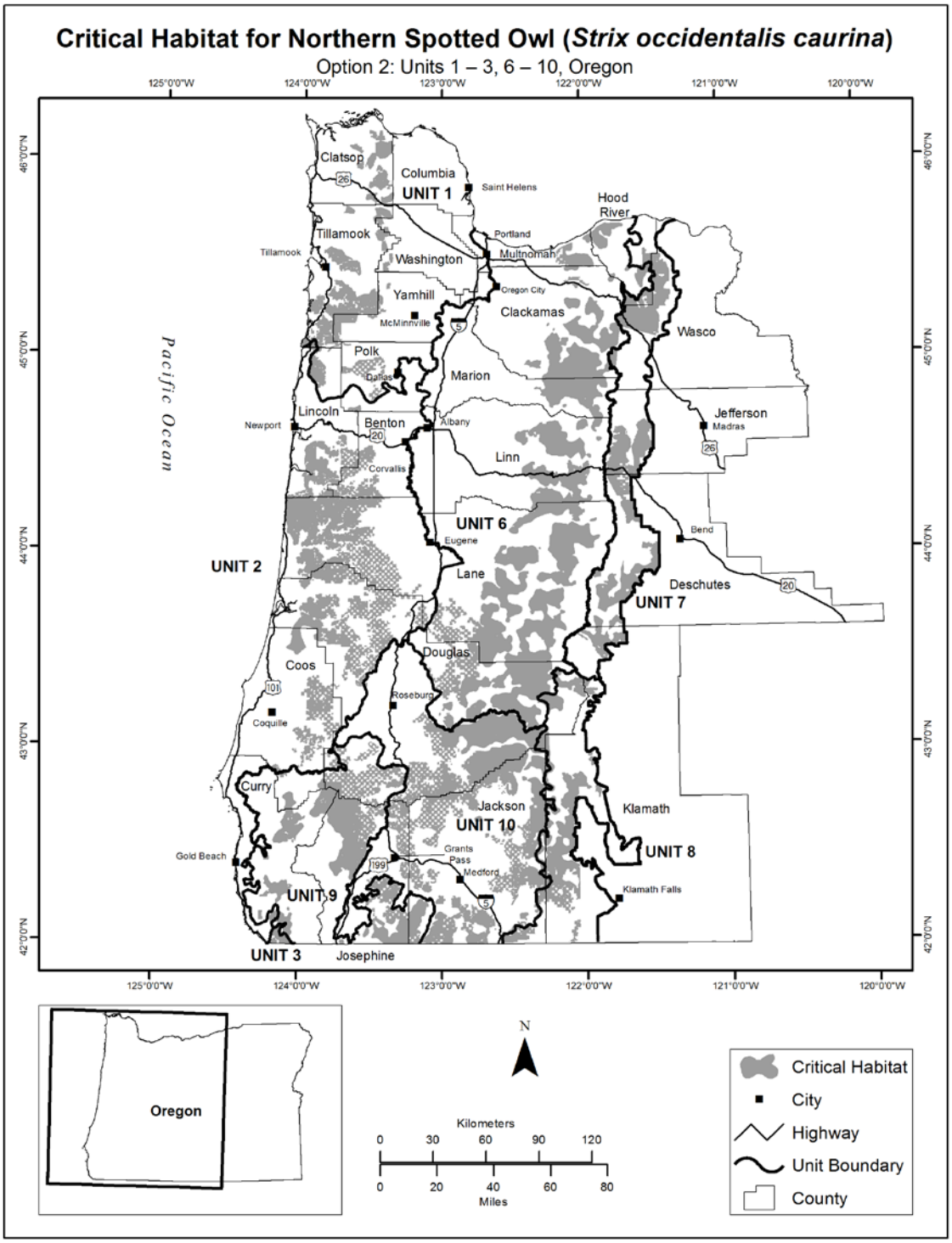


FIGURE 10. ALTERNATIVE C MAP OF CRITICAL HABITAT UNITS IN CALIFORNIA.

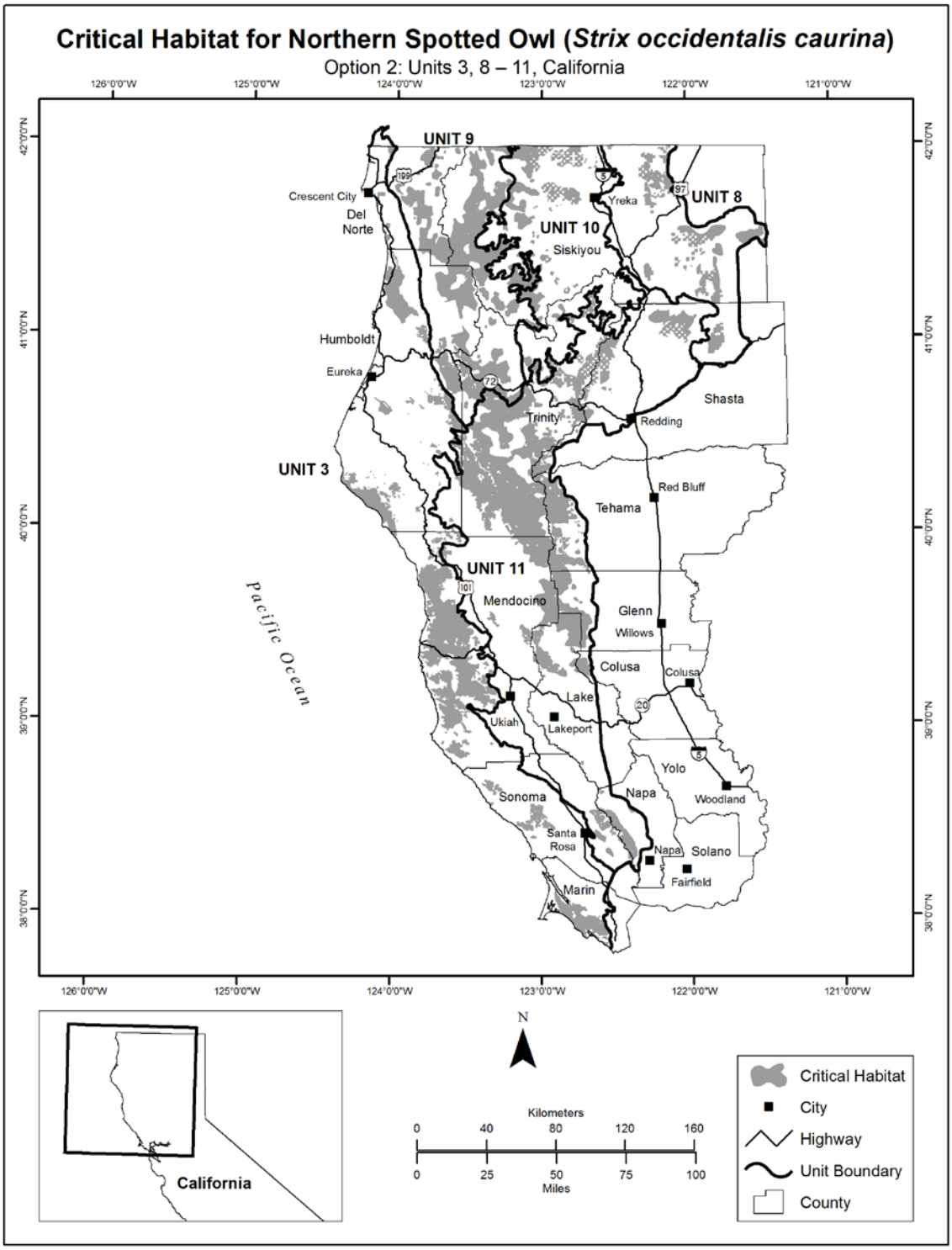


FIGURE 11. ALTERNATIVE D MAP OF CRITICAL HABITAT UNITS IN WASHINGTON.

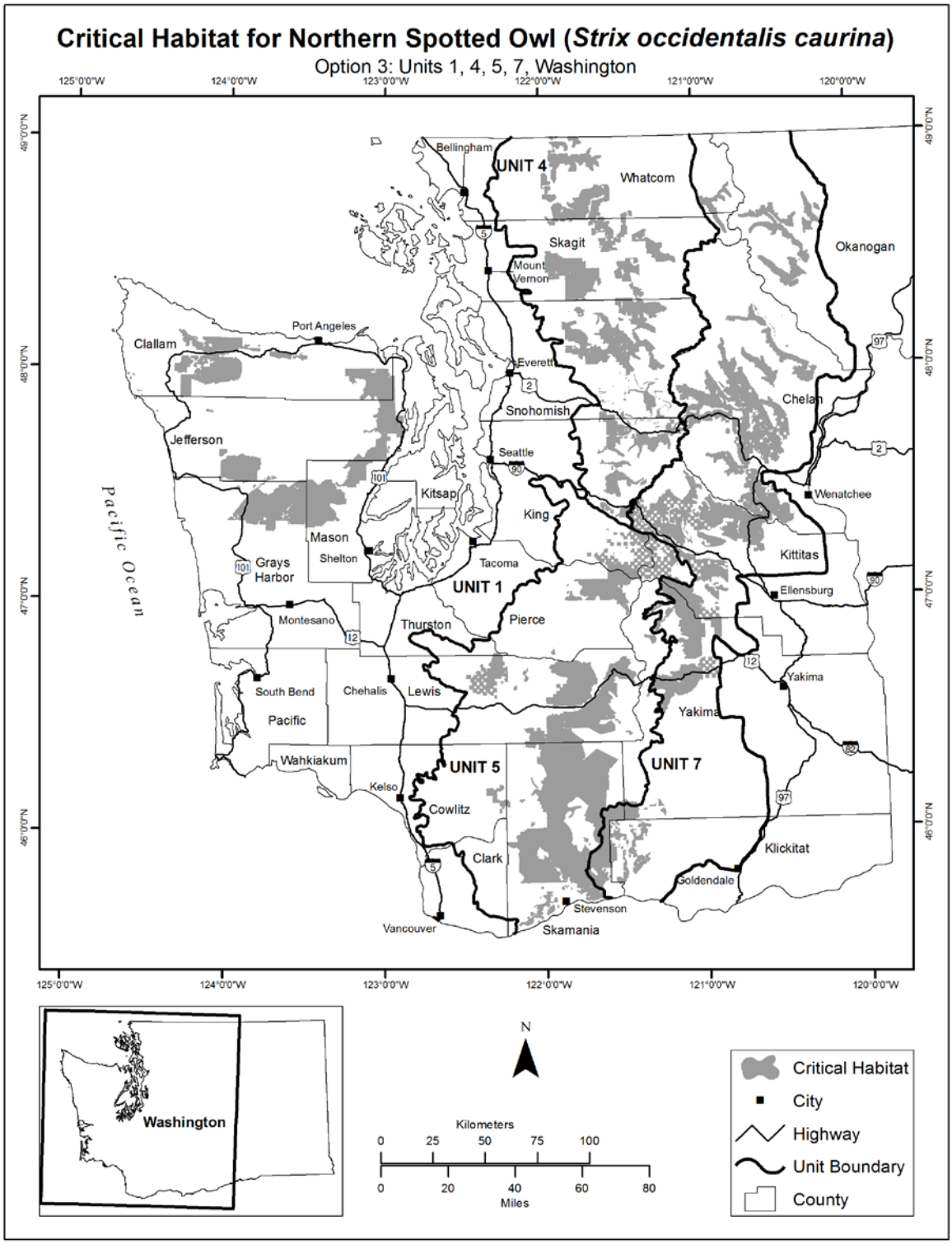


FIGURE 12. ALTERNATIVE D MAP OF CRITICAL HABITAT UNITS IN OREGON.

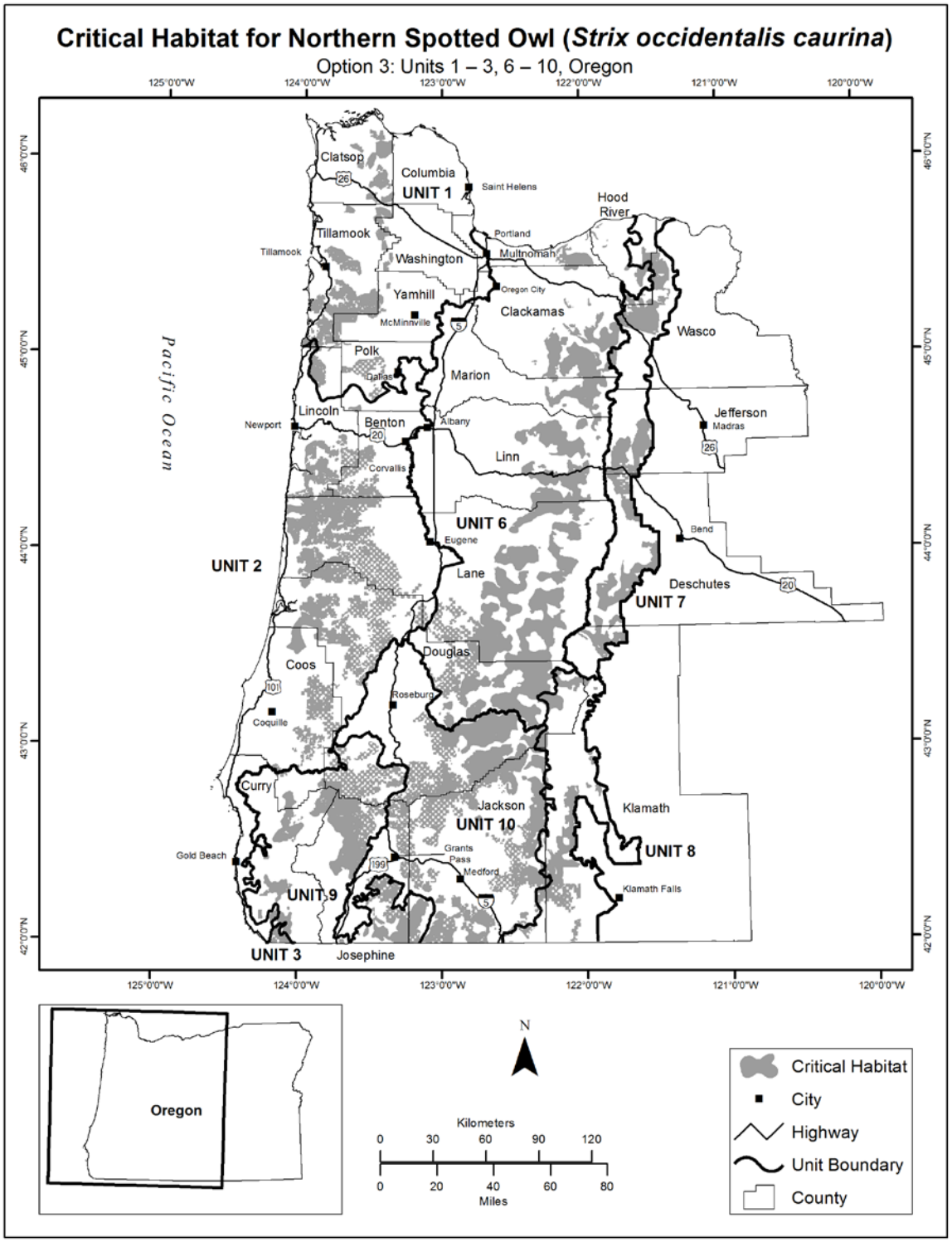


FIGURE 13. ALTERNATIVE D MAP OF CRITICAL HABITAT UNITS IN CALIFORNIA.

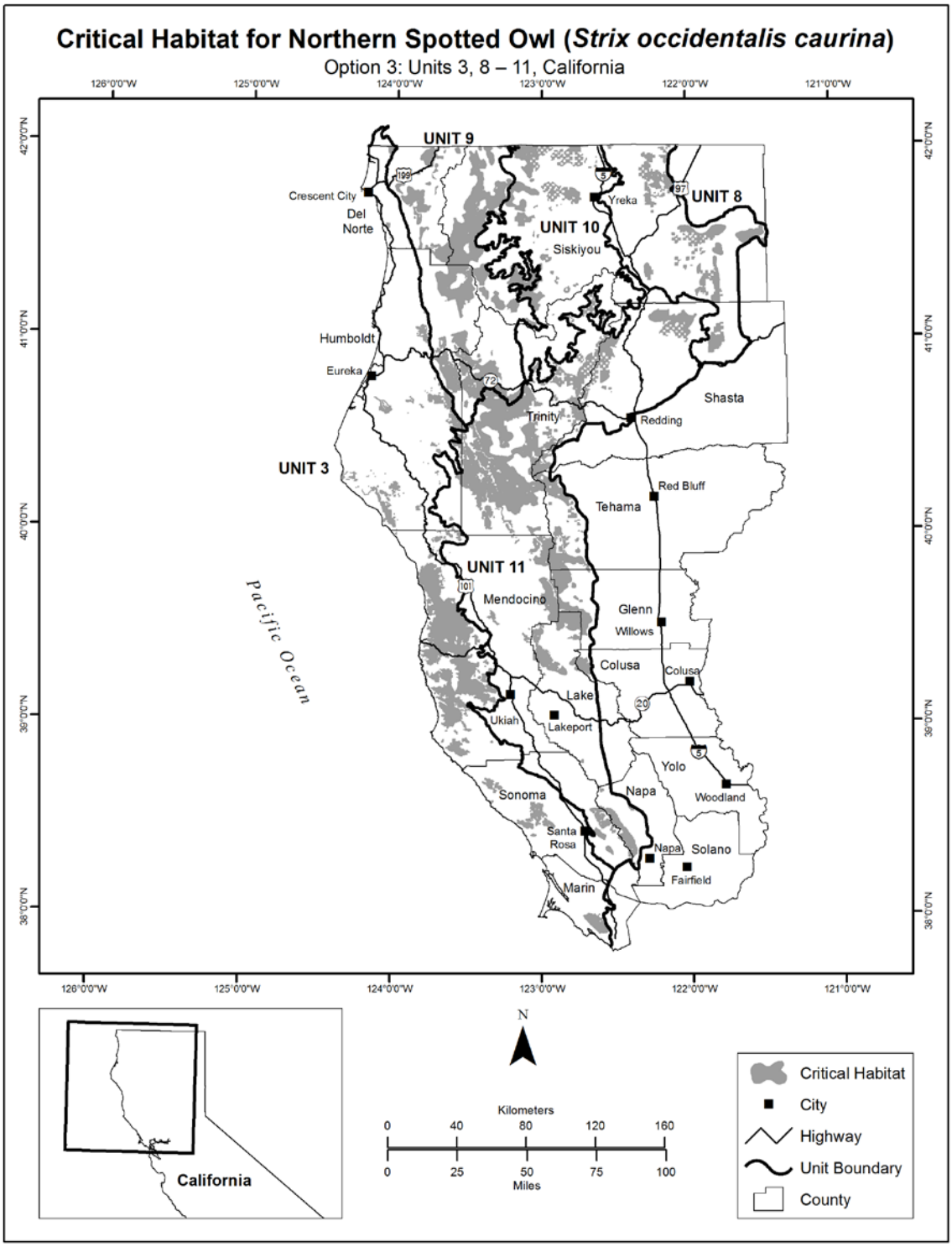


FIGURE 14. ALTERNATIVE E MAP OF CRITICAL HABITAT UNITS IN WASHINGTON.

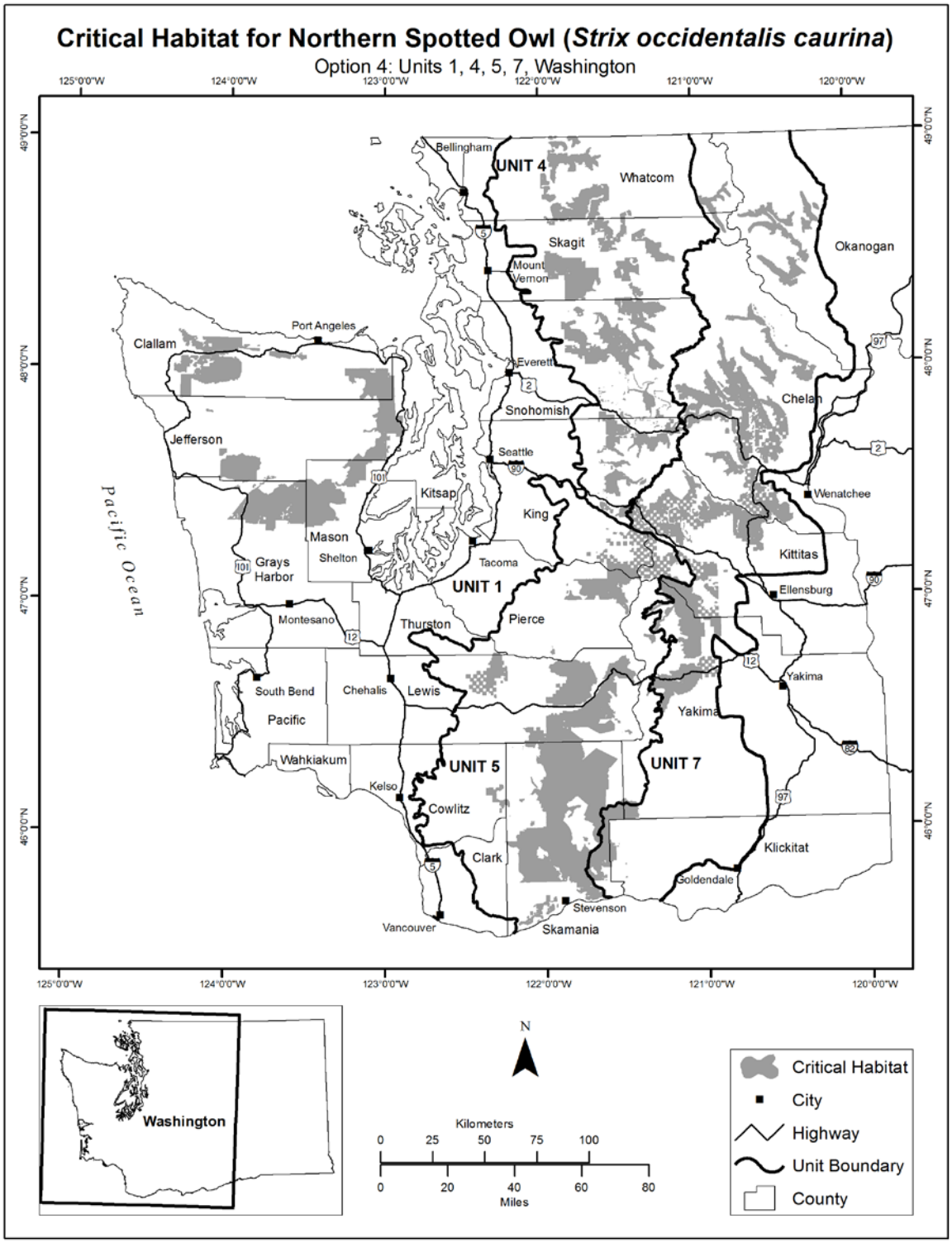


FIGURE 15. ALTERNATIVE E MAP OF CRITICAL HABITAT UNITS IN OREGON.

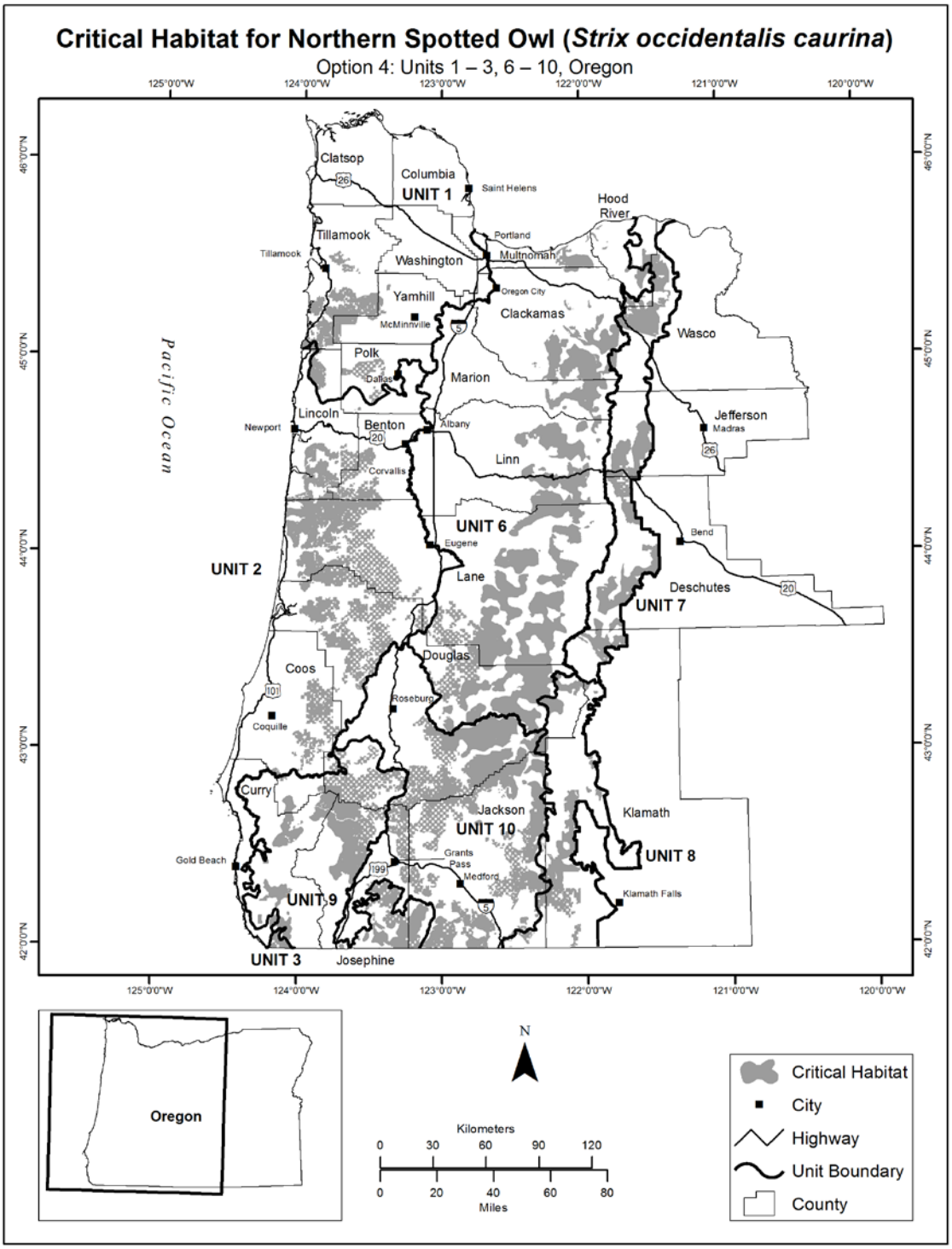


FIGURE 16. ALTERNATIVE E MAP OF CRITICAL HABITAT UNITS IN CALIFORNIA.

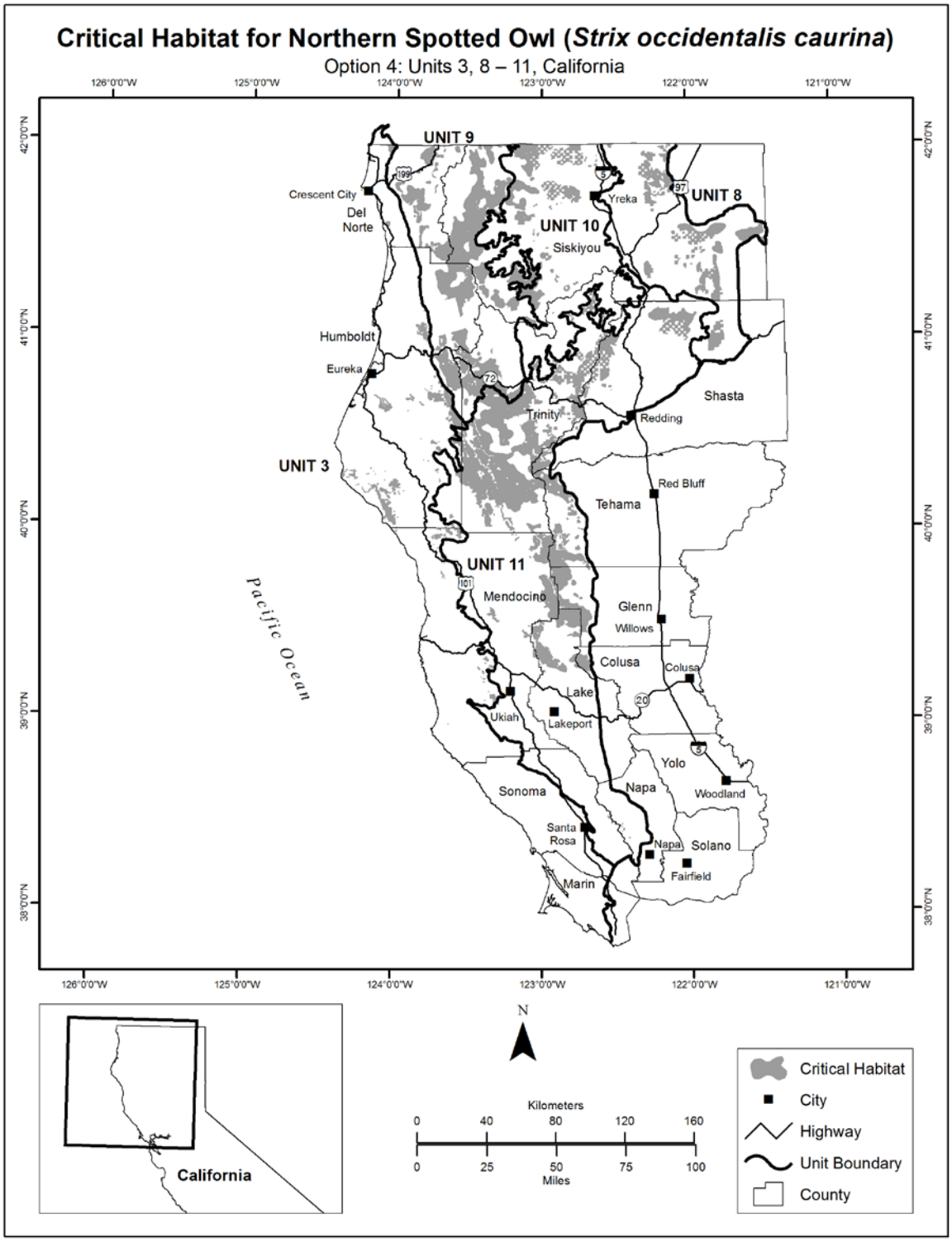


FIGURE 17. ALTERNATIVE F MAP OF CRITICAL HABITAT UNITS IN WASHINGTON (PREFERRED ALTERNATIVE).

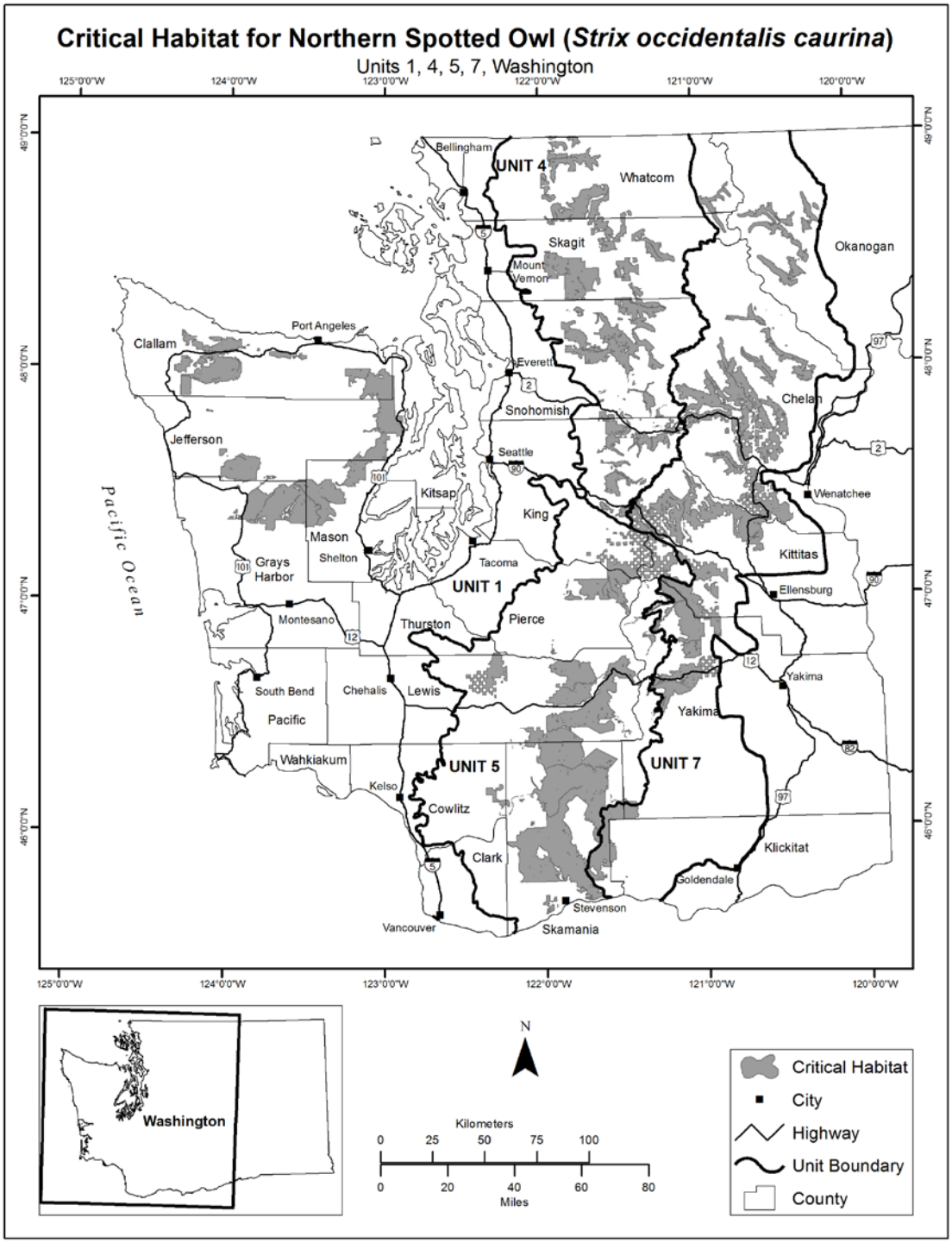


FIGURE 18. ALTERNATIVE F MAP OF CRITICAL HABITAT UNITS IN OREGON (PREFERRED ALTERNATIVE).

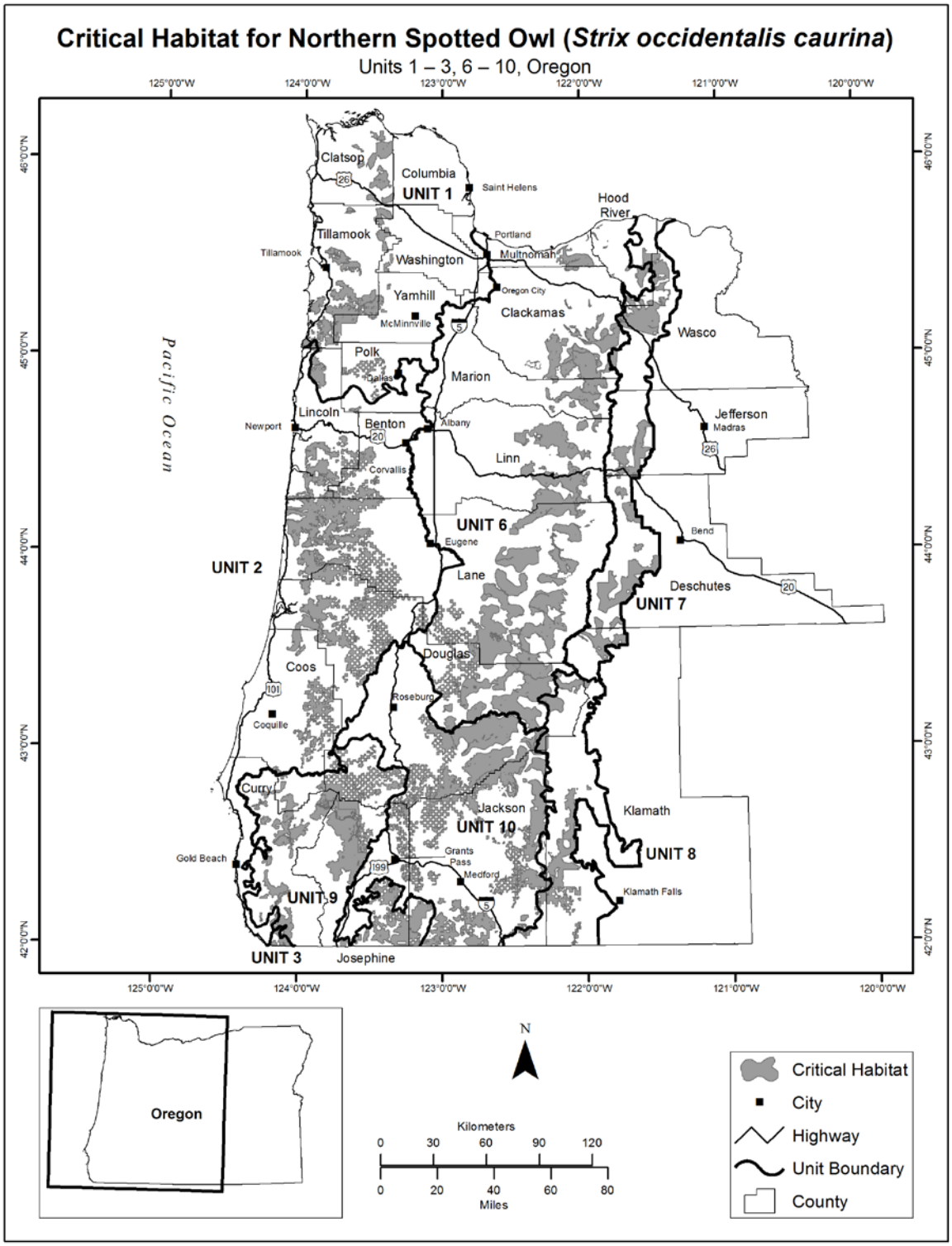


FIGURE 19. ALTERNATIVE F MAP OF CRITICAL HABITAT UNITS IN CALIFORNIA (PREFERRED ALTERNATIVE).

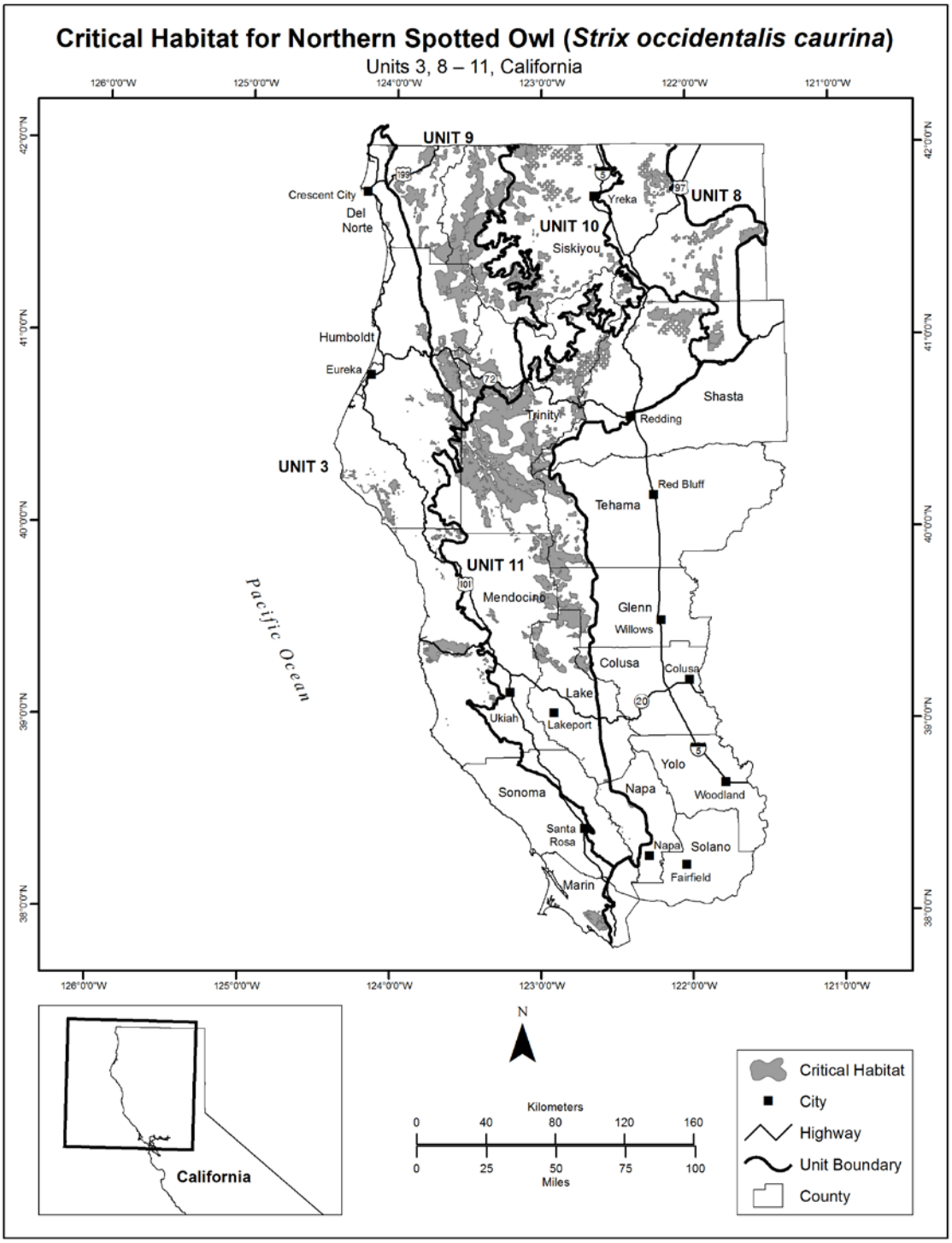


FIGURE 20. TOTAL AREA AND NUMBER OF FEMALE OWLS PRESENT IN MODELED NORTHERN SPOTTED OWL POPULATION RESPONSE COMPARED AMONG ALTERNATIVES AND THE NORTHWEST FOREST PLAN (NWFP).

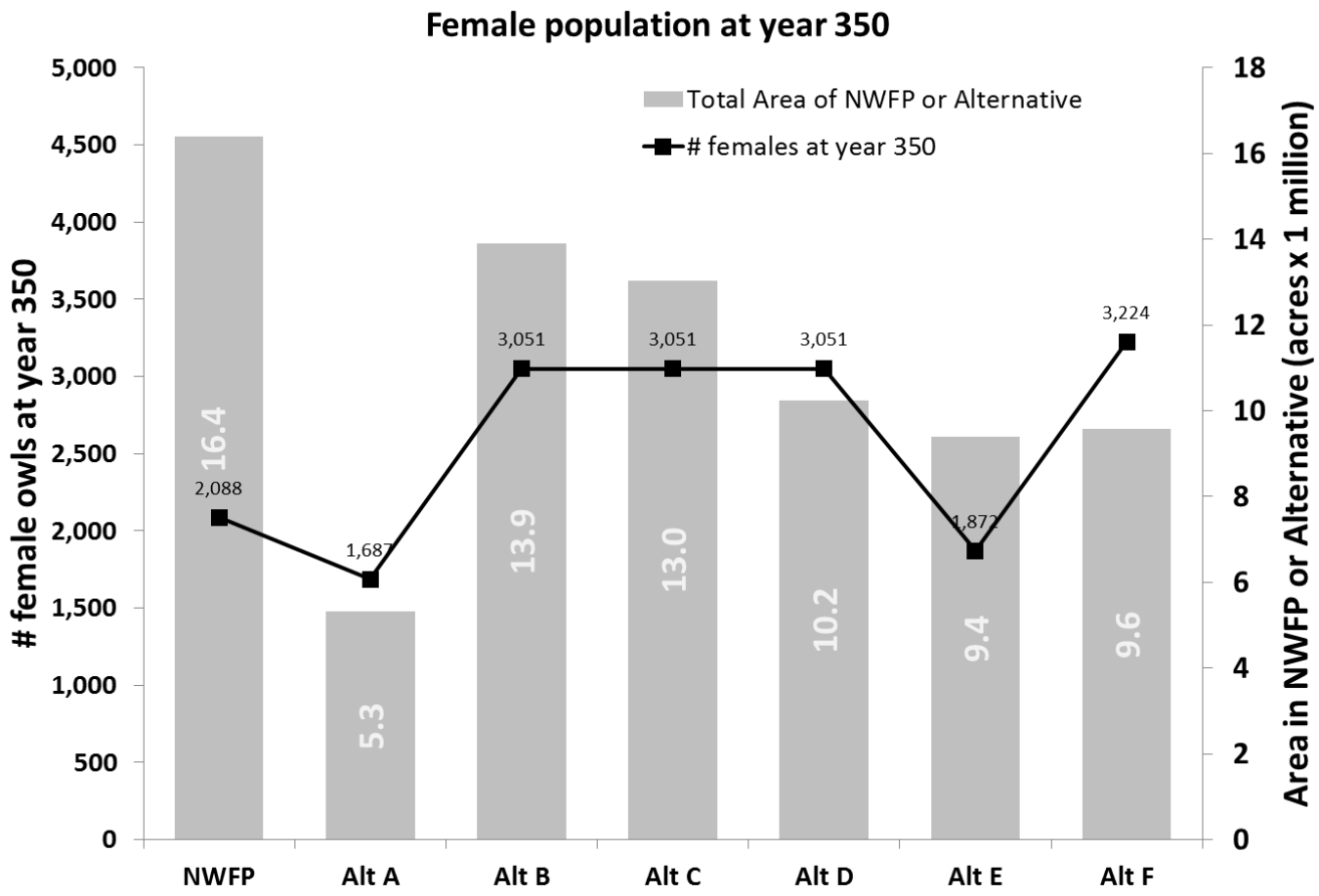
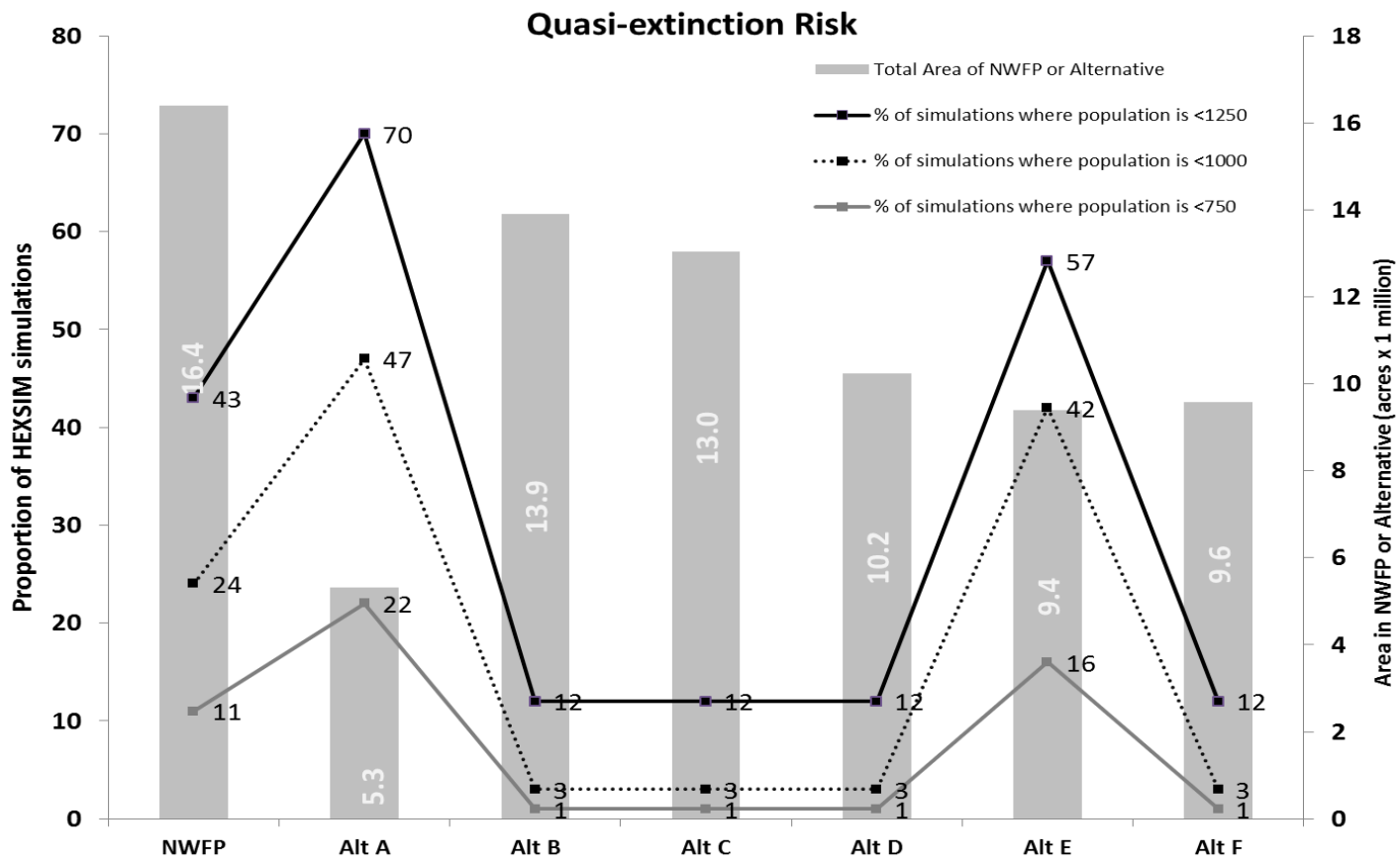


FIGURE 21. TOTAL AREA AND PERCENT OF MODELED SPOTTED OWL POPULATION SIMULATIONS WHERE SPOTTED OWL POPULATIONS FELL BELOW 1250, 1000, AND 750 FOR ALL ALTERNATIVES AND THE NORTHWEST FOREST PLAN (NWFP).



6.0 REFERENCES CITED

Allen, C.D., A.K. Macalady, H. Chenchouni, D. Bachelet, N. McDowell, M. Vennetier, T. Kitzberger, A. Rigling, D.D. Breshears, E.H Hogg, P. Gonzalez, R. Fensham, Z. Zhang, J. Castro, N. Demidova, J-H. Lim, G. Allard, S.W. Running, A. Semerci and N. Cobb. 2010. A global overview of drought and heat-induced tree mortality reveals emerging climate change risks for forests. Forest Ecology and Management 259:660–684.

Anthony, R.G., E.D. Forsman, A.B. Franklin, D.R. Anderson, K.P. Burnham, G.C. White, C.J. Schwarz, J. Nichols, J.E. Hines, G.S. Olson, S.H. Ackers, S. Andrews, B.L. Biswell, P.C. Carlson, L.V. Diller, K.M. Dugger, K.E. Fehring, T.L. Fleming, R.P. Gerhardt, S.A. Gremel, R.J. Gutiérrez, P.J. Happe, D.R. Herter, J.M. Higley, R.B. Horn, L.L. Irwin, P.J. Loschl, J.A. Reid and S.G. Sovern. 2006. Status and trends in demography of northern spotted owls, 1985–2003. Wildlife Monograph No. 163.

Barrowclough, G.F., and R. J. Gutiérrez. 1990. Genetic variation and differentiation in the spotted owl. Auk 107:737–744.

Barrowclough, G.F., R.J. Gutiérrez and J.G. Groth. 1999. Phylogeography of spotted owl (*Strix occidentalis*) populations based on mitochondrial DNA sequences: gene flow, genetic structure, and a novel biogeographic pattern. Evolution 53:919–931.

Barrowclough, G.F., J.G. Groth and R.J. Gutiérrez. 2005. Genetic structure, introgression and a narrow hybrid zone between northern and California spotted owls (*Strix occidentalis*). Molecular Ecology 14:1109–1120.

BLM (Bureau of Land Management). Undated. Process to identify stands addressed by Recovery Action 32 in the BLM Eugene District. Undated memo, Eugene District of BLM, Eugene, Oregon.

BLM (Bureau of Land Management). 2008. BLM National Environmental Policy Act Handbook H-1790-1. BLM National Environmental Policy Act Program, Washington, D.C.

BLM (Bureau of Land Management). 2012. BLM initiates planning update for western Oregon Forests. USDI Bureau of Land Management News Release, March 9, 2012. Portland, Oregon.

Bond, M.L., R.J. Gutiérrez, A.B. Franklin, W.S. LaHaye, C.A. May and M.E. Seamans. 2002. Short-term effects of wildfires on spotted owl survival, site fidelity, mate fidelity, and reproductive success. Wildlife Society Bulletin 30:1022–1028.

Breshears, D.D., N.S. Cobb, P.M. Rich, K.P. Price, C.D. Allen, R.G. Balice, W.H. Romme, J.H. Kastens, M.L. Floyd, J.Belnap, J.J. Anderson, O.B. Myers and C.W. Meyer. 2005. Regional vegetation die-off in response to global-changetype drought. Proceedings of the National Academy of Sciences 102:15144–15148.

Buchanan, J.B. 2004. Managing habitat for dispersing northern spotted owls – are the current management strategies adequate? Wildlife Society Bulletin 32:1333–1345.

Buchanan, J.B. 2005. Barred Owl. Pages 218–219 in Birds of Washington: status and distribution. T. R. Wahl, B. Tweit, and S. G. Mlodinow (editors), Oregon State University Press, Corvallis.

Burnham, K.P., D.R. Anderson, and G.C. White. 1996. Meta-analysis of vital rates of the northern spotted owl. Pp. 92-101 *in* E.D. Forsman, S. DeStefano, M.G. Raphael, and R.J. Gutiérrez (eds), Demography of the northern spotted owl. Studies in Avian Biology No. 17.

CAL FIRE. 2012. California Forest Practices Rules 2012. The California Department of Forestry and Fire Protection, Resource Management, Forest Practice Program. Sacramento, CA

California State Parks 2001. The Seventh Generation: The Strategic Vision of California State Parks 2001. California Department of Parks and Recreation, Sacramento, CA.

Camp, A.E., C.D. Oliver, P.F. Hessburg and R.L. Everett. 1997. Predicting latesuccessional fire refugia from physiography and topography. Forest Ecology and Management 95:63–77.

Carey, A.B. 1995. Sciurids in Pacific Northwest managed and old-growth forests. Ecological Applications 5(3):648–661.

Carey, A.B. 2000. Effects of new forest management strategies on squirrel populations. Ecological Applications 10(1):248–257.

Carey, A.B., S.P. Horton and B.L. Biswell. 1992. Northern spotted owls: influence of prey base and landscape character. Ecological Monographs 62(2):223–250.

Carey, A.B., C.C. Maguire, B.L. Biswell and T.M. Wilson. 1999. Distribution and abundance of Neotoma in western Oregon and Washington. Northwest Science 73(2):65–80.

Carroll, A.L., S.W. Taylor, J. Regniere, and L. Safranyik. 2004. Effects of climate change on range expansion by the mountain pine beetle. Pages 21-32 in Shore, T.L., J.E. Brooks, and J.E. Stone, eds. Challenges and Solutions: Proceedings of the Mountain Pine Beetle Symposium. Kelowna, British Columbia, Canada. October 30-31, 2003. Natural

Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Victoria, BC, Informaion Report BC-X-399. 298 pp.

Case, M.J., and D.L. Peterson. 2009. Growth-climate relations of lodgepole pine in the North Cascades National Park, Washington. Northwest Science 81:62–74.

CEQ (Council on Environmental Quality) 1997. Considering Cumulative Effects under the National Environmental Policy Act. Council on Environmental Quality, Executive Office of the President. January 1997.

CEQ (Council on Environmental Quality) 2005. Guidance on the Consideration of Past Actions in Cumulative Effects Analysis, 24 June 2005.

CEQ (Council on Environmental Quality) 2012. Memorandum for Heads of Federal Departments and Agencies: Improving the Process for Preparing Efficient and Timely Environmental Reviews under the National Environmental Policy Act, 6 March 2012

Chapman, J., T. Stone, and R. Davis. 2008. Spotted owl habitat quality delineation methodology: version 1.5. Umpqua National Forest, Roseburg, Oregon.

Courtney, S.P., J.A. Blakesley, R.E. Bigley, M.L. Cody, J.P. Dumbacher, R.C. Fleischer, A.B. Franklin, J.F. Franklin, R.J. Gutiérrez, J.M. Marzluff and L. Sztukowski. 2004. Scientific evaluation of the status of the northern spotted owl. Sustainable Ecosystems Institute, Portland, Oregon.

Crozier, M.L., M.E. Seamans, R.J. Gutiérrez, P.J. Loschl, R.B. Horn, S.G. Sovern and E.D. Forsman. 2006. Does the presence of barred owls suppress the calling behavior of spotted owls? Condor 108: 760–769.

Dale, V.H., L.A. Joyce, S. McNulty, R.P. Neilson, M.P. Ayres, M.D. Flannigan, P.J. Hanson, L.C. Irland, A.E. Lugo, C.J. Peterson, D. Simberloff, F.J. Swanson, B.J. Stocks and B.M. Wotton. 2001. Climate change and forest disturbances. BioScience 51:723–734.

Daley, C., D.R. Conklin and M.H. Unsworth. 2009. Short communication: local atmospheric decoupling in complex topography alters climate change impacts. International Journal of Climatology. Available online at <http://onlinelibrary.wiley.com/doi/10.1002/joc.2007/abstract>. Accessed 3 March 2011.

Davis, R.J., and K.M. Dugger. 2011. Chapter 3: Habitat status and trend. Pp. 21-62 in Davis, R.J., K.M. Dugger, S. Mohoric, L. Evers, and W.C. Aney. Northwest Forest Plan—the first 15 years (1994-2008): status and trends of northern spotted owl populations and

habitats. U.S.D.A. Forest Service General Technical Report PNW-GTR-850. Pacific Northwest Research Station, Portland, Oregon.

Davis, R., and J. Lint. 2005. Habitat status and trends. Pages 21–82 in J. Lint, technical coordinator. Northwest Forest Plan—the first 10 years (1994–2003): status and trends of northern spotted owl populations and habitat. General Technical Report PNW-GTR-648, Pacific Northwest Research Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon.

Dixon, R.K., S. Brown, R.A. Houghton, A.M. Solomon, M.C. Trexler, and J. Wisniewski. 1994. Science. 263:185-190.

Dugger, K.M., F. Wagner, R.G. Anthony and G.S. Olson. 2005. The relationship between habitat characteristics and demographic performance of northern spotted owls in southern Oregon. Condor 107:863–878.

Dugger, K.M., R.G. Anthony and L.S. Andrews. 2011. Transient dynamics of invasive competition: barred owls, spotted owls, habitat, and the demons of competition present. Ecological Applications. 21:2459-2468.

Dukes, J.S., and H.A. Mooney. 1999. Does global change increase the success of biological invaders? Tree 14:135–139.

Dunk, J. R., B. Woodbridge, D. LaPlante, N. Schumaker, B. Glenn, B.C. White, K. Halupka, S. Livingston, M. Zwartjes and J. Peters. 2012. Modeling and analysis procedures used to identify and evaluate potential critical habitat networks for the northern spotted owl.

Elsner, M.M., L. Cuo, N. Voisin, J.S. Deems, A.F. Hamlet, J.A Vano, K.E.B. Michelson, S. Lee and D.P. Lettenmaier. 2009. Implications of 21st century climate change for the hydrology of Washington State. Pages 69–106 in M.M. Elsner, J. Littell and L.W. Binder (editors), The Washington climate change impacts assessment. Center for Science in the Earth System, Joint Institute for the Study of the Atmosphere and Oceans, University of Washington, Seattle.

FEMAT (Forest Ecosystem Management Assessment Team). 1993. Forest Ecosystem Management: An Ecological, Economic, and Social Assessment. U.S. Department of Agriculture, Forest Service; U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service; U.S. Department of the Interior, Bureau of Land Management, Fish and Wildlife Service, and National Park Service; Environmental Protection Agency.

Forsman, E.D., E.C. Meslow and H.M. Wight. 1984. Distribution and biology of the spotted owl in Oregon. Wildlife Monographs 87:1–64.

Forsman, E.D., I.A. Otto, S.G. Sovern, M. Taylor, D.W. Hays, H. Allen, S.L. Roberts and D.E. Seaman. 2001. Spatial and temporal variation in diets of spotted owls in Washington. Journal of Raptor Research 35:141–150.

Forsman, E.D., R.G. Anthony, E.C. Meslow and C.J. Zabel. 2004. Diets and foraging behavior of northern spotted owls in Oregon. Journal of Raptor Research 38:214–230.

Forsman, E.D, T.J. Kaminski, J.C. Lewis, K.J. Maurice, C. Ferland and E. M. Glenn. 2005. Home range and habitat use of northern spotted owls on the Olympic Peninsula, Washington. Journal of Raptor Research 39(4):356-377.

Forsman, E.D., R.G. Anthony, K.M. Dugger, E.M. Glenn, A.B. Franklin, G.C. White, C.J. Schwarz, K.P. Burnham, D.R. Anderson, J.D. Nichols, J.E. Hines, J.B. Lint, R.J. Davis, S.H. Ackers, L.S. Andrews, B.L. Biswell, P.C. Carlson, L.V. Diller, S.A. Gremel, D.R. Herter, J.M. Higley, R.B. Horn, J.A. Reid, J. Rockweit, J. Schaberl, T.J. Snetsinger and S.G. Sovern. 2011. Population demography of northern spotted owls: 1985–2008. Studies in Avian Biology. No. 40. Cooper Ornithological Society.

Franklin, A.B., D.R. Anderson, R.J. Gutiérrez and K.P. Burnham. 2000. Climate, habitat quality, and fitness in northern spotted owl populations in northwestern California. Ecological Monographs 70:539–590.

Glenn, E.M. 2009. Local weather, regional climate, and population dynamics of northern spotted owls in Washington and Oregon. Dissertation. Oregon State University, Corvallis OR, USA. 299pp.

Glenn, E.M., R.G. Anthony, and E.D. Forsman. 2010. Population trends in northern spotted owls: associations with climate in the Pacific Northwest. Biological Conservation 143: 2543-2552.

Glenn, E.M., R.G. Anthony, E.D. Forsman, and G.S. Olson. 2011a. Local weather, regional climate, and annual survival of the northern spotted owl. Condor 113:159-176.

Glenn, E.M., R.G. Anthony, E.D. Forsman, and G.S. Olson. 2011b. Reproduction of northern spotted owls: the role of local weather and regional climate. Journal of Wildlife Management 75(6):1279-1294.

Gomez, D.M., Anthony, R.G. and Hayes, J.P. 2005. Influence of thinning of Douglas-fir forests on population parameters and diet of northern flying squirrels: Journal of Wildlife Management 69:1670–1682.

Graumlich, L.J., L.B. Brubaker and C.C. Grier. 1989. Long-term trends in forest net primary productivity: Cascade Mountains, Washington. Ecology 70:405–410.

Gutiérrez, R.J., A.B. Franklin and W.S. LaHaye. 1995. Spotted owl (Strix occidentalis) in A. Poole and F. Gill (editors), The birds of North America, No. 179. The Academy of Natural Sciences and The American Ornithologists' Union, Washington, D.C.

Gutiérrez, R. J., M. Cody, S. Courtney and A.B. Franklin. 2007. The invasion of barred owls and its potential effect on the spotted owl: a conservation conundrum. Biological Invasions. 9:181-196.

Haig, S.M., T.D. Mullins, E.D. Forsman, P.W. Trail, and L. Wennerberg. 2004. Genetic identification of spotted owls, barred owls, and their hybrids: legal implications of hybrid identity. Conservation Biology 18:1347-1357.

Haugo, R.D., S.A. Hall, E.M. Gray, P. Gonzalez and J.D. Bakker. 2010. Influences of climate, fire, grazing, and logging on woody species composition along an elevation gradient in the eastern Cascades, Washington. Forest Ecology and Management 260: 2204-2213.

Hessburg, P.F., J.K. Agee and J.F. Franklin. 2005. Dry forests and wildland fires of the inland Northwest USA: Contrasting the landscape ecology of the pre-settlement and modern eras. Forest Ecology and Management 211:117–139.

Hessburg, P.F., R.B. Salter and K.M. James. 2007. Re-examining fire severity relations in pre-management era mixed conifer forests: inferences from landscape patterns of forest structure. Landscape Ecology 22:5–24.

Hicke, J.A., and J.C. Jenkins. 2008. Mapping lodgepole pine stand structure susceptibility tomountain pine beetle attack across the western United States. Forest Ecology and Management 255:1536–1547.

Hudiburg, T., B. Law, D.P. Turner, J. Campbell, D. Donato, and M. Duane. 2009. Carbon dynamics of Oregon and northern California forests and potential land-based carbon storage. Ecological Applications. 19:163-180.

IEc (Industrial Economics, Inc.) 2012. Economic Analysis of critical habitat designation for the northern spotted owl: Final. Prepared for U.S. Fish and Wildlife Service. Industrial Economics, Inc., Cambridge, MA.

INRMP, 2007. Final Integrated Natural Resources Management Plan, 2007-2011. Department of Defense (Army). Fort Lewis, Washington. June 2007.

Irwin, L.L., D.F. Rock and G.P. Miller. 2000. Stand structures used by northern spotted owls in managed forests. Journal of Raptor Research 34:175–186.

IPCC. 2007. Climate *Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, Pachauri, R.K., and A. Reisinger (eds.)]. IPCC, Geneva, Switzerland, 104 pp.

Joyce, L.A., G.M. Blate, J.S. Littell, S.G. McNulty, C.I. Millar, S.C. Moser, R.P. Neilson, K.A. O'Halloran and D.L. Peterson. 2008. Chapter 3 – National Forests. Pages 3-1 to 3-127 in S.H. Julius, J.M. West (editors), J.S. Baron, L.A. Joyce, P. Kareiva, B.D. Keller, M.A. Palmer, C.H. Peterson and J.M. Scott (authors), Preliminary review of adaptation options for climate-sensitive ecosystems and resources. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research. U.S. Environmental Protection Agency, Washington, D.C., 873 pp.

Kelly, E.G., and E.D. Forsman. 2003. Barred owl. Pages 320–322 in D. B. Marshall, M.G. Hunter and A.L. Contreras (editors), Birds of Oregon: a general reference. Oregon State University, Corvallis, Oregon.

Kennedy, R.S.H., and M.C. Wimberly. 2009. Historical fire and vegetation dynamics in dry forests of the interior Pacific Northwest, USA, and relationships to northern spotted owl (*Strix occidentalis caurina*) habitat conservation. Forest Ecology and Management. 258:554-566.

Kliejunas, J.T., B.W. Geils, J.M. Glaeser, E.M. Goheen, P. Hennon, M-S. Kim, H. Kope, J. Stone, R. Sturrock and S.J. Frankel. 2009. Review of literature on climate change and forest diseases of western North America. General Technical Report, PSW-GTR-225, Pacific Southwest Research Station, U.S. Department of Agriculture, Forest Service, Albany, California.

Kurz, W.A., C.C. Dymond, G. Stinson, G.J. Rampley, E.T. Neilson, A.L. Carroll, T. Ebata and L. Safranyik. 2008. Mountain pine beetle and forest carbon feedback to climate change. Nature 452:987–990.

Latta, G., H. Temesgen, D. Adams and T. Barrett. 2010. Analysis of potential impacts of climate change on forests of the United States Pacific Northwest. Forest Ecology and Management 259: 720–729.

Lehmkuhl, J.F., K.D. Kistler and J.S. Begley. 2006a. Bushy-tailed woodrat abundance in dry forests of eastern Washington. Journal of Mammalogy 87:371–379.

Lehmkuhl, J.F., K.D. Kistler, J.S. Begley and J. Boulanger. 2006b. Demography of northern flying squirrels informs ecosystem management of western interior forests. Ecological Applications 16:584–600.

Lima, M., Julliard, M., Stenseth, N.C., Jaksic, F.M., 2001. Demographic dynamics of a neotropical small rodent Phyllotis darwini: feedback structure, predation and climatic factors. Journal of Animal Ecology 70, 762–775.

Littell, J.S. 2009. "Climate change and the forest ecosystems of the Olympia Peninsula," a presentation given at Climate change impacts on Olympic Peninsula salmon, a workshop held at Olympic National Forest Headquarters in Olympia, Washington. Available online at <http://www.fs.fed.us/ccrc/video/olympic_littell.shtml>. Accessed 3 March 2011.

Littell, J.S., D. McKenzie, D.L. Peterson and A.L. Westerling. 2009. Climate and wildfire area burned in western U.S. ecoprovinces, 1916-2003. Ecological Applications 19:1003–1021.

Littell, J.S., E.E. Oneil, D. McKenzie, J.A. Hicke, J.A. Lutz, R.A. Norheim and M.M. Elsner. 2010. Forest ecosystems, disturbance, and climate change in Washington State, USA. Climate Change 102: 129-158.

Livezey, K.B. 2009. Range expansion of barred owls, part I: chronology and distribution. American Midland Naturalist. 161:49-56.

Logan, J.A., and J.A. Powell. 2001. Ghost forests, global warming, and the mountain pine beetle (Coleoptera: Scolytidae). American Entomologist 47:160–172.

Logan, J.A., J. Regniere and J.A. Powell. 2003. Assessing the impacts of global warming on forest pest dynamics. Frontiers in Ecology and the Environment 1:130–137.

Lofroth, E.C., C.M. Raley, J.M. Higley, R.L. Truex, J.S. Yaeger, J.C. Lewis, P.J. Happe, L.L. finley, R.H. Naney, L.J. Hale, A.L. Krause, A.A. Livingston, A.M. Myers, and R. N. Brown. 2010. Conservation of fishers (*Martes pennant*) in south-central British Columbia, western Washington, western Oregon, and California—Volume I: Conservation Assessment. USDI Bureau of Land Management, Denver, Colorado.

Luoma, D. L., J. M. Trapp e, A. W. Claridg e, K. M. Jacobs, and E. Cázeres. 2003. Relationships among fungi and small mammals in forested ecosystems, p. 343–373. In C. J. Zabel and R. G. Anthony [eds.], Mammal community dynamics: management and conservation in

the coniferous forests of western North America. Cambridge University Press, Cambridge, England.

Malmsheimer, R.W., P. Heffernan, S. Brink, D. Crandall, F. Deneke, C. Galik, E. Gee, J.A. Helms, N. McClure, M. Mortimer, S. Ruddell, M. Smith, and J. Stewart. 2008. Forest management solutions for mitigating climate change in the United States. Journal of Forestry. 106:115-172

Manter, D.K., P.W. Reeser and J.K. Stone. 2005. A climate-based model for predicting geographic variation in Swiss needle cast severity in the Oregon Coast Range. Phytopathology 95:1256–1265.

McKenzie, D, Z. Gedalof, D.L. Peterson and P. Mote. 2004. Climate change, wildfire, and conservation. Conservation Biology 18:890–902.

McKenzie, D., D.L. Peterson and J.J. Littell. 2009. Global warming and stress complexes in forests of western North America. Pages 319–338 in A. Bytnerowicz, M.J. Araugh, A.R. Riebau and C. Andersen (editors), Developments in Environmental Science, Volume 8. Elsevier, The Netherlands.

Moilanen A., and H. Kujala. 2008. Zonation: software for spatial conservation prioritization. User Manual v2.0. Metapopulation Research Group, University of Helsinki, FI. Available at <http://www.helsinki.fi/bioscience/consplan/software/Zonation/index.html>. Accessed 3 March 2011.

Moritz, M.A., P.F. Hessburg and N.A. Povak. 2011. Native fire regimes and landscape resilience. Chapter 3 in: Ecological Studies Series, Volume 213, The Landscape Ecology of Fire, McKenzie, D., Miller, C., Falk, D.A. (editors), Springer-Verlag.

Mote, P.W., and E.P. Salathe Jr. 2010. Future climate in the Pacific Northwest. Climatic Change 102:29–50.

Nelson, S.K., M.H. Huff, S.L. Miller, and M.G. Raphael. 2006. Marbled murrelet biology: habitat relations and populations. Pp. 9-30 in Huff,M.H., M.G. Raphael, S.L. Miller, S.K. Nelson, and J. Baldwin (tech. cords.), Northwest Forest Plan—the first 10 years (1994-2003): status and trends of populations and nesting habitat for the marbled murrelet. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, General Technical Report PNW-GTR-650. Portland, Oregon.

Newton, I. 1979. Population Ecology of Raptors. Buteo Books, Vermillion, South Dakota, USA.

Nicholl, M. A., C. G. Jones, and K. Norr is. 2003. Declining survival rates in a reintroduced population of Mauritius Kestrel: evidence for non-linear density dependence and environmental stochasiticity. Journal of Animal Ecology 72:917–926.

North Coast Planning Province Interagency Level 1 Team. 2010. Biological Assessment of Habitat and Distruption Projects Proposed During Fiscal Years 2011 and 2012 in the North Coast Planning Province, Oregon, That Are Likely to Affect (LAA) Northern Spotted Owls or Marbled Murrelets and their Critical Habitat. Burea of Land Management, U.S. Forest Service, and U.S. Fish and Wildlife Service.

Noss, R.F., J.F. Franklin, W.L. Baker, T. Schoennagel, and P.B. Moyle. 2006. Managing fire-prone forests in the western United States. Frontiers in Ecology and the Environment. 4:481-487.

ODF (Oregon Department of Forestry). 2001. Northwest Oregon State Forests Management Plan. Salem, Oregon.

ODF (Oregon Department of Forestry). 2008. Forest Practice Administrative Rules and Forest Practices Act. Chapter 629: Forest Practices Administration. Salem, Oregon.

Olson, G.S., E.M. Glenn, R.G. Anthony, E.D. Forsman, J.A. Reid, P.J. Loschl and W.J. Ripple. 2004. Modeling demographic performance of northern spotted owls relative to forest habitat in Oregon. Journal of Wildlife Management 68:1039–1053.

Olson, G.S., R.G. Anthony, E.D. Forsman, S.H. Ackers, P.J. Loschl, J.A. Reid, K.M Dugger, E.M. Glenn and W.J. Ripple. 2005. Modeling of site occupancy dynamics for northern spotted owls, with emphasis on the effects of barred owls. Journal of Wildlife Management 69:918–932.

Parson, E. A., P. W. Mote, A. Hamlet, N. Mantua, A. Snover, W. Keeton, E. Miles, D. Canning, and K. G. Ideker. 2001. Potential consequences of climate variability and change for the Pacific Northwest, p. 247–280. In National Assessment Synthesis Team [eds.], Climate change impacts on the United States: the potential consequences of climate variability and change. U.S. Global Change Research Program, Washington, DC.

Perry, D.A., P.F. Hessburg, C.N. Skinner, T.A. Spies, S.L. Stephens, A.H. Taylor, J.F. Franklin, B. McComb and G. Riegel. 2011. The ecology of mixed severity fire regimes in Washington, Oregon, and Northern California. Forest Ecology and Management, Volume 262, Issue 5, 1 September 2011, Pages 703-717.

Raffa, K.F., B.H. Aukema, B.J. Bentz, A.L. Carroll, J.A. Hicke, M.G. Turner and W.H. Romme. 2008. Cross-scale drivers of natural disturbances prone to anthropogenic amplification: the dynamics of bark beetle eruptions. BioScience 58:501–517.

Ransome, D.B., and T.P. Sullivan. 1997. Food limitation and habitat preference of Glaucomys sabrinus and Tamiasciurus hudsonicus. Journal of Mammalogy 78:538–549.

Rosenberg, D. K., and R.G. Anthony. 1992. Characteristics of northern flying squirrel populations in young second- and old-growth forests in western Oregon. Canadian Journal of Zoology 70:161–166.

Rosenberg, D.K., C.J. Zabel, B.R. Noon, and E.C. Meslow. 1994. Northern spotted owls: influence of prey base—a comment. Ecology. 75:1512-1515.

Ryan, M.G., M.E. Harmon, R.A. Birdsey, C.P. Giardina, L.S. Heath, R.A. Houghton, R.B. Jackson, D.C. McKinley, J.F. Morrison, B.C. Murray, D.E. Pataki, and K.E. Skog. 2010. A synthesis of the science on forests and carbon for U.S. forests. Issues in Ecology. Report Number 13.

Salathé, E.P., L.R. Leung, Y. Qian, and Y. Zhang. 2010. Regional climate model projections for the State of Washington. Climatic Change 102(1-2): 51-75, doi: 10.1007/s10584-010-9849-y.

Shafer, S.L., M.E. Harmon, R.P. Nieilson, R. Seidl, Brad St. Clair and A. Yost. 2010. The potential effects of climate change on Oregon's vegetation. Pages 173–208 in K.D. Dello and P.W. Mote (editors), Oregon Climate Change Research Institute (2010), Oregon Climate Assessment Report. College of Oceanic and Atmospheric Sciences, Oregon State University, Corvallis.

Sisco, C.L. 1990. Seasonal home range and habitat ecology of spotted owls in northwestern California. Thesis, Humboldt State University, Arcata, California.

Solis, D.M. 1983. Summer habitat ecology of spotted owls in Northwestern California. Thesis, Humboldt State University, Arcata, California.

Solis, D.M., and R.J. Gutiérrez. 1990. Summer habitat ecology of northern spotted owls in northwestern California. Condor 92:739–748.

Spevak, T.A., 1983. Population changes in a Mediterranean scrub rodent assembly during drought. Southwestern Naturalist 28, 47–52.

Spies, T.A., T.W. Geisen, F.J. Swanson, J.F. Franklin, D. Lach and K.N. Johnson. 2010. Climate change adaptation strategies for Federal forests of the Pacific Northwest, USA: ecological, policy, and socio-economic perspectives. Landscape Ecology 25:1185–1199.

Taylor, S.W., A.L. Carroll, R.I. Alfaro and L. Safranyik. 2006. Forest, climate and mountain pine beetle outbreak dynamics in western Canada. Pages 67–94 in L. Safranyik and B. Wilson (editors), The Mountain Pine Beetle: A Synthesis of Biology, Management, and Impacts on Lodgepole Pine. Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Victoria, British Columbia.

Thomas, J.W., E.D. Forsman, J.B. Lint, E.C. Meslow, B.R. Noon and J. Verner. 1990. A conservation strategy for the northern spotted owl. Interagency Scientific Committee to Address the Conservation of the Northern Spotted Owl. U.S. Forest Service, U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, and U.S. National Park Service, Portland, Oregon.

Thomas, J.W., J.F. Franklin, J. Gordon, and K.N. Johnson. 2006. The Northwest Forest Plan; origins, components, implementation experience, and suggestions for change. Conservation Biology. 20:277-287.

USDA (U.S. Department of Agriculture), and USDI (U.S. Department of the Interior). 1994a. Record of decision for amendments to Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl: standards and guidelines for management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl. U.S. Forest Service and U.S. Bureau of Land Management, Portland, Oregon.

USDA (U.S. Department of Agriculture), and USDI (U.S. Department of the Interior). 1994b. Final supplemental environmental impact statement on management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl. U.S. Forest Service and U.S. Bureau of Land Management, Portland, Oregon.

USDA FS and USDI BLM. 2010. Northern Spotted Owl Recovery Plan – Recovery Action 32 Draft Guidance. File Code Memo 2670. Memo from Rogue River-Siskiyou National Forest and Medford Distirct BLM to BLM Leadership Team and Forest Service Leadership Team.

USDI (U.S. Department of the Interior). 1992. Recovery Plan for the northern spotted owl: final draft. U.S. Fish and Wildlife Service, Portland, Oregon.

USFS (U.S. Forest Service). 2011. Proposed action for forest plan revision, Okanogan-Wenatchee National Forest. U.S. Department of Agriculture, Forest Service, Pacific Northwest Region, Portland, Oregon.

USFWS (U.S. Fish and Wildlife Service). 1997. Grizzly bear recovery plan supplement: North Cascades Ecosystem recovery plan chapter. U.S. Fish and Wildlife Service, Missoula Montana.

USFWS (U.S. Fish and Wildlife Service). 2007. 2007 Draft recovery plan for the northern spotted owl (*Strix occidentalis caurina*): Merged options 1 and 2. U.S. Fish and Wildlife Service, Portland, Oregon.

USFWS (U.S. Fish and Wildlife Service). 2008. Final recovery plan for the northern spotted owl, *Strix occidentalis caurina*. U.S. Fish and Wildlife Service, Portland, Oregon.

USFWS (U.S. Fish and Wildlife Service). 2011a. Revised recovery plan for the northern spotted owl (*Strix occidentalis caurina*). U.S. Fish and Wildlife Service, Portland, Oregon. Xvi + 258 pp.

USFWS (U.S. Fish and Wildlife Service). 2011b. Informal consultation on the Petersburg Pine Restoratoin Project. Letter from Yreka Fish and Wildlife Office to Klamath National Forest. November 15, 2011. Yreka, California.

USFWS (U.S. Fish and Wildlife Service). 2012. Draft environmental assessment. Designation of critical habitat for the northern spotted owl. June 2012. Portland, OR.

Van Gelder, J.J. 2003. Variation in four-note location calls of male spotted owls (*Strix* occidentalis). Thesis, Humboldt State University, Arcata, California.

van Mantgem, P.J., N.L. Stephenson, J.C. Byrne, L.D. Daniels, J.F. Franklin, P.Z.vFule, M.E. Harmon, A.J. Larson, J.M. Smith, A.H. Taylor and T.T. Veblen. 2009. Widespread increase of tree mortality rates in the western United States. Science 323:521–524.

WA DNR (Washington Department of Natural Resources. 2012. Forest Practices Rules. Title 222 WAC. Olympia, Washington.

Waters, J.R., and Zabel, C.J., 1998. Abundance of small mammals in fir forests in northeastern California. Journal of Mammalogy 79, 1244–12

Whitehead, R.J., L. Safranyik and T.L. Shore. 2006. Preventative Management. Pages 173–192 in L. Safranyik and B. Wilson (editors), The Mountain Pine Beetle: A Synthesis of Biology, Management, and Impacts on Lodgepole Pine. Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Victoria, British Columbia.

Wiens, J.D. 2012. Competitive interactions and resource partitioning between northern spotted owls and barred owls in western Oregon. Ph.D. Dissertation. Oregon State University, Corvallis, Oregon.

Wiles, G.J., H.L. Allen, and G.E. Hayes. 2011. Wolf conservation and management plan for Washington. Washington Department of Fish and Wildlife, Olympia, WA. 297 pp.

Yin, X. 1999. The decay of forest woody debris: numerical modeling and implications based on some 300 data cases from North America. Oecologia121:81–98.

Zabel, C.J., J.R. Dunk H.B. Stauffer, L.M. Roberts, B.S. Mulder and A. Wright. 2003. Northern spotted owl habitat models for research and management application in California (USA). Ecological Applications 13:1027–1040.

Unpublished data

BLM (Bureau of Land Management). Undated. Salem District northern spotted owl recovery habitat criteria. White paper on a process for Salem BLM to delineate forest stands that meet and do not meet spotted owl recovery objectives. This includes Recovery Action 32 for the Revised Recovery Plan (USFWS 2011a), as well as actions that meet the objectives of Recovery Action 10.

IEc (Industrial Economics, Inc.) 2012a. Memo from David Metz, Associate with Industrial Economics, Inc. on May 10, 2012, analyzing effects of the 2012 proposed revised rule using the 2008 critical habitat designation as a baseline.

IEc (Industrial Economics, Inc.) 2012b. Data from David Metz, Associate with Industrial Economics, Inc. on October 26, 2012, to calculate Matrix lands showing incremental effects using revised spotted owl occupancy rates provided by BLM during public comment.

USFWS (U.S. Fish and Wildlife Service) 2012. Analysis by Betsy Glenn, U.S. Fish and Wildlife Service, Portland, Oregon, November 8, 2012, to determine acres of Federal lands that may experience potential incremental impacts to timber harvest as a result of proposed critical habitat designation.

Personal Communication

Thomas, T. 2012 E-mail from Ted Thomas, U.S. Fish and Wildlife Service in Lacey Washington, to Sue Livingston, U.S. Fish and Wildlife Service in Portland Oregon. Dated 29 May 2012.

7.0 APPENDICES

APPENDICES TO THE ENVIRONMENTAL ASSESSMENT FOR THE DESIGNATION OF

REVISED CRITICAL HABITAT FOR THE NORTHERN SPOTTED OWL

Prepared by the U.S. Fish and Wildlife Service

Region 1

Portland, Oregon

November 2012

Appendix A. List of State Parks and Congressionally Reserved Natural Areas proposed for exclusion from critical habitat designation.

Appendix B. Weblink to Dunk *et al.* 2012, Modeling and analysis procedures used to identify and evaluate potential critical habitat networks for the northern spotted owl.

Appendix C. Weblink to Appendix C of the 2011 Revised Recovery Plan for the Northern Spotted Owl: Development of a Modeling Framework to Support Recovery Implementation and Habitat Conservation Planning, from the.

Appendix D. Analysis of lands considered for exclusion or exemption in this environmental assessment.

Appendix E. Response to Comments.

7.1 Appendix A: List of State Parks and Congressionally Reserved Natural Areas excluded from critical habitat designation.

Note: Does not include Wild and Scenic River land designations.

Entity excluded	State
California State Parks	
Del Norte Coast Redwoods State Park	California
Grizzly Creek Redwoods State Park	California
Hendy Woods State Park	California
Humboldt Redwoods State Park	California
Jedediah Smith Redwoods State Park	California
Mendocino Headlands State Park	California
Mount Tamalpais State Park	California
Navarro River Redwoods State Park	California
Prairie Creek Redwoods State Park	California
Richardson Grove State Park	California
Russian Gulch State Park	California
Salt Point State Park	California
Samuel P. Taylor State Park	California
Sonoma Coast State Park	California
Tomales Bay State Park	California
Van Damme State Park	California
Wilderness Areas	
Alpine Lakes Wilderness Area	Washington
Badger Creek Wilderness Area	Oregon
Boulder Creek Wilderness Area	Oregon
Boulder River Wilderness Area	Washington
Buckhorn Wilderness Area	Washington
Bull of the Woods Wilderness Area	Oregon
Chanchelulla Wilderness Area	California
Clackamas Wilderness Area	Oregon
Clearwater Wilderness Area	Washington
Colonel Bob Wilderness Area	Washington
Cummins Creek Wilderness Area	Oregon
Diamond Peak Wilderness Area	Oregon
Drift Creek Wilderness Area	Oregon
Elkhorn Ridge Wilderness Area	California
Glacier Peak Wilderness Area	Washington

Glacier View Wilderness Area	Washington
Goat Rocks Wilderness Area	Washington
Henry M. Jackson Wilderness Area	Washington
Indian Heaven Wilderness Area	Washington
Kalmiopsis Wilderness Area	Oregon
King Range Wilderness Area	California
Lake Chelan-Sawtooth Wilderness Area	Washington
Marble Mountain Wilderness Area	California
Mark O. Hatfield Wilderness Area	Oregon
Menagerie Wilderness Area	Oregon
Middle Santiam Wilderness Area	Oregon
Mount Adams Wilderness Area	Washington
Mount Hood Wilderness Area	Oregon
Mount Jefferson Wilderness Area	Oregon
Mount Lassic Wilderness Area	California
Mount Rainier Wilderness Area	Washington
Mount Skokomish Wilderness Area	Washington
Mount Thielsen Wilderness Area	Oregon
Mount Washington Wilderness Area	Oregon
Mountain Lakes Wilderness Area	Oregon
Norse Peak Wilderness Area	Washington
North Fork Wilderness Area	California
Olympic Wilderness Area	Washington
Opal Creek Wilderness Area	Oregon
Pasayten Wilderness Area	Washington
Philip Burton Wilderness Area	California
Red Buttes Wilderness Area	California – Oregon
Roaring River Wilderness Area	Oregon
Rock Creek Wilderness Area	Oregon
Rock and Islands Wilderness Area	California
Rogue-Umpqua Divide Wilderness Area	Oregon
Russian Wilderness Area	California
Salmon-Huckleberry Wilderness Area	Oregon
Sanhedrin Wilderness Area	California
Siskiyou Wilderness Area	California
Sky Lakes Wilderness Area	Oregon
Snow Mountain Wilderness Area	California
Soda Mountain Wilderness Area	Oregon
South Fork Eel River Wilderness Area	California
Stephen Mather Wilderness Area	Washington
Table Rock Wilderness Area	Oregon

Tatoosh Wilderness Area	Washington
The Brothers Wilderness Area	Washington
Three Sisters Wilderness Area	Oregon
Trapper Creek Wilderness Area	Washington
Trinity Alps Wilderness Area	California
Waldo Lake Wilderness Area	Oregon
Washington Islands Wilderness Area	Washington
Wild Rogue Wilderness Area	Oregon
Wild Sky Wilderness Area	Washington
William O. Douglas Wilderness Area	Washington
Wonder Mountain Wilderness Area	Washington
Yolla Bolly-Middle Eel Wilderness Area	California
Yuki Wilderness Area	California
Other Congressionally Reserved Natural Areas	
Crater Lake National Park	Oregon
Golden Gate National Recreation Area	California
Mount Rainer National Park	Washington
Mount St. Helens National Volcanic Monument	Washington
Muir Woods National Monument	California
Olympic National Park	Washington
Opal Creek Scenic Recreation Area	Oregon
Point Reyes National Seashore	California
Redwood National Park	California
Whiskeytown National Recreation Area	California

7.2 Appendix B: Weblink to Dunk et al. 2012

The following report is incorporated into this EA by reference. It is available for downloading at

http://www.fws.gov/oregonfwo/Species/Data/NorthernSpottedOwl/CriticalHabitat/default.asp

Dunk, J. R., B. Woodbridge, D. LaPlante, N. Schumaker, B. Glenn, B.C. White, K. Halupka, S. Livingston, M. Zwartjes and J. Peters. 2012. Modeling and analysis procedures used to identify and evaluate potential critical habitat networks for the northern spotted owl. November 21, 2012. U.S. Fish and Wildlife Service.

7.3 Appendix C: Weblink to Appendix C of the 2011 Revised Recovery Plan

Development of a Modeling Framework to Support Recovery Implementation and Habitat Conservation Planning, Appendix C of the 2011 Revised Recovery Plan for the Northern Spotted Owl (cited below), is incorporated into this EA by reference. It is available for downloading at

http://www.fws.gov/oregonfwo/Species/Data/NorthernSpottedOwl/Recovery/Library/Documents/RevisedNSORecPlan2011.pdf

U.S. Fish and Wildlife Service. 2011. Revised Recovery Plan for the Northern Spotted Owl (*Strix occidentalis caurina*). U.S. Fish and Wildlife Service, Portland, Oregon.

7.4 Appendix D: Analysis for lands considered for exclusion or exemption in this environmental assessment.

In the proposed revised rule (77 FR 14062; March 8, 2012), we identified numerous areas under consideration for exclusion from the final designation of critical habitat for the northern spotted owl. We solicited public comment on whether the benefits of exclusion of these lands would outweigh the benefits of inclusion, for example, based on active conservation agreements or conservation plans. We did a thorough evaluation of all the areas identified in the proposed rule, as well as others identified through our review and through information received from the public, and concluded that the benefits of exclusion for many of these areas outweighed the benefits of inclusion in critical habitat and that excluding these areas will not lead to the extinction of the species. For other areas identified for potential exclusion, we could not conclude, based on the best available scientific information, that the benefits of excluding them outweigh the benefits of including them in the designation, as these lands do not have management agreements or other reasons to exclude them from the final designation (such as substantial economic impacts or national security interests).

The analyses to support our conclusions as to whether or not the benefits of excluding specific lands from critical habitat designation outweigh the benefits of including those lands follows. We start with a background and then a description of those lands for which we concluded that the benefits of exclusion outweighed the benefits of inclusion. The latter portion of this analysis describes those lands for which we conclude that the benefits of exclusion do not outweigh the benefits of inclusion.

We also include in this appendix the analysis that was done to support the exemption of Department of Defense lands from critical habitat designation in accordance with Section 4(a)(3) of the ESA

Exemptions and Application of Section 4(a)(3) of the Act

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete an integrated natural resources management plan (INRMP) by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

(1) An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;

(2) A statement of goals and priorities;

(3) A detailed description of management actions to be implemented to provide for these ecological needs; and

(4) A monitoring and active adaptive forest management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108-136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: "The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines, in writing, that such plan provides a benefit to the species for which critical habitat is proposed for designation."

We consult with the military on the development and implementation of INRMPs for installations with listed species. We analyzed INRMPs developed by military installations located within the range of the designated critical habitat designation for the northern spotted owl to determine if they are exempt under section 4(a)(3) of the Act. The following areas are Department of Defense lands with completed, Service-approved INRMPs that fell within the area we proposed as revised critical habitat (77 FR 14062; March 8, 2012).

Approved INRMPs

U.S. Army Joint Base Lewis-McChord

Joint Base Lewis-McChord (JBLM), formerly known as Fort Lewis, is an 86,500-ac (35,000-ha) U.S. Army military reservation in western Washington, south of Tacoma and the Puget Sound. JBLM contains one of the largest remaining intact forest areas in the Puget Sound basin, with approximately 54,400 ac (22,000 ha) of forests and woodlands, predominantly of the dry Douglas-fir forest type and including some moist forest types (Douglas-fir, red cedar, hemlock). The forested area of JBLM is managed by the Base's Forestry Program, and the primary mission for the JBLM Forest is to provide a variety of forested environments for military training. JBLM has a history of applying an ecosystem management strategy to their forests to provide for multiple conservation goals, which have included promoting native biological diversity,

maintaining and restoring unique plant communities, and developing late-successional (older) forest structure. There are 14,997 ac (6,069 ha) of lands within the boundary of JBLM that were identified in the proposed critical habitat designation; these lands comprised subunit NCO-3 in the proposed rule (77 FR 14062; March 8, 2012).

JBLM has an INRMP in place that was approved in 2008; JBLM is in the process of updating that INRMP. To date, JBLM has managed their forest lands according to their Forest Management Strategy, first prepared for then-Fort Lewis in 1995 by the Public Forestry Foundation based in Eugene, Oregon, in collaboration with The Nature Conservancy. The Forest Management Strategy was last revised in May 2005, and is also in the process of being updated (Forest Management Strategy 2005, entire). However, in 2012, JBLM amended their existing INRMP with specific regard to the northern spotted owl by completing an Endangered Species Management Plan (ESMP) that includes guidelines for protecting, maintaining, and enhancing habitat essential to support the northern spotted owl on JBLM. The Service has found, in writing, that the amended INRMP provides a net conservation benefit to the species.

The ESMP identifies management objectives for the conservation of the northern spotted owl. Specifically, the ESMP includes three focus areas for management of northern spotted owl. The long-term objective for the first is development of all four types of owl habitat (nesting, roosting, foraging, and dispersal). The long-term objectives for Focus Areas 2 and 3 are development of owl foraging and dispersal habitat. The primary conservation goals for northern spotted owl habitat on JBLM are to protect and maintain existing northern spotted owl suitable habitat; manipulate unsuitable habitat to suitable habitat; and ensure long-term suitable habitat and monitor northern spotted owl habitat to assure that goals are met and actions are successful. Although northern spotted owls are not currently known to occupy JBLM, it is the only significant Federal ownership in this region of Washington, and it provides the largest contiguous block of forest in this area as well. The potential development of suitable owl habitat at JBLM provides one of the only feasible opportunities for establishing connectivity between owl populations in the Olympic Peninsula and the western Cascades Range. Connectivity allows gene flow between populations, and further maintains northern spotted owl distribution and metapopulation dynamics, which are important components of the recovery strategy for the northern spotted owl (USFWS 2011, p. III–1, III–44). The Forest Management Strategy (2005, p. 82) notes that the mosaic of dry forest, woodland, and prairie at JBLM is very different from typical forest landscapes that support northern spotted owls, and that while suitable habitat for dispersal of northern spotted owls can be achieved in the short term, at least 40 to 50 years may be needed to meet the desired condition for foraging, nesting, and roosting habitat.

Based on the above considerations and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that the identified lands are subject to the JBLM INRMP and that conservation efforts identified in the INRMP through its ESMP for the northern spotted owl will provide a benefit to the species occurring in habitats within or adjacent to JBLM, including the northern spotted owl. Therefore, lands within this installation are exempt from critical habitat

designation under section 4(a)(3) of the Act. We are not including approximately 14,997 ac (6,069 ha) of habitat in this final critical habitat designation as a result of this exemption.

Exclusions and Application of Section 4(b)(2) of the ESA

Section 4(b)(2) of the Act states that the Secretary must designate or make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impacts of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

When considering the benefits of inclusion for an area, we consider the additional regulatory benefits that area would receive from the protection from adverse modification or destruction as a result of actions with a Federal nexus; the educational benefits of mapping essential habitat for recovery of the listed species; and any benefits that may result from a designation due to State or Federal laws that may apply to critical habitat.

When considering the benefits of exclusion, we consider, among other things, whether exclusion of a specific area is likely to result in the overall conservation of the northern spotted owl through the continuation, strengthening, or encouragement of partnerships and the implementation of management plans or programs that provide equal or more conservation for the northern spotted owl than could be achieved through a designation of critical habitat. The Secretary can consider the existence of conservation agreements and other land management plans with Federal, State, private, and tribal entities when making decisions under section 4(b)(2) of the Act. The Secretary may also consider relationships with landowners, voluntary partnerships, and conservation plans, and weigh the implementation and effectiveness of these against that of designation to determine which provides the greatest conservation value to the listed species.

Consideration of relevant impacts of designation or exclusion under section 4(b)(2) may include, but is not limited to, any of the following factors: (1) whether the plan provides specific information on how it protects the species and the physical or biological features, and whether the plan is at a geographical scope commensurate with the species; (2) whether the plan is complete and will be effective at conserving and protecting the physical or biological features; (3) whether a reasonable expectation exists that conservation management strategies and actions will be implemented, that those responsible for implementing the plan are capable of achieving the objectives, that an implementation schedule exists, and that adequate funding

exists; (4) whether the plan provides assurances that the conservation strategies and measures will be effective (i.e., identifies biological goals, has provisions for reporting progress, and is of a duration sufficient to implement the plan); (5) whether the plan has a monitoring program or adaptive management to ensure that the conservation measures are effective; (6) the degree to which the record supports a conclusion that a critical habitat designation would impair the benefits of the plan; (7) the extent of public participation; (8) a demonstrated track record of implementation success; (9) the level of public benefits derived from encouraging collaborative efforts and encouraging private and local conservation efforts; and (10) the effect designation would have on partnerships.

After evaluating the benefits of inclusion and the benefits of exclusion, we carefully weigh the two sides to determine whether the benefits of excluding a particular area outweigh the benefits of its inclusion in critical habitat. If we determine that the benefits of excluding a particular area outweigh the benefits of its inclusion, then the Secretary can exercise his discretion to exclude the area, provided that the exclusion will not result in the extinction of the species.

Under section 4(b)(2) of the Act, we must consider all relevant impacts of the designation of critical habitat, including economic impacts. In addition to economic impacts, we consider a number of factors in a section 4(b)(2) analysis. We consider whether Federal or private landowners or other public agencies have developed management plans, habitat conservation plans (HCPs) or Safe Harbor Agreements (SHAs) for the area or whether there are conservation partnerships or other conservation benefits that would be encouraged or discouraged by designation of, or exclusion from, critical habitat in an area. We also consider other relevant impacts that might occur because of the designation. To ensure that our final determination is based on the best available information, we also consider comments received on foreseeable economic, national security, or other potential impacts resulting from this designation of critical habitat from governmental, business, or private interests and, in particular, any potential impacts on small businesses. In addition, we look at any tribal issues, and consider the government-to-government relationship of the United States with tribal entities. We also consider any social impacts that might occur because of the designation.

Here we provide our analysis of areas that were proposed as revised designation of critical habitat for the northern spotted owl, for which there may be a greater conservation benefit to exclude rather than include in the designation. Our weighing of the benefits of inclusion versus exclusion considered all relevant factors in order to make a final determination as to what will result in the greatest conservation benefit to the owl. Depending on the specifics of each situation, there may be cases where the designation of critical habitat may not necessarily provide enhanced protection, and may actually lead to a net loss of conservation benefit.

Benefits of Designating Critical Habitat

The process of designating critical habitat as described in the Act requires that the Service identify those lands within the geographical area occupied by the species at the time of listing on which are found the physical or biological features essential to the conservation of the species that may require special management considerations or protection, and those areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of the species.

The identification of areas that contain the features essential to the conservation of the species, or are otherwise essential for the conservation of the species if outside the geographical area occupied by the species at the time of listing, is a benefit resulting from the designation. The critical habitat designation process includes peer review and public comment on the identified physical or biological features and areas, and provides a mechanism to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by clearly delineating areas of high conservation value for the species, and is valuable to land owners and managers in developing conservation management plans by describing the essential physical or biological features and special management actions or protections that are needed for identified areas. Including lands in critical habitat also informs State agencies and local governments about areas that could be conserved under State laws or local ordinances.

However, the prohibition on destruction or adverse modification under section 7(a)(2) of the Act constitutes the only Federal regulatory benefit of critical habitat designation. As discussed above, Federal agencies must consult with the Service on actions that may affect critical habitat and must avoid destroying or adversely modifying critical habitat. Federal agencies must also consult with us on actions that may affect a listed species and refrain from undertaking actions that are likely to jeopardize the continued existence of such species. The analysis of effects to critical habitat is a separate and different analysis from that of the effects to the species. Therefore, the difference in outcomes of these two analyses also represents the regulatory benefit of critical habitat. For some species, and in some locations, the outcome of these analyses will be similar because effects on habitat will often result in effects on the species. However, these two regulatory standards are different. The jeopardy analysis evaluates how a proposed action is likely to influence the likelihood of a species' survival and recovery. The adverse modification analysis evaluates how an action affects the capability of the critical habitat to serve its intended conservation function or purpose (USFWS, in litt. 2004). Although these standards are different, it has been the Service's experience that in many instances proposed actions that affect both a listed species and its critical habitat and that constitute jeopardy also constitute adverse modification. In some cases, however, application of these different standards results in different section 7(a)(2) determinations, especially in situations where the affected area is mostly or exclusively unoccupied critical habitat. Thus, critical habitat designations may provide greater benefits to the recovery of a species than would listing as endangered or threatened under the Act alone.

There are two limitations to the regulatory effect of critical habitat. First, a section 7(a)(2) consultation is required only where there is a Federal nexus (an action authorized, funded, or carried out by any Federal agency)—if there is no Federal nexus, the critical habitat designation of non-Federal lands itself does not restrict any actions that destroy or adversely modify critical habitat. Aside from the requirement that Federal agencies ensure that their actions are not likely to result in destruction or adverse modification of critical habitat under section 7, the Act does not provide any additional regulatory protection to lands designated as critical habitat.

Second, designating critical habitat does not create a management plan for the areas; does not establish numerical population goals or prescribe specific management actions (inside or outside of critical habitat); and does not have a direct effect on areas not designated as critical habitat. The designation only limits destruction or adverse modification of critical habitat, not all adverse effects. By its nature, the prohibition on adverse modification ensures that the conservation role and function of the critical habitat network is not appreciably reduced as a result of a Federal action.

Once an agency determines that consultation under section 7(a)(2) of the Act is necessary, the process may conclude informally when the Service concurs in writing that the proposed Federal action is not likely to adversely affect the species or critical habitat. However, if we determine through informal consultation that adverse impacts are likely to occur, then formal consultation is initiated. Formal consultation concludes with a biological opinion issued by the Service on whether the proposed Federal action is likely to jeopardize the continued existence of listed species or result in destruction or adverse modification of critical habitat.

For critical habitat, a biological opinion that concludes in a determination of no destruction or adverse modification may recommend additional conservation measures to minimize adverse effects to primary constituent elements, but such measures would be discretionary on the part of the Federal agency.

The designation of critical habitat does not require that any management or recovery actions take place on the lands included in the designation. Even in cases where consultation has been initiated under section 7(a)(2) of the Act because of effects to critical habitat, the end result of consultation is to avoid adverse modification, but not necessarily to manage critical habitat or institute recovery actions on critical habitat. On the other hand, voluntary conservation efforts by landowners can remove or reduce known threats to a species or its habitat by implementing recovery actions. We find that in many instances the regulatory benefit of critical habitat is minimal when compared to the conservation benefit that can be achieved through implementing HCPs under section 10 of the Act, or other voluntary conservation efforts or management plans. The conservation achieved through implementing HCPs, or other habitat management plans can be greater than what we achieve through multiple site-by-site, project-by-project section 7(a)(2) consultations involving project effects to critical habitat. Management plans can commit resources to implement long-term management and protection to particular habitat for at least one and possibly other listed or sensitive species. Section 7(a)(2)

consultations commit Federal agencies to preventing adverse modification of critical habitat caused by the particular project; consultation does not require Federal agencies to provide for conservation or long-term benefits to areas not affected by the proposed project. Thus, implementation of any HCP or management plan that incorporates enhancement or recovery as the management standard may often provide as much or more benefit than a consultation for critical habitat designation.

Benefits of Excluding Lands with Safe Harbor Agreements

A Safe Harbor Agreement (SHA) is a voluntary agreement involving private or other non-Federal property owners whose actions contribute to the recovery of listed species. The agreement is between cooperating non-Federal property owners and the Service. In exchange for actions that contribute to the recovery of listed species on non-Federal lands, participating property owners receive formal assurances from the Service that, if they fulfill the conditions of the SHA, the Service will not require any additional or different management activities by the participants without their consent. In addition, at the end of the agreement period, participants may return the enrolled property to the baseline conditions that existed at the beginning of the SHA.

Because many endangered and threatened species occur exclusively, or to a large extent, on privately owned property, the involvement of the private sector in the conservation and recovery of species is crucial. Property owners are often willing partners in efforts to recover listed species. However, some property owners may be reluctant to undertake activities that support or attract listed species on their properties, due to fear of future property-use restrictions related to the Act. To address this concern, an SHA provides that future property-use limitations will not occur without the landowner's consent if the landowner is in compliance with the permit and agreement and the activity is not likely to result in jeopardy to the listed species.

Central to this approach is that the actions taken under the SHA must provide a net conservation benefit that contributes to the recovery of the covered species. Examples of conservation benefits include:

- reduced habitat fragmentation;
- maintenance, restoration, or enhancement of existing habitats;
- increases in habitat connectivity;
- stabilized or increased numbers or distribution;
- the creation of buffers for protected areas; and
- opportunities to test and develop new habitat management techniques.

By entering into a SHA, property owners receive assurances that land use restrictions will not be required even if the voluntary actions taken under the agreement attract particular listed species onto enrolled properties or increase the numbers of distribution of those listed species already present on those properties. The assurances are provided through an enhancement of survival permit issued to the property owner, under the authority of section 10(a)(1)(A) of the Act. To implement this provision of the Act, the Service and National Marine Fisheries Service (NMFS) issued a joint policy for developing SHAs for listed species on June 17, 1999 (64 FR 32717). The Service simultaneously issued regulations for implementing SHAs on June 17, 1999 (64 FR 32706). A correction to the final rule was announced on September 30, 1999 (64 FR 52676). The enhancement of survival permit issued in association with an SHA authorizes incidental take of species that may result from actions undertaken by the landowner under the SHA, which could include returning the property to the baseline conditions at the end of the agreement. The permit also specifies that the Service will not require any additional or different management activities by participants without their consent if the permittee is in compliance with the requirements of the permit and the SHA and the permittee's actions are not likely to result in jeopardy.

The benefits of excluding lands with approved SHAs from critical habitat designation may include relieving landowners, communities, and counties of any additional regulatory burden that might be imposed as a result of the critical habitat designation. Even if any additional regulatory burden would be unlikely due to a lack of a Federal nexus, the designation of critical habitat could nonetheless have an unintended negative effect on our relationship with non-Federal landowners, due to the perceived imposition of government regulation. An additional benefit of excluding lands covered by approved SHAs from critical habitat designation is that it may make it easier for us to seek new partnerships with future SHA participants, including States, counties, local jurisdictions, conservation organizations, and private landowners, in cases where potential partners may be reluctant to encourage the development of habitat that supports endangered or threatened species. In such cases, we may be able to implement conservation actions that we would be unable to accomplish otherwise. By excluding these lands, we may preserve our current partnerships and encourage additional future conservation actions.

In weighing the benefits of inclusion versus the benefits of exclusion for lands subject to approved SHAs, it is important to note that a fundamental requirement of an SHA is an advance determination by the Service that the provisions of the SHA will result in a net conservation benefit to the listed species. Approved SHAs have, therefore, already been determined to provide a net conservation benefit to the listed species; in addition, the management activities provided in an SHA often provide conservation benefits to unlisted sensitive species as well. As described earlier, the designation of critical habitat may not provide any substantial realized conservation benefit to the species on non-Federal lands absent a Federal nexus for an activity. Especially where further Federal action is unlikely, the net conservation benefit provided by the terms of the SHA itself, considered in conjunction with the benefit of excluding lands subject to an SHA by preserving our working relationships with landowners who have entered into SHAs

with the Service, and the benefit of laying the positive groundwork for possible future agreements with other landowners, may collectively outweigh the potentially limited benefit that would be realized on these lands from the designation of critical habitat. However, as with all potential exclusions under consideration, lands subject to an SHA may only be excluded if we determine that the benefits of exclusion outweigh the benefits of inclusion following a rigorous examination of the record on a case-by-case basis.

We note that permit issuance in association with SHA applications requires consultation under section 7(a)(2) of the Act, which would include the review of the effects of all SHA-covered activities that might adversely impact the species under a jeopardy standard, including possibly significant habitat modification (see definition of "harm" at 50 CFR 17.3), even without the critical habitat designation. In addition, all other Federal actions that may affect the listed species would still require consultation under section 7(a)(2) of the Act, and we would review these actions for possible significant habitat modification in accordance with the definition of harm.

We further note that SHAs may include a provision that the landowner may return the area to baseline conditions upon expiration of the permit. The term of the permit is thus an important consideration in weighing the relative benefits of inclusion versus exclusion from the designation of critical habitat. However, the Service has the right to revise a critical habitat designation at any time. Furthermore, the potential benefit of acknowledging the positive conservation contributions of landowners willing to enter into voluntary conservation agreements with the Service for the recovery of endangered or threatened species may nonetheless outweigh the loss of benefit that may be incurred through a possible return to baseline following permit expiration. As stated above, such circumstances require careful consideration on a case-by-case basis in order to make a final determination of the benefits of exclusion or inclusion in a critical habitat designation.

Below is a description of each SHA and our analysis of the benefits of including and excluding it from the critical habitat designation under section 4(b)(2) of the Act.

State of California

Forster-Gill, Inc., Safe Harbor Agreement

The Safe Harbor Agreement (SHA) of Forster-Gill, Inc. is located within subunit 1 of the Redwood Coast CHU in Humboldt County, California. The enhancement of survival permit associated with this SHA was noticed in the Federal Register on March 22, 2002 (67 FR 13357),

and issued June 18, 2002. The term of the agreement is 80 years, and the term of the permit is 90 years. The SHA provides for the creation and enhancement of habitat for the northern spotted owl on 236 ac of lands in Humboldt County, California, and provides for continued timber harvest on those lands. There are two baseline conditions that will be maintained under the SHA: (1) protection of an 11.2-ac no-harvest area that will buffer the most recent active northern spotted owl nest site, but will also be maintained in the absence of a nest site; and (2) maintenance of 216 ac on the property such that the trees will always average 12 to 24 in with a canopy cover of 60 to 100 percent. At the time of the agreement, forest conditions were on the lower end of the diameter and canopy cover ranges. By the end of the agreement, the property will be at the upper end of the diameter and canopy cover ranges. Under the SHA, Forster-Gill, Inc., agrees to: (1) annually, survey and monitor for the location and reproductive status of northern spotted owls on the property; (2) protect all active nest sites (locations where nesting behavior is observed during any of the previous 3 years) with a no-harvest area that buffers the nest site by no less than 300 ft and limits timber harvest operations within 1,000 ft of an active nest site during the breeding season, allowing only the use of existing haul roads; and (3) manage the second-growth redwood timber on the property in a manner that maintains suitable northern spotted owl habitat, while creating, over time, the multilayered canopy structure with an older, larger tree component associated with high-quality northern spotted owl habitat. The SHA is expected to provide, maintain, and enhance for the 80-year life of the agreement over 200 ac of northern spotted owl habitat within a matrix of private timberland. The cumulative impact of the agreement and the timber management activities it covers, which are facilitated by the allowable incidental take, is expected to provide a net benefit to the northern spotted owl.

Benefits of Inclusion—There are minimal benefits to including these lands in critical habitat. As discussed above, the designation of critical habitat invokes the provisions of section 7. However, in this case, we find the requirement that Federal agencies consult with us and ensure that their actions are not likely to destroy or adversely modify critical habitat will not result in substantial benefits to the species because the possibility of a Federal nexus for a project on these lands that might trigger such consultation is limited (there is little likelihood of an action that will involve Federal funding, authorization, or implementation). In addition, since the lands under the SHA in question are occupied by the northern spotted owl, if a Federal nexus were to occur, section 7 consultation would already be triggered and the Federal agency would consider the effects of its actions on the species through a jeopardy analysis. Because one of the primary threats to the northern spotted owl is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus will, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or functionality of the habitat for the species regardless of whether critical habitat is designated for these lands. The analytical requirements to support a jeopardy determination on excluded land are similar, but not identical, to the requirements in an analysis for an adverse modification determination on included land. The additional conservation that could be

attained through the supplemental adverse modification analysis for critical habitat under section 7 would likely not be substantial, and would be triggered only in the event of a Federal action. Furthermore, any such potential benefit would be small in comparison to the benefits derived from the SHA, which already incorporates measures that specifically benefit the northern spotted owl and its habitat, as described above, and remains in place regardless of the designation of critical habitat.

Another benefit of including lands in a critical habitat designation is that it serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. However, in this case the landowners are aware of the needs of the species through the development of their SHA, in which they have agreed to take measures to protect the northern spotted owl on their property and create and enhance suitable habitat for the species as well. Any additional educational and information benefits that might arise from critical habitat designation have been largely accomplished through the public review of and comment on the SHA and the associated permit. The release of the Revised Recovery Plan for the Northern Spotted Owl in 2011 was also preceded by outreach efforts and public comment opportunities. In addition, the rulemaking process associated with critical habitat designation included several opportunities for public comment, and we also held multiple public information meetings across the range of the species. Through these outreach opportunities, land owners, State agencies, and local governments have become aware of the current status of and threats to the northern spotted owl, and the conservation actions needed for recovery.

The designation of critical habitat may also indirectly cause State or County jurisdictions to initiate their own additional requirements in areas identified as critical habitat. These measures may include additional permitting requirements or a higher level of local review on proposed projects. However, CAL FIRE has indicated to us that it is unlikely to impose any new requirements on project proponents if critical habitat is designated in areas already subject to California Forest Practice Rules. Therefore, we believe this potential benefit of critical will be limited.

Benefits of Exclusion—The benefits of excluding from designated critical habitat the approximately 236 ac of lands currently managed under the SHA are substantial. We have created a close partnership with Forster-Gill through the development of the SHA, which incorporates protections and management objectives for the northern spotted owl and the habitat upon which it depends for breeding, sheltering, and foraging activities, as described above. The conservation approach identified in the Forster-Gill, Inc. SHA, along with our close coordination with the company, addresses the identified threats to northern spotted owl

habitat on the covered lands that contain the physical or biological features essential to the conservation of the species.

The conservation measures identified within the SHA seek to achieve conservation goals for northern spotted owls and their habitat, and thus can be of greater conservation benefit than the designation of critical habitat, which does not require specific, proactive management actions. If there is a Federal nexus, consultation under critical habitat requires only that the action agency avoid actions that destroy or adversely modify critical habitat. In contrast, SHA conservation measures that provide a benefit to the northern spotted owl and its habitat have been, and will be, implemented continuously beginning with the enactment of the SHA in 2002 through the 80-year term of the ITP, through 2082, on all covered lands owned and managed by Forster-Gill, Inc. The key conservation measure is a provision that will lead to an approximate doubling of mean tree diameter from roughly 12 to 24 in on covered lands over the life of the permit, leading to enhancement of habitat suitability.

The designation of critical habitat could have an unintended negative effect on our relationship with non-Federal landowners due to the perceived imposition of redundant government regulation. If lands within the Forster-Gill SHA are designated as critical habitat, it would likely have a chilling effect on our continued ability to seek new partnerships with future participants including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement various conservation actions (such as SHAs, HCPs, and other conservation plans, particularly large, regional Conservation Plans that involve numerous participants and/or address landscape-level conservation of species and habitats) that we would be unable to accomplish otherwise.

Excluding the approximately 236 ac owned and managed by Forster-Gill, Inc. from critical habitat designation will sustain and enhance the working relationship between the Service and this private lands partner. The willingness of Forster-Gill to work with the Service to manage federally listed species will continue to reinforce those conservation efforts and our partnership, which contribute toward achieving recovery of the northern spotted owl. We consider this voluntary partnership in conservation vital to our understanding of the status of species on non-Federal lands and necessary to implement recovery actions such as habitat protection and restoration, and beneficial management actions for species. By excluding these lands, we preserve our current conservation partnership with Forster-Gill and encourage additional conservation actions by this partner, and potentially others as well, in the future. We consider the positive effect of excluding proven conservation partners from critical habitat to be a major benefit of exclusion.

The Benefits of Exclusion Outweigh the Benefits of Inclusion—We reviewed and evaluated the exclusion of approximately 236 ac of land owned and managed by Forster-Gill, Inc. from our designation of critical habitat. The benefits of including these lands in the designation are relatively small. The habitat on the covered lands is already being monitored and managed

under the SHA to improve the habitat elements that are equivalent to the physical or biological features that are outlined in this critical habitat rule. The additional designation of critical habitat would provide unnecessarily duplicative protections, and would in any case be unlikely to be triggered under section 7, since there is little probability of a Federal nexus for any activity on these lands. Even if triggered, since the lands in question are occupied by the species, section 7 consultation would already be required under the jeopardy standard, and as noted, the analysis under the adverse modification standard would be unlikely to provide additional protections beyond those already in place under the SHA. The regulatory benefit of additional Federal review on individual proposed actions is episodic and confined to the scope and scale of the specific actions, whereas implementation of the SHA is continuous and affects the entire property.

Educational benefits are also limited. The landowner is already aware of the conservation needs of the species through development of the SHA. Because there is no public access to the land, we are not aware of any public constituency connected with this ownership which would derive informational benefits from the designation of critical habitat. However, as noted, we have conducted extensive outreach efforts, both in relation to the SHA and its associated permit, as well as our proposed critical habitat, which have provided opportunity for public education and comment on critical habitat for the northern spotted owl. As such, much of the potential educational benefit of critical habitat on these lands has already been accomplished.

On the other hand, the SHA has provisions for protecting and maintaining northern spotted owl habitat that far exceed the conservation benefits that could be obtained through section 7 consultation. These measures will not only prevent the degradation of essential features of the northern spotted owl, but they will maintain or improve these features over time. Furthermore, landowners always have the option not to return to baseline after the term of the SHA is over. Exclusion of these lands from critical habitat will help foster the partnership we have developed with Forster-Gill through the development and continuing implementation of the SHA, and may encourage the landowner to continue these cooperative efforts even after the term of the SHA. In addition, this partnership may serve as a model and aid in fostering future cooperative relationships with other parties in other locations for the benefit of listed species. For these reasons, we conclude that the benefits of exclusion of lands covered by the Forster-Gill, Inc. SHA outweigh the benefits of critical habitat designation.

Exclusion Will Not Result in Extinction of the Species—We conclude that the exclusion of 236 ac from the designation of critical habitat for the northern spotted owl of lands owned and managed by Forster-Gill, Inc., as identified in their SHA would not result in extinction of the species because current conservation efforts under the plan adequately protect the geographical areas containing the physical or biological features essential to the conservation of the species. For projects having a Federal nexus and affecting northern spotted owls in occupied areas, as in this case, the jeopardy standard of section 7 of the Act, coupled with

protection provided under the terms of the SHA, would provide assurances that this species will not go extinct as a result of excluding these lands from the critical habitat designation.

Van Eck Forest Foundation Safe Harbor Agreement

The SHA between the Fred M. Van Eck Forest Foundation and the Service covers lands within subunit 1 of the Redwood Coast CHU in California. These lands are also protected under a conservation easement held by the Pacific Forest Trust. The enhancement of survival permit associated with this SHA was noticed in the **Federal Register** on July 8, 2008 (73 FR 39026), and issued August 18, 2008. The term of the permit and the agreement is 90 years. The SHA provides for the creation and enhancement of habitat for the northern spotted owl on 2,774 ac of lands in Humboldt County, California, and provides for continued timber harvest on those lands. At the time of the agreement, the lands under consideration supported 1,730 ac of northern spotted owl nesting and roosting habitat and one northern spotted owl activity center (a location where owls are observed nesting or roosting). We anticipate that under the northern spotted owl habitat creation and enhancement timber management regime proposed in the SHA that approximately 1,947 ac of nesting and roosting habitat and potentially up to five northern spotted owl activity centers could exist on the property at the end of 90 years. The SHA does not provide for a return to baseline conditions at the end of the agreement term. Instead, the agreement provides that if more than five northern spotted owl activity centers should become established on the property during the 90-year term, the landowner would be allowed to remove such additional activity centers during the agreement period.

Under the SHA, the Fred M. van Eck Forest Foundation agrees to: (1) Conduct surveys annually to determine the locations and reproductive status of any northern spotted owls; (2) protect up to five activity centers with a no-harvest area that buffers the activity center by no less than 100 ft; (3) utilize selective timber harvest methods such that suitable nesting habitat is maintained within 300 ft of each activity center; (4) limit noise disturbance from timber harvest operations within 1,000 ft of an active nest during the breeding season; and (5) manage all second-growth redwood timber on the property in a manner that maintains or creates suitable nesting and roosting habitat over time. The term of the SHA and ITP is 90 years; there is no term limitation on the easement deed held by the Pacific Forest Trust. Specific long-term management targets for second-growth timber are enumerated in the easement deed. All are expressed as propertywide averages; for example, a stocking target of 100,000 board feet (bf) per acre, 75 percent minimum conifer occupancy, 25 percent of standing inventory made up of trees greater than 200 years of age, 15 dominant conifers per acre 36-inches DBH or greater, 4 standing snags per acre 30-inches DBH or greater, 1,600 cubic feet per acre of dead and down logs. The cumulative impact of the SHA and the easement is expected to provide a substantial net benefit to the northern spotted owl.

Benefits of Inclusion—We find there are minimal benefits to including these lands in critical habitat. As discussed above, the designation of critical habitat invokes the provisions of section 7. However, in this case, we find the requirement that Federal agencies consult with us and ensure that their actions are not likely to destroy or adversely modify critical habitat will not result in substantial benefits to the species because the possibility of a Federal nexus for a project on these lands is limited (there is little likelihood of an action that will involve Federal funding, authorization, or implementation). In addition, since the lands under the SHA in question are occupied by the northern spotted owl, if a Federal nexus were to occur, section 7 consultation would already be triggered and the Federal agency would consider the effects of its actions on the species through a jeopardy analysis. Because one of the primary threats to the northern spotted owl is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus will, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or functionality of the habitat for the species regardless of whether critical habitat is designated for these lands. The analytical requirements to support a jeopardy determination on excluded land are similar, but not identical, to the requirements in an analysis for an adverse modification determination on included land. The additional conservation that could be attained through the supplemental adverse modification analysis for critical habitat under section 7 would likely not be substantial, and would be triggered only in the event of a Federal action. Furthermore, any such potential benefit would be small in comparison to the benefits already derived from the SHA, which already incorporates measures that specifically benefit the northern spotted owl and its habitat, as described above, and remains in place regardless of the designation of critical habitat.

Another benefit of including lands in a critical habitat designation is that it serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. The landowners in this case are aware of the needs of the species through the development of their SHA, in which they have agreed to take measures to protect the northern spotted owl on their property and create and enhance suitable habitat for the species as well. Any additional educational and information benefits that might arise from critical habitat designation have been largely accomplished through the public review of and comment on the SHA and the associated permit. The release of the Revised Recovery Plan for the Northern Spotted Owl in 2011 was also preceded by outreach efforts and public comment opportunities. In addition, the rulemaking process associated with critical habitat designation included several opportunities for public comment, and we also held multiple public information meetings across the range of the species. Through these outreach opportunities, land owners, State agencies, and local governments have become aware of the current status of and threats to the northern spotted owl, and the conservation actions needed

for recovery.

The designation of critical habitat may also indirectly cause State or County jurisdictions to initiate their own additional requirements in areas identified as critical habitat. These measures may include additional permitting requirements or a higher level of local review on proposed projects. However, CAL FIRE has indicated to us that it is unlikely to impose any new requirements on project proponents if critical habitat is designated in areas already subject to California Forest Practice Rules. Therefore, we believe this potential benefit of critical will be limited.

Benefits of Exclusion—The benefits of excluding from designated critical habitat the approximately 2,774 ac of lands currently managed under the SHA are substantial. We have created a close partnership with the Foundation through the development of the SHA, which incorporates protections and management objectives for the northern spotted owl and the habitat upon which it depends for breeding, sheltering, and foraging activities, as described above. The conservation approach identified in the Van Eck Forest Foundation SHA, along with our close coordination with the Foundation, addresses the identified threats to northern spotted owl on covered lands that contain the physical or biological features essential to the conservation of the species.

The SHA conservation measures that provide a benefit to the northern spotted owl and its habitat have been, and will be, implemented continuously beginning with the enactment of the SHA in 2008 through the 90-year term of the ITP, through 2088, on all covered lands owned and managed by the Van Eck Forest Foundation. Such measures include the examples we identified above: a volume-based mean stocking target, mean conifer occupancy, mean percentages of standing inventory in older age classes, mean size and density of dominant conifers, mean size and density of standing snags, and mean volume of dead and down logs. The measures provided in the SHA are aimed at the maintenance and enhancement of suitable nesting and roosting habitat over time to benefit the northern spotted owl.

The designation of critical habitat could have an unintended negative effect on our relationship with non-Federal landowners due to the perceived imposition of redundant government regulation. If lands within the Van Eck Forest Foundation SHA are designated as critical habitat, it would likely have a chilling effect on our continued ability to seek new partnerships with future participants including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement various conservation actions (such as SHAs, HCPs, and other conservation plans) that we would be unable to accomplish otherwise. Excluding the approximately 2,774 ac owned and managed by the Van Eck Forest Foundation from critical habitat designation will sustain and enhance this working relationship between the Service and the Foundation. The willingness of the Foundation to work with us to manage federally listed species will continue to reinforce those conservation efforts and our partnership, which contribute toward achieving recovery of the northern spotted owl. We

consider this voluntary partnership in conservation vital to our understanding of the status of species on non-Federal lands and necessary for us to implement recovery actions, such as habitat protection and restoration, and beneficial management actions for species. Further, this partnership may aid in fostering future cooperative relationships with other parties in other locations for the benefit of listed species. We consider the positive effect of excluding proven conservation partners from critical habitat to be a major benefit of exclusion.

The Benefits of Exclusion Outweigh the Benefits of Inclusion—We reviewed and evaluated the exclusion of approximately 2,774 ac of land owned and managed by the Van Eck Forest Foundation from our designation of critical habitat. The benefits of including these lands in the designation are relatively small, since the habitat on the covered lands is already being monitored and managed under the SHA to improve the habitat elements that are equivalent to the physical or biological features that are outlined in this critical habitat rule. The additional designation of critical habitat would provide unnecessarily duplicative protections, and would in any case be unlikely to be triggered under section 7, since there is little probability of a Federal nexus on these lands. Even if triggered, since the lands in question are occupied by the species, section 7 consultation would already be required under the jeopardy standard, and, as noted, the analysis under the adverse modification standard would be unlikely to provide additional protections beyond those already in place under the SHA.

Educational benefits are also limited. The landowner is already aware of the conservation needs of the species through development of the SHA. Because the Van Eck lands, for the most part, are not open to the general public, there is no public constituency that would derive informational benefits from the designation of critical habitat. However, as noted, we have conducted extensive outreach efforts, both in relation to the SHA and its associated permit, as well as our proposed revision of critical habitat, which have provided opportunity for public education and comment on critical habitat for the northern spotted owl. As such, much of the potential educational benefit of critical habitat on these lands has already been accomplished.

On the other hand, the conservation measures identified within the SHA seek to achieve conservation goals for northern spotted owls and their habitat, and thus can be of greater conservation benefit than the designation of critical habitat, which does not require specific, proactive actions. Thus, the implementation of the SHA provides a substantially greater benefit to the northern spotted owl than would be obtained through section 7 consultation. The measures provided in the SHA will not only prevent the degradation of essential features for the northern spotted owl, but they are designed to maintain or enhance these features over time. Furthermore, landowners always have the option not to return to baseline after the term of the SHA is over. Exclusion of these lands from critical habitat will help foster the partnership we have developed with the Van Eck Forest Foundation through the development and continuing implementation of the SHA and may encourage the landowner to continue these cooperative efforts even after the term of the SHA. In addition, this partnership may serve as a

model and aid in fostering future cooperative relationships with other parties in other locations for the benefit of listed species. For these reasons we conclude that the benefits of exclusion of lands covered by the Van Eck Forest Foundation SHA outweigh the benefits of critical habitat designation.

Exclusion Will Not Result in Extinction of the Species—We conclude that the exclusion of 2,774 ac from the designation of critical habitat for the northern spotted owl of lands owned and managed by the Van Eck Forest Foundation, as identified in their SHA will not result in extinction of the species because current conservation efforts under the plan adequately protect the geographical areas containing the physical or biological features essential to the conservation of the species. For projects having a Federal nexus and affecting northern spotted owls in occupied areas, such as in this case, the jeopardy standard of section 7 of the Act, coupled with protection provided under the terms of the SHA and Conservation Easement Agreement, would provide assurances that this species will not go extinct as a result of excluding these lands from the critical habitat designation.

State of Washington

Port Blakely Tree Farms L.P. (Morton Block) Safe Harbor Agreement, Landowner Option Plan, and Cooperative Habitat Enhancement Agreement

Approximately 195 ac of lands covered under the Port Blakely Tree Farms (also known as Morton Block) SHA are located in the West Cascades Central CHU in Washington. The enhancement of survival permit associated with this SHA was noticed in the **Federal Register** on December 17, 2008 (73 FR 76680) and issued May 22, 2009. The SHA and permit include both the marbled murrelet (*Brachyramphus marmoratus*) and the northern spotted owl, and covers an area of 45,306 ac of managed forest lands known as the ‘‘Morton Block,’’ in Lewis and Skamania Counties. The term of the permit and SHA is 60 years.

The covered lands have been intensively managed for timber production and at the time the permit was issued were not known to be occupied by northern spotted owls. The environmental baseline was measured in terms of dispersal habitat. There are no known northern spotted owls nesting on Port Blakely lands. However, northern spotted owls have historically nested on adjacent Federal lands and the 1.82-mile radius circles around those sites that are used for evaluating potential habitat availability for northern spotted owls extend onto Port Blakely lands. Because of this, Port Blakely Tree Farms conducted habitat evaluations of

their properties to determine the amount of suitable northern spotted owl habitat present. The baseline estimate to be provided by the SHA is 8,360 ac of northern spotted owl dispersal habitat.

Under the SHA, Port Blakely is implementing conservation measures that are expected to provide net conservation benefits to the northern spotted owl and marbled murrelet. The SHA also provides that Port Blakely will manage their tree farm in a manner that contributes to the goals of the Mineral Block Northern Spotted Owl Special Emphasis Area (SOSEA) according to Washington Forest Practices Rules and Regulations (Washington Forest Practices Board 2002, WAC 222–16–080, WAC 222–16– 086). This area is intended to facilitate dispersal of juvenile northern spotted owls, as well as provide demographic support to core northern spotted owl populations.

Under the SHA, Port Blakely is implementing enhanced forest-management measures that would create potential habitat for the northern spotted owl and marbled murrelet, such as longer harvest rotations, additional thinning to accelerate forest growth, a snag-creation program, retention of more fallen wood than is required by Washington Forest Practices Rules, establishment of special management areas and special set-aside areas, and monitoring. The terms of the agreement are intended to produce conditions that will facilitate the dispersal of the northern spotted owl across the Port Blakely ownership.

At present, there are no known nesting sites for owls in the covered area. However, portions of the covered area are within owl management circles associated with site centers on adjacent ownerships. The majority of the stand-management units are composed of 20- to 60-year-old timber. There are no stands that would provide nesting opportunities for owls in the covered area, and very little young forest marginal habitat is present in the areas of the Morton Block with the potential for utilization by owls that may occur on adjacent ownerships. The young forest marginal habitat known to exist on Port Blakely's ownership is within circles that have greater than 40 percent suitable habitat and, thus, may be harvested under Washington State Forest Practices Rules.

The SHA landscape-management approach contributes to owl recovery by complementing the existing owl landscape-management strategies on adjacent Federal and State forestlands. The SHA goals and objectives for the northern spotted owl are to provide demographic interchange through dispersal and foraging habitat across their ownership on a dynamic basis, as well as higher-quality habitat in harvest set-asides. These habitats provide for both dispersal and demographic interchange. SOSEA goals are identified in the Washington State Forest Practices Rules and shown on the SOSEA maps (see WAC 222-16-086). SOSEA goals provide for demographic and dispersal support as necessary to complement the northern spotted owl protection strategies on Federal lands within or adjacent to the SOSEA (WAC 222-16-010).

Port Blakely will achieve these goals and objectives both in the near term and over the term of the SHA by immediately protecting special management areas and special set-aside areas of northern spotted owl habitat, and managing commercial forested lands in the plan area on an

average rotation length of 60 years. In addition, the SHA provides silvicultural measures to benefit the northern spotted owl, including a thinning program and a snag-retention and creation program.

Port Blakely has agreed to collaborate with State and Federal biologists in research efforts to better understand how their management will influence dispersal habitat conditions in the plan area. Port Blakely is working cooperatively with the Service, WDFW, WDNR, and other entities that have expertise, in designing a statistically robust snag-monitoring study. Port Blakely will also map all leave tree areas, and mark a sample of snag and defective trees for use in snag-monitoring studies. The SHA acknowledges uncertainty in some aspects of anticipated results. Areas of uncertainty include the likelihood that green retention trees will become snags during the period between commercial thinning and future entries, as well as the recruitment success and persistence of snags. Port Blakely has committed to work collaboratively with agencies in these matters. The SHA also contains monitoring and reporting requirements.

Benefits of Inclusion—Critical habitat designation on private lands introduces a higher level of Federal scrutiny under the interagency consultation process in section 7 of the Act. This higher level of scrutiny can arise through two avenues. Under section 7(a)(2) of the Act, Federal agencies that grant funds or issue permits for proposed actions on private lands, whether or not those lands are designated critical habitat, are required to consult with the Service to ensure that the proposed action "... is not likely to jeopardize the continued existence of any endangered species or threatened species ..." When lands are designated critical habitat, the section 7(a)(2) consultation requirement is expanded so that the granting or permitting Federal agencies and the Service are required to ensure that the proposed action will not "... result in the destruction or adverse modification of critical habitat ..." of any endangered species or threatened species. Critical habitat designation adds a new element to the Federal consultation: the consideration and analysis of adverse effects to habitat that might potentially arise from the proposed action. In evaluating the effects of proposed actions on critical habitat, the Service must be satisfied that the essential physical or biological features of the critical habitat likely will not be altered or destroyed by proposed activities to the extent that the conservation function of the designated critical habitat would be appreciably diminished. Briefly, if the land potentially affected by the proposed action is not designated critical habitat, the scope of the consultation must include a consideration of "jeopardy" to threatened or endangered species; but if the same land is designated critical habitat, the consultation must include considerations of both "jeopardy" and "adverse modification" of critical habitat.

We find that the conservation achieved through implementing these types of agreements is typically greater than would be achieved through multiple site-by-site, project-by-project, section 7 consultations involving consideration of critical habitat. In addition, it is unlikely that Federal projects would be proposed on these relatively remote forest lands unless it was a linear project such as a powerline, pipeline, or transportation project. Due to the scope of such

projects, they would likely already have a Federal nexus regardless whether these lands are designated as critical habitat. While the SHA lands may not have nesting sites on them at this time, degradation of the habitats on the SHA or adjacent lands could be considered an adverse effect to the species. Because one of the primary threats to the northern spotted owl is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus likely would, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or functionality of the habitat for the species, regardless of whether critical habitat is designated for these lands. The analytical requirements to support a jeopardy determination on excluded land are similar, but not identical, to the requirements in an analysis for an adverse modification determination on land designated as critical habitat. However, the amount of conservation that could be attained through the addition of a critical habitat analysis to the section 7 consultation would be relatively low in comparison to the conservation provided by the SHA. The additional benefits of inclusion on the section 7 process are therefore relatively small.

The benefits of inclusion are further minimized because, as mentioned above, the Port Blakely SHA provides for the needs of the northern spotted owl by protecting and preserving landscape levels of suitable northern spotted owl nesting, roosting, and foraging habitat, as well as foraging and dispersal habitat over the term of the SHA in strategic landscapes, and implementing species-specific conservation measures designed to avoid and minimize effects to northern spotted owls. A fundamental requirement of an SHA is a determination by the Service that the provisions of the SHA will result in a net conservation benefit to the listed species. Approved SHAs have, therefore, already been determined to provide a net conservation benefit to the listed species. In addition, monitoring will track SHA progress over the term of the permit and provide feedback on management actions. Therefore, designation of critical habitat would be redundant on these lands, and would not provide additional measureable protections.

Another benefit of including lands in a critical habitat designation is that it serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Designation of critical habitat could inform State agencies and local governments about areas that could be conserved under State laws or local ordinances, such as the Washington State Growth Management Act, which encourage the protection of ‘‘critical areas’’ including fish and wildlife habitat conservation areas. However, not only has the public process for this rulemaking provided information to the landowner, state agencies and local governments and the public about the importance of this area, but the process for approving a SHA, which requires public notice and comment, has served this educational function as well. Through these opportunities, land owners, State agencies, and local governments have become more aware of the status of and threats to listed species, and the conservation actions needed for recovery particularly as it relates to this property. For this reason, we believe that the educational benefits that might accrue from critical habitat designation would be minimal.

Thus, we conclude that there is minimal benefit from designating critical habitat for the northern spotted owl within the Port Blakely SHA.

Benefits of Exclusion—The benefits of excluding from designated critical habitat the approximately 195 ac of lands currently managed under the SHA are substantial and include maintaining our partnership with this landowner. This is important because it may encourage the company not to return to baseline immediately after expiration of the SHA.

Excluding lands with SHAs from critical habitat designation may also enhance our ability to seek new partnerships with future participants including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement conservation actions that we would be unable to accomplish otherwise. If lands within the plan area are designated as critical habitat, it could have a negative effect on our ability to work with various companies to accomplish our goals for the SHA program and recovery of the northern spotted owl. This SHA is located in a key landscape between the Mineral Block and other Federal lands, and represents a unique opportunity to maintain northern spotted owls at the western extreme of the Cascades, which may support dispersal between the Cascades and Olympics. This SHA contributes meaningfully to the recovery of the northern spotted owl and serves as an example to other industrial companies. This SHA was the first to combine a Federal SHA effort with similar planning processes under State jurisdiction and serves as a role model in combining SHA planning with state processes. By excluding these lands, we preserve our current private and local conservation partnerships and encourage additional conservation actions in the future.

Benefits of Exclusion Outweigh the Benefits of Inclusion—In summary, we conclude that the benefits of excluding the Port Blakely SHA from the designation of critical habitat for the northern spotted owl outweigh the benefits of including this area in critical habitat. Including the Port Blakely SHA would result in minimal, if any, additional benefits to the northern spotted owl, as explained above. In addition, the benefits of including these lands are further minimized by the fact that the management strategies of the Port Blakely SHA are designed to maintain and enhance habitat for the northern spotted owl. The SHA includes species-specific avoidance and minimization measures, monitoring requirements to track success and ensure proper implementation, and forest-management practices and habitat conservation objectives that benefit the northern spotted owl and its habitat, which exceeds any conservation value provided as a result of a critical habitat designation. Furthermore, encouraging landowners to enter into voluntary conservation agreements with the Service for the recovery of endangered or threatened species which we believe would be one of the benefits of exclusion may outweigh the loss of benefit that may be incurred through a possible return to baseline following permit expiration.

Therefore, in consideration of the factors discussed above in the Benefits of Exclusion section, including the relevant impact to current and future partnerships, we conclude that the benefits of exclusion of lands covered by the Port Blakely SHA outweigh the benefits of critical habitat designation.

Exclusion Will Not Result in Extinction of the Species—We conclude that exclusion of a net of approximately 195 ac of lands within the Port Blakely SHA will not result in extinction of the northern spotted owl because current and future conservation efforts under the agreement provide management to facilitate dispersal of juvenile northern spotted owls, as well as provide demographic support to core northern spotted owl populations. Further, should nesting populations of the owl become reestablished in this area (and projects subsequently planned that have a Federal nexus and would potentially affect northern spotted owls), the jeopardy standard of section 7 of the Act, coupled with protection provided by the Port Blakely SHA, would provide a level of assurance that this species will not go extinct as a result of excluding these lands from the critical habitat designation.

SDS Company LLC and Broughton Lumber Company Safe Harbor Agreement

About 16,031 ac are covered under the SDS Lumber Company LLC and its registered business name Stevenson Land Company (together SDS) and Broughton Lumber Company (in total are related companies and are herein known as "the Companies") SHA and located in Washington and Oregon. The enhancement of survival permits associated with this SHA were noticed in the **Federal Register** on August 21, 2012 (77 FR 50526) and issued to the Companies on October 26, 2012. The term of each of the permits is 60 years. The Companies collectively manage approximately 83,000 ac of forestland in Skamania and Klickitat Counties in Washington, and Hood River and Wasco Counties in Oregon. Much of this ownership is comprised of potential habitat outside of any owl circles and, therefore, is currently available for harvest under Washington State Forest Practices Rules. However, 30 northern spotted owl home ranges overlap some portion of the Companies' land base. Most site centers are currently located on Federal or State ownership; only one site center is located on Companies' ownership. Because the Companies have committed to manage their commercial forest lands for a substantially longer rotation than the typical 45-year rotation, and to implement additional conservation measures, northern spotted owls could occupy the covered area in the future under the SHA.

The Companies' landscape management approach contributes to owl recovery by complementing the existing owl landscape-management strategies on adjacent Federal and State forestlands. The Companies' SHA goals and objectives for the northern spotted owl are to provide dispersal and young forest marginal habitat across their ownership on a dynamic basis,

as well as submature and higher quality habitat in harvest set-asides. These habitats provide both dispersal and demographic support, an established goal for lands within the two northern spotted owl special emphasis areas (SOSEAs). SOSEA goals are identified in the Forest Practices Rules and shown on the SOSEA maps (see WAC 222-16-086). SOSEA goals provide for demographic and/or dispersal support as necessary to complement the northern spotted owl protection strategies on Federal lands within or adjacent to the SOSEA (WAC 222-16-010).

The Companies will achieve these goals and objectives both in the near term and over the term of the SHA by immediately protecting special set-aside areas of northern spotted owl habitat and managing commercial forested lands in the plan area on an average rotation length of 60 years. In addition, the SHA provides silvicultural measures to benefit the northern spotted owl, including a snag-retention and creation program.

The SHA includes an elevated baseline, provisions for a 240-acre nesting set-aside and a 411-acre reserve in the White Salmon SOSEA, a 10-year deferral of harvest of any habitat in the 0.7-mile circle of the four site centers in which the Companies' covered lands comprise greater than 15 percent, future nest site protection, and the support and enhancement of existing conservation agreements. The SHA will include a monitoring and reporting schedule to ensure that the anticipated benefits will accrue both in the near term and over the term of the SHA.

Benefits of Inclusion—We conclude that there is minimal benefit from designating critical habitat for the northern spotted owl within the SDS SHA. It is unlikely that Federal projects would be proposed on these relatively remote forest lands unless it was a linear project such as a powerline, pipeline, or transportation project. Due to the scope of such projects, they would likely already have a Federal nexus regardless whether these lands are designated as critical habitat. Even where the SHA lands may not have nesting sites on them at this time, degradation of the habitats on the SHA or adjacent lands could be considered an adverse effect to the species. Because one of the primary threats to the northern spotted owl is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus likely would, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or functionality of the habitat for the species, regardless of whether critical habitat is designated for these lands. The analytical requirements to support a jeopardy determination on excluded land are similar, but not identical, to the requirements in an analysis for an adverse modification determination on land designated as critical habitat. However, the amount of conservation that could be attained through the addition of a critical habitat analysis to the section 7 consultation would be relatively low in comparison to the conservation provided by the SHA, as discussed below. The additional benefits of inclusion on the section 7 process are therefore relatively small.

The benefits of inclusion are further minimized because this SHA provides for the needs of the northern spotted owl by protecting and preserving landscape levels of suitable northern spotted owl nesting, roosting, and foraging habitat, as well as foraging and dispersal habitat

over the term of the SHA in strategic landscapes, and implementing species-specific conservation measures designed to avoid and minimize effects to northern spotted owls. A fundamental requirement of an SHA is a determination by the Service that the provisions of the SHA will result in a net conservation benefit to the listed species. Approved SHAs have, therefore, already been determined to provide a net conservation benefit to the listed species. In addition, funding for management is ensured through the Implementation Agreement. Such assurances are typically not provided by section 7 consultations, which in contrast to SHAs, do not commit the project proponent to long-term, special management practices or protections. In addition, monitoring will track SHA progress over the term of the permit and provide feedback on management actions. Therefore, designation of critical habitat would be redundant on these lands, and would not provide additional measureable protections.

Another benefit of including lands in a critical habitat designation is that it serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Designation of critical habitat could inform State agencies and local governments about areas that could be conserved under State laws or local ordinances, such as the Washington State Growth Management Act, which encourage the protection of ‘‘critical areas’’ including fish and wildlife habitat conservation areas. However, not only has the public process for this rulemaking provided information to the landowner, state agencies and local governments and the public about the importance of this area, but the process for approving a SHA, which also requires public notice and comment, has served this educational function too. Through these opportunities, land owners, State agencies, and local governments have become more aware of the status of and threats to listed species, and the conservation actions needed for recovery particularly as it relates to this property. For these reasons, we believe that the educational benefits that might accrue from critical habitat designation would be minimal.

Therefore, we conclude that there is minimal benefit from designating critical habitat for the northern spotted owl within this SHA.

Benefits of Exclusion—The benefits of excluding from designated critical habitat the approximately 16,031 ac of lands currently managed under the SHA are substantial and include maintaining our partnership with this landowner. This is important because it may encourage the company not to return to baseline immediately after expiration of the SHA.

Excluding lands with SHAs from critical habitat designation may also enhance our ability to seek new partnerships with future participants including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement conservation actions that we would be unable to accomplish otherwise. If lands within the plan area are designated as critical habitat, it could have a negative effect on our ability to work with various companies to accomplish our goals for the SHA program and recovery of the northern

spotted owl. This SHA is located in key northern spotted owl landscapes and contributes meaningfully to the recovery of the northern spotted owl. Two SOSEAs, the White Salmon and Columbia Gorge SOSEAs, encompass approximately 54 percent of the Companies' lands in Skamania and Klickitat Counties. The Companies' landscape-management approach contributes to northern spotted owl recovery by complementing the existing northern spotted owl landscape-management strategies on adjacent Federal and State forestlands. With the Companies' participation in northern spotted owl conservation, it will be the first time in these SOSEAs, that a private landowner has joined State and Federal land managers to implement a landscape approach for northern spotted owl habitat. The Companies' lands provide a major link in the goal of managing both the Columbia River and White Salmon SOSEAs under a unified landscape-management regime rather than a competitive harvesting regime under owl-circle management.

The designation of critical habitat could nonetheless have an unintended negative effect on our relationship with non-Federal landowners due to the perceived imposition of redundant government regulation. If lands within the SDS SHA plan area are designated as critical habitat, it would likely have a negative effect on our ability to establish new partnerships to develop SHAs, HCPs, and other conservation plans, particularly plans that address landscape-level conservation of species and habitats. This SHA is being observed by other land and timber companies in Washington and Oregon and may serve as a model for ongoing and future efforts. By excluding these lands, we preserve our current private and local conservation partnerships and encourage additional conservation actions in the future.

Benefits of Exclusion Outweigh the Benefits of Inclusion—In summary, we conclude that the benefits of excluding the SDS SHA from the designation of critical habitat for the northern spotted owl outweigh the benefits of including this area in critical habitat. Including it would result in minimal, if any, additional benefits to the northern spotted owl, as explained above. In addition, the benefits of including these lands are further minimized by the fact that the management strategies of the SHA are designed to maintain and enhance habitat for the northern spotted owl. The SHA includes species-specific avoidance and minimization measures, monitoring requirements to track success and ensure proper implementation, and forest-management practices and habitat conservation objectives that benefit the northern spotted owl and its habitat, which exceeds any conservation value provided as a result of a critical habitat designation. Furthermore, encouraging landowners to enter into voluntary conservation agreements with the Service for the recovery of endangered or threatened species which we believe would be one of the benefits of exclusion may outweigh the loss of benefit that may be incurred through a possible return to baseline following permit expiration.

Therefore, in consideration of the factors discussed above in the Benefits of Exclusion section, including the relevant impact to current and future partnerships, we conclude that the benefits

of exclusion of lands covered by the Port Blakely SHA outweigh the benefits of critical habitat designation.

Exclusion Will Not Result in Extinction of the Species—We have concluded that exclusion of a net of approximately 16,031 ac of lands within the SDS SHA will not result in extinction of the northern spotted owl because, under this agreement, the landscape management approach contributes to owl recovery by complementing the existing owl landscape-management strategies on adjacent Federal and State forestlands. The SDS SHA goals and objectives for the northern spotted owl are to provide dispersal and young forest marginal habitat across their ownership on a dynamic basis, as well as submature and higher quality habitat in harvest set-asides. These habitats provide both dispersal and demographic support, an established goal for lands within the two northern spotted owl special emphasis areas (SOSEAs). Further, for projects having a Federal nexus and affecting northern spotted owls in occupied areas, the jeopardy standard of section 7 of the Act, coupled with protection provided by the SDS SHA, would provide a level of assurance that this species will not go extinct as a result of excluding these lands from the critical habitat designation. We conclude that exclusion of these lands within the SDS SHA will not result in extinction of the northern spotted owl.

How We Evaluate Lands for Exclusions Protected under HCPs

The consultation provisions under section 7(a) (2) of the Act constitute a regulatory benefit of critical habitat. Federal agencies must consult with us on actions that may affect critical habitat and must avoid destroying or adversely modifying critical habitat. In areas without designated critical habitat, Federal agencies consult with us on actions that may affect a listed species and must refrain from undertaking actions that are likely to jeopardize the continued existence of the species. Thus, the analysis of effects to critical habitat is a separate and different analysis from that of the effects to the species. The difference in outcomes of these two analyses represents the regulatory benefit of critical habitat. For some species, and in some locations, the outcome of these analyses will be similar, because effects on habitat will often result in effects on the species. However, the regulatory standard is different; the jeopardy analysis looks at the action's impact on survival and recovery of the species, while the adverse modification analysis looks at the action's effects on the designated habitat's contribution to the species' conservation. This will, in some instances, lead to different results or consultation where it might not have otherwise occurred (e.g. in habitat not currently occupied by the species).

Once an agency determines that consultation under section 7 of the Act is necessary, the process may conclude informally when we concur in writing that the proposed Federal action is

not likely to adversely affect critical habitat. However, if the action agency determines through informal consultation that adverse effects are likely to occur, then it would initiate formal consultation, which would conclude when we issue a biological opinion on whether the proposed Federal action is likely to result in destruction or adverse modification of critical habitat. A biological opinion that concludes in a determination of no destruction or adverse modification may contain discretionary conservation recommendations to minimize adverse effects to critical habitat, but it would not contain any mandatory reasonable and prudent measures or terms and conditions because these do not apply to critical habitat. In addition, we suggest reasonable and prudent alternatives to the proposed Federal action only when our biological opinion finds that the action may destroy or adversely modify critical habitat.

The process of designating critical habitat as described in the Act requires, in part, that the Service identify those lands occupied at the time of listing on which are found the physical or biological features essential to the conservation of the species, which may require special management considerations or protection and any unoccupied lands that are essential to the conservation of the species. In identifying those lands, the Service must consider the recovery needs of the species. Once critical habitat has been designated, Federal agencies must consult with the Service under section 7(a)(2) of the Act on their actions that may adversely affect the species or critical habitat to ensure that their actions are not likely to adversely modify critical habitat or jeopardize the continued existence of the species.

We find that in some cases, the conservation benefits to a species and its habitat that may be achieved through the designation of critical habitat are less than those that could be achieved through the implementation of a habitat conservation management plan that includes specific provisions based on enhancement or recovery as the management standard. Consequently, the implementation of any HCP or management plan that considers enhancement or recovery as the management standard will often provide as much or more benefit than a section 7(a)(2) consultation under the Act. There may be some regulatory benefit that results from designating critical habitat in the areas covered by the HCPs because of section 7 consultation requirements; however, they are often minimal compared to the benefits of exclusion.

Non-Federal landowners are often motivated to work with the Service collaboratively to develop HCPs because of the regulatory certainty provided by an incidental take permit under section 10(a)(1)(B) of the Act, including assurances under the No Surprises Policy (63 FR 8859; February 23, 1998). The No Surprises Policy sets forth a clear commitment to incidental take permittees that, to the extent consistent with the Act and other Federal laws, the government will not seek additional mitigation under an approved HCP where the permittee is implementing the HCP's terms and conditions. Although the HCP process can be complex and time-consuming, the benefit to landowners in undertaking this extensive process is not only incidental take authorization but the resulting regulatory certainty, which translates into real savings for private landowners in terms of opportunity costs, as well as direct savings and avoided costs. Designation of critical habitat within the boundaries of already approved HCPs may be viewed as a disincentive by other entities currently developing HCPs or contemplating

them in the future, because it may be perceived as imposing duplicative regulatory burdens. In discussions with the Service, HCP permittees have indicated they view critical habitat designation as an unnecessary additional intrusion on their property, and have expressed concern that the Service may request new conservation measures for the northern spotted owl, even though they have an existing HCP and associated incidental take permit that has already gone through NEPA and the section 7 consultation process already in place.

Although parties whose actions may take listed species may still desire incidental take permits to avoid liability under section 9 of the Act, failure to exclude HCP lands from critical habitat could reduce the conservation value of the HCP program in several ways. First, parties may be less willing to seek a section 10 (a)(2) permit and develop an HCP where they are not certain their actions will cause incidental take in order to avoid involving the Federal government when that involvement could lead to future section 7 consultations because of critical habitat designation. Second, in any given HCP, applicants may reduce the amount of protection to which they are willing to agree, in effect holding some additional protective measures "in reserve" for use in any future discussions to address critical habitat. The failure to exclude qualified HCP lands from critical habitat designations could decrease the program's efficacy and have profound effects on our ability to establish and maintain important conservation partnerships with stakeholders.

Excluding qualified HCP lands from critical habitat provides permittees with the greatest possible certainty, and thereby may help foster the cooperation necessary to allow the HCP program to achieve the greatest possible conservation benefit. Thus, excluding the lands covered by HCPs may improve the Service's ability to enter into new partnerships. In addition, permittees who trust and benefit from the HCP process may encourage future HCP participants, such as States, counties, local jurisdictions, conservation organizations, and private landowners, leading to new HCPs that may result in implementation of conservation actions we would be unable to accomplish otherwise.

Excluding lands covered under HCPs from the critical habitat designation may also relieve landowners from the possibility of any additional regulatory burden and costs associated with the preparation of section 7 documents related to critical habitat. While the costs of providing these additional documents to the Service is minor, there may be resulting delays that generate perceived or very real costs to private landowners in the form of opportunity costs, as well as direct costs.

HCPs can provide other important conservation benefits, including the development of important biological information needed to guide conservation efforts and assist in species conservation outside the HCP planning area. Each of the HCPs evaluated below have some component of adaptive management to address uncertainties in achieving their agreed-upon conservation objectives for the northern spotted owl. The adaptive management strategy helps to ensure management will continue to be consistent with agreed-upon northern spotted owl conservation objectives.

Below is a brief description of each HCP and the lands proposed as critical habitat covered by each plan that we are considering for exclusion from critical habitat designation under section 4(b)(2) of the Act.

State of California

Green Diamond Resource Company Habitat Conservation Plan

The Green Diamond Resource Company (Green Diamond, formerly Simpson Timber Company) operates under a northern spotted owl HCP within the Redwood Coast Critical Habitat Unit in California. The Incidental Take Permit (ITP) issued in association with this HCP was initially noticed in the **Federal Register** on May 27, 1992 (57 FR 22254) and issued September 17, 1992. Both the HCP and the permit had a term of 30 years, with a comprehensive review scheduled after 10 years to review the efficacy of the plan. The permit allows incidental take of up to 50 pairs of northern spotted owls and their habitat during the course of timber harvest operations on 369,384 ac of forest lands in Del Norte and Humboldt Counties.

At the time the permit was issued, more than 100 northern spotted owl nest sites or activity centers were known or suspected on the property. The Service determined that the projected growth and harvest rates indicated more habitat of the age class primarily used by northern spotted owls would exist on the property at the end of the 30-year permit period. In addition, the HCP provided that nest sites would be protected during the breeding season, and no direct killing or injuring of owls was anticipated. Green Diamond also agreed to continue their monitoring programs, in which more than 250 adult owls and more than 100 juveniles were already banded, as well as analyses of timber stands used by owls. As required by the terms of the HCP, Green Diamond and the Service conducted a comprehensive review of the first 20 years of implementation, including a comparison of actual and estimated levels of owl displacement, a comparison of estimated and actual distribution of habitat, a reevaluation of the biological basis for the HCP's conservation strategy, an examination of the efficacy of and continued need for habitat set-asides, and an estimate of future owl displacements. During the comprehensive review, Green Diamond requested an amendment to the 1992 ITP to allow incidental take of up to eight additional northern spotted owl pairs. This request was noticed in the **Federal Register** on February 26, 2007 (72 FR 8393) and the modified permit was issued in October 2007.The original Green Diamond Northern Spotted Owl HCP relied on extensive monitoring and research to inform development of more comprehensive conservation strategies for their lands. The outcome of 20 years of implementation of Green Diamond's 1992 informed the Service and Green Diamond on how to develop new, or modify the original, conservation strategies to further benefit the northern spotted owl.

On April 16, 2010, we announced our intent to prepare an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA) in response to an expected new HCP from Green Diamond, which would include provisions for the northern spotted owl and possibly the Pacific fisher (*Martes pennanti*), a species that may be considered for listing during the term of the HCP. This new HCP, if completed and approved, would replace the 1992 HCP, and would require the issuance of a new incidental take permit. The proposed new HCP is intended to address the retention of suitable northern spotted owl nesting habitat, the development of older forest habitat elements and habitat structures, and future establishment of northern spotted owl nest sites in streamside retention zones. In addition, the new plan will help cluster owl sites in favorable habitat areas, and initiate future research on other wildlife species such as fishers and barred owls. Since this new draft HCP has not yet been completed, the draft HCP does not serve as the basis for exclusion and we only provide this information in terms of demonstrating the progression of involvement and partnership between the Service and Green Diamond. The existing HCP, originally completed in 1992, is still in effect as of this date and serves, in part, as the basis for this exclusion.

Since approval of the 1992 HCP, personnel from Green Diamond, along with academic and research institutions, have been the largest single contributor of scientific information on the ecology of northern spotted owls and their habitats on managed forest lands in the redwood region, in the form of graduate theses and peer-reviewed papers. Since the initial listing of the northern spotted owl in 1990, Green Diamond has maintained on their lands 1 of the 11 demographic study areas within the range of the northern spotted owl that have been used for rangewide monitoring and evaluation of populations and population trends in the Pacific northwest. This important demographic information is reported in a continuing series of monographs, the most recent being Forsman *et al*. (2011).

Benefits of Inclusion—We find there are minimal benefits to including these lands in critical habitat. As discussed above, the designation of critical habitat invokes the provisions of section 7. However, in this case, we find the requirement that Federal agencies consult with us and ensure that their actions are not likely to destroy or adversely modify critical habitat will not result in substantial benefits to the species because the possibility of a Federal nexus for a project on these lands that might trigger such consultation is limited (there is little likelihood of an action that will involve Federal funding, authorization, or implementation). In addition, since the lands under the HCP in question are occupied by the northern spotted owl, if a Federal nexus were to occur, section 7 consultation would already be triggered and the Federal agency would consider the effects of its actions on the species through a jeopardy analysis. The additional conservation that could be attained through the supplemental adverse modification analysis for critical habitat under section 7 would not be substantial. Furthermore, any such potential benefit would be small in comparison to the benefits derived from the HCP, which already incorporates measures that specifically benefit the northern spotted owl and its habitat, as described above, and remains in place regardless of the designation of critical

habitat. Because the possibility of a Federal nexus on these private lands is limited, the additional regulatory benefits to the species and its habitat through inclusion in critical habitat, if any, are anticipated to be minimal.

Any regulatory benefits of critical habitat are further minimized by the fact that the HCP incorporates protections and management objectives for the northern spotted owl and the habitat upon which it depends for breeding, sheltering, and foraging activities. The conservation approach identified in the Green Diamond HCP, along with our close coordination with the company, addresses the identified threats to northern spotted owl on lands covered by the HCP that contain the physical or biological features essential to the conservation of the species. The conservation measures identified within the HCP seek to achieve conservation goals for northern spotted owls and their habitat, and thus can be of greater conservation benefit than the designation of critical habitat, which does not require specific, proactive actions. HCPs typically provide for greater conservation benefits to a covered species than section 7 consultations because HCPs ensure the long-term protection and management of a covered species and its habitat. In addition, funding for such management is ensured through the Implementation Agreement. Such assurances are typically not provided by section 7 consultations, which in contrast to HCPs, often do not commit the project proponent to long-term, special management practices or protections. Thus, a section 7 consultation typically does not afford the lands it covers similar extensive benefits as an HCP. In addition, the protections of critical habitat come into play only in the event of a Federal action, whereas the protections of an HCP are in continuous force.

Thus, the implementation of the Green Diamond HCP provides a substantially greater benefit to the northern spotted owl than would the designation of critical habitat. The likelihood of a Federal nexus that would trigger the protections of section 7 is low. Based on our consultation history, there are very few instances where a Federal entity (department or agency) would issue permits or grant funds for the activities conducted by Green Diamond Resource Company on their HCP-covered lands. In addition, as noted, in this case the protections provided by the HCP are greater than those that would be anticipated under section 7, rendering the protections of critical habitat duplicative and unnecessary. HCP conservation measures that provide a benefit to the northern spotted owl and its habitat have been implemented continuously since 1992 on all covered lands owned and managed by Green Diamond. Such measures include maintenance of nesting and foraging areas, and predator management on strategically-chosen areas of the property.

Another potential benefit of including lands in a critical habitat designation is that the designation can serve to educate landowners, State and local government agencies, and the public regarding the potential conservation value of an area, and may help focus conservation efforts on areas of high conservation value for certain species. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. However, in this case the educational value of critical habitat is limited. Green Diamond has already made substantial contributions to our knowledge

of the species through research and monitoring without critical habitat designated on their lands. In addition, the educational and informational benefits that might arise from critical habitat designation have been largely accomplished through the public review and comment on the HCP and associated documents. The release of the Revised Recovery Plan for the Northern Spotted Owl in 2011 was also preceded by outreach efforts and public comment opportunities. Furthermore, we conducted extensive outreach efforts on the proposed revision of critical habitat, including multiple public information meetings and opportunities for public comment. Through these outreach opportunities, land owners, State agencies, and local governments have become aware of the status of and threats to the northern spotted owl, and the conservation actions needed for recovery.

The designation of critical habitat may also indirectly cause State or County jurisdictions to initiate their own additional requirements in areas identified as critical habitat. These measures may include additional permitting requirements or a higher level of local review on proposed projects. However, CAL FIRE has indicated to us that it is unlikely to impose any new requirements on project proponents if critical habitat is designated in areas already subject to California Forest Practice Rules. Therefore, we believe this potential benefit of critical will be limited.

Benefits of Exclusion—The benefits of excluding from designated critical habitat the approximately 360,870 net ac of lands currently managed under the Green Diamond HCP are substantial. We have created a close partnership with Green Diamond through development of the HCP, and they have proven to be an invaluable partner in the conservation of the northern spotted owl. Green Diamond has made a substantial contribution to our knowledge of the northern spotted owl through their support of continuing research on their lands. Excluding the approximately 360,870 ac owned and managed by Green Diamond from critical habitat designation will sustain and enhance the working relationship between the Service and Green Diamond. The willingness of Green Diamond to work with the Service in innovative ways to conduct solid scientific research and manage federally listed species will continue to reinforce those conservation efforts and our partnership, which contribute toward achieving recovery of the northern spotted owl. Due to the important research they are facilitating, we consider this voluntary partnership in conservation vital to our understanding of the northern spotted owl status of species on non-Federal lands and necessary for us to implement recovery actions such as habitat protection and restoration, and beneficial management actions for species.

The designation of critical habitat could have an unintended negative effect on our relationship with non-Federal landowners due to the perceived imposition of redundant government regulation. If lands within the Green Diamond HCP are designated as critical habitat, it would likely have a negative effect on our continued ability to seek new partnerships with future participants including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement various conservation actions (such as SHAs,

HCPs, and other conservation plans), that we would be unable to accomplish otherwise. In addition, our conservation partnership with Green Diamond may serve as a model and aid in fostering future cooperative relationships with other parties in other locations for the benefit of listed species. We consider the positive effect of excluding proven conservation partners from critical habitat to be a major benefit of exclusion.

The Benefits of Exclusion Outweigh the Benefits of Inclusion—We reviewed and evaluated the potential exclusion of approximately 360,870 ac of land owned and managed by the Green Diamond Resource Company from our designation of critical habitat. The benefits of including these lands in the designation are comparatively small, since the habitat on the covered lands is already being monitored and managed under the current HCP to improve the habitat elements that are equivalent to the physical or biological features outlined in this critical habitat rule. Any potential regulatory benefits of critical habitat would be minimal, at best, as additional Federal review on individual proposed actions is episodic and confined to the scope and scale of the specific Federal actions that take the form of project review or granting of funds. In any case, any potential regulatory benefit that would be gained from a supplemental adverse modification analysis, should section 7 be triggered, would likely be minimal since the lands in question are occupied by the species, and consultation would already have to address the conservation of the species under the jeopardy standard. Additionally, the protections afforded by critical habitat would be duplicative with the protections provided through the HCP. Educational benefits to the company that might be attributed to critical habitat designation are limited because the company already has an active program of research and analysis that is embedded in company planning. External educational benefits to the public are also limited because Green Diamond lands, for the most part, are not open to the general public. In addition, extensive outreach efforts that have already occurred in conjunction with the HCP, Revised Recovery Plan, and the proposed revision of critical habitat have raised awareness of the current status of and threats to the northern spotted owl, and the conservation actions needed for recovery. Green Diamond has made a substantial contribution to the body of scientific information about the northern spotted owl in the redwood region.

In this instance, the regulatory and educational benefits of inclusion in critical habitat are minimal compared to the substantial benefits gained through our conservation partnership with Green Diamond. In addition, the conservation measures of their HCP serves not only an educational function for the company and local and state regulatory jurisdictions, but also provides for important conservation and management of northern spotted owl habitat and contributes to the recovery of the species. The HCP provisions for protecting and maintaining northern spotted owl habitat far exceed the conservation benefits that would be obtainable through section 7 consultation. The company's current program of research on the northern spotted owl habitat and demographics could not be obtained through section 7 consultation.

Exclusion of these lands from critical habitat will help foster the partnership we have developed

with Green Diamond, partly through the development and continuing implementation of the HCP, and partly through the encouragement of elective actions by the company that are unconnected to the HCP. For example, Green Diamond's elective role in maintaining a demographic study area, which is a key part of the network of demographic study areas essential to determining the rangewide population trends of the northern spotted owl, is integral to continuing research on the species. Our partnership with Green Diamond not only provides a benefit for the conservation of the northern spotted owl, but it may also serve as a model and aid in fostering future cooperative relationships with other parties in other locations for the benefit of listed species. For these reasons, we conclude that the benefits of exclusion of lands covered by the Green Diamond Resource Company HCP outweigh the benefits of critical habitat designation.

Exclusion Will Not Result in Extinction of the Species—We conclude that the exclusion of a net 360,870 ac from the designation of critical habitat for the northern spotted owl of lands owned and managed by the Green Diamond Resource Company, as identified in their HCP, will not result in extinction of the species because current conservation efforts under the plan adequately protect the geographical areas containing the physical or biological features essential to the conservation of the species. For those infrequent projects having a Federal nexus and affecting northern spotted owls on these lands, which are occupied by the species, the jeopardy standard of section 7 of the Act, coupled with protection provided by the current Green Diamond HCP, would provide a level of assurance that this species will not go extinct as a result of excluding these lands from the critical habitat designation.

Humboldt Redwood Company Habitat Conservation Plan

The Humboldt Redwood Company (formerly Pacific Lumber) HCP occurs on lands in the Redwood Coast CHU in California. The permit under this HCP with a term of 50 years was noticed on July 14, 1998 (63 FR 37900) and issued on March 1, 1999. The HCP includes 208,172 ac of commercial timber lands in Humboldt County, essentially all of the formerly Pacific Lumber timberlands outside of the Headwaters Reserve, which is currently under Bureau of Land Management administration. The Humboldt Redwood Company HCP includes nine nonlisted species (including one candidate species) and three listed species, including the northern spotted owl. Activities covered by the HCP include forest management activities and mining or other extractive activities. With regard to the northern spotted owl in particular, the HCP addresses the harvest, retention, and recruitment of requisite habitat types and elements within watershed assessment areas and individual northern spotted owl activity sites. The management objectives of the HCP are to minimize disturbance to northern spotted owl activity sites, monitor to determine whether these efforts maintain a high-density and

productive population of northern spotted owls, and apply adaptive management provisions as necessary to evaluate or modify existing conservation measures. In addition, there are specific habitat retention requirements to conserve habitat for foraging, roosting, and nesting at northern spotted owl activity sites. The other conservation elements of the HCP are also expected to aid in the retention and recruitment of potential foraging, roosting, and nesting habitat in watersheds across the ownership. For example, the HCP establishes a network of marbled murrelet conservation areas, outlines silvicultural requirements associated with riparian management zones and mass wasting avoidance areas, imposes cumulative effects/disturbance index restrictions, and contains a retention standard of 10 percent late seral habitat in each watershed assessment. Each of these measures is likely to provide additional suitable habitat for the northern spotted owl.

Benefits of Inclusion—There are minimal benefits to including these lands in critical habitat. As discussed above, the designation of critical habitat invokes the provisions of section 7. However, in this case, we find the requirement that Federal agencies consult with us and ensure that their actions are not likely to destroy or adversely modify critical habitat will not result in substantial benefits to the species because the possibility of a Federal nexus for a project on these lands that might trigger such consultation is limited (there is little likelihood of an action that will involve Federal funding, authorization, or implementation). In addition, since the lands under the HCP in question are occupied by the northern spotted owl, if a Federal nexus were to occur, section 7 consultation would already be triggered and the Federal agency would consider the effects of its actions on the species through a jeopardy analysis. The additional conservation that could be attained through the supplemental adverse modification analysis for critical habitat under section 7 would not be substantial. Because the possibility of a Federal nexus on these private lands is limited, the additional regulatory benefits to the species and its habitat through inclusion in critical habitat, if any, are anticipated to be minimal.

Furthermore, because this HCP incorporates measures that specifically benefit the northern spotted owl and its habitat, the regulatory benefits to the species and its habitat through inclusion in critical habitat are anticipated to be even more minimal. The HCP incorporates protections and management objectives for the northern spotted owl and the habitat upon which it depends for breeding, sheltering, and foraging activities. The conservation approach identified in the HCP, along with our close coordination with the Humboldt Redwood Company, addresses the identified threats to northern spotted owl on lands covered by the HCP that contain the physical or biological features essential to the conservation of the species. The conservation measures identified within the HCP seek to achieve conservation goals for northern spotted owls and their habitat, and thus can be of greater conservation benefit than the designation of critical habitat, which does not require specific, proactive actions. HCPs typically provide for greater conservation benefits to a covered species than section 7 consultations because HCPs ensure the long-term protection and management of a covered species and its habitat. In addition, funding for such management is ensured through the

Implementation Agreement. Such assurances are typically not provided by section 7 consultations, which in contrast to HCPs, often do not commit the project proponent to long-term, special management practices or protections. Thus, a section 7 consultation typically does not afford the lands it covers similar extensive benefits as an HCP. In addition, the protections of critical habitat come into play only in the event of a Federal action, whereas the protections of an HCP are in continuous force.

The HCP conservation measures that provide direct and indirect benefits to the northern spotted owl and its habitat have been implemented continuously since 1999 on all covered lands owned and managed by the Humboldt Redwood Company. Northern spotted owl conservation measures are subject to re-evaluation and modification through adaptive management provisions in the Plan, which can be initiated by the Service or by the Company.

Another benefit of including lands in a critical habitat designation is that it serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. The landowners in this case are aware of the needs of the species through the development of their HCP, in which they have agreed to take measures to protect the northern spotted owl and its habitat. Any additional educational and information benefits that might arise from critical habitat designation have been largely accomplished through the public review of and comment on the HCP and the associated permit. The release of the Revised Recovery Plan for the Northern Spotted Owl in 2011 was also preceded by outreach efforts and public comment opportunities. In addition, the rulemaking process associated with critical habitat designation included several opportunities for public comment, and we also held multiple public information meetings across the range of the species. Through these outreach opportunities, land owners, State agencies, and local governments have become aware of the current status of and threats to the northern spotted owl, and the conservation actions needed for recovery.

The designation of critical habitat may also indirectly cause State or County jurisdictions to initiate their own additional requirements in areas identified as critical habitat. These measures may include additional permitting requirements or a higher level of local review on proposed projects. However, CAL FIRE has indicated to use that it is unlikely to impose any new requirements on project proponents if critical habitat is designated in areas already subject to California Forest Practice Rules. Therefore, we believe this potential benefit of critical will be limited.

Benefits of Exclusion—The benefits of excluding from designated critical habitat the

approximately 211,700 net ac of lands currently managed under the Humboldt Redwood Company (formerly Pacific Lumber Company) HCP are substantial. Although the HCP was originally negotiated with Pacific Lumber, we have developed a good working rapport with Humboldt Redwood Company, and expect this conservation partnership to continue through the implementation of the HCP. We consider conservation partnerships with private landowners to represent an integral component of recovery for listed species. However, the designation of critical habitat could have an unintended negative effect on our relationship with non-Federal landowners due to the perceived imposition of redundant government regulation. If lands within the Humboldt Redwood Company HCP are designated as critical habitat, it would likely have a chilling effect on our continued ability to seek new partnerships with future participants including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement various conservation actions (such as SHAs, HCPs, and other conservation plans) that we would be unable to accomplish otherwise.

Excluding the approximately 211,700 ac owned and managed by the Humboldt Redwood Company from critical habitat designation will sustain and enhance the working relationship between the Service and the Company, and will bolster our ability to pursue additional conservation partnerships for the benefit of listed species. The willingness of the Humboldt Redwood Company to work with us to manage their forest lands for the benefit of the northern spotted owl will continue to reinforce those conservation efforts and our partnership, which contributes to the recovery of the species. We consider this voluntary partnership in conservation important to our understanding of the status of northern spotted owls on non-Federal lands and necessary for us to implement recovery actions such as habitat protection and restoration, and beneficial management actions for species. In addition, as noted above, our conservation partnership with the Humboldt Redwood Company may serve as a model and aid in fostering future cooperative relationships with other parties in other locations for the benefit of listed species. We consider the positive effect of excluding proven conservation partners from critical habitat to be a major benefit of exclusion.

The Benefits of Exclusion Outweigh the Benefits of Inclusion—We have reviewed and evaluated the potential exclusion from critical habitat designation of approximately 211,700 ac of land owned and managed by the Humboldt Redwood Company. The benefits of including these lands in the designation are comparatively small, since the habitat on the covered lands is already being monitored and managed under the current HCP to improve the habitat elements that are equivalent to the physical or biological features that are outlined in this critical habitat rule. Because one of the primary threats to the northern spotted owl is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus in areas occupied by the species, such as is the case here, will, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or function of the habitat for the species regardless of whether critical habitat is designated for these lands. The analytical requirements to support a jeopardy determination on excluded land are similar, but

not identical, to the requirements in an analysis for an adverse modification determination on included land. However, the HCP provides habitat conservation measures that apply for the benefit of northern spotted owl. In addition, educational benefits are limited, since outreach efforts associated with various conservation actions for this species have been extensive, and members of the public, as well as State and local agencies, are likely familiar with the species and its biological needs. Company personnel are knowledgeable in the ecology of the northern spotted owl and have contributed to the body of scientific information about the northern spotted owl in the redwood region. In this case, the regulatory and education benefits of inclusion are less than the continued benefit of this conservation partnership.

Humboldt Redwood Company has made important contributions to our understanding of the ecology of the northern spotted owl and its habitats in the redwood region, and continues to do so through HCP implementation and long-term monitoring. The Service recognizes the conservation value of partnerships with non-Federal landowners, such as the Humboldt Redwood Company, which allow us to achieve conservation measures that would not otherwise be attainable on these private lands. We have determined that our conservation partnership with the Humboldt Redwood Company HCP, in conjunction with the conservation measures provided in the HCP, provide a greater benefit than would the regulatory and educational benefits of critical habitat designation. Furthermore, we have determined that the additional regulatory benefits of designating critical habitat, afforded through the section 7(a)(2) consultation process, are minimal because of limited Federal nexus and because conservation measures specifically benefitting the northern spotted owl and its habitat are in place through the implementation of the HCP. Therefore, in consideration of the factors discussed above in the Benefits of Exclusion section, including the relevant impact to current and future partnerships, we conclude that the benefits of exclusion of lands covered by the Humboldt Redwood Company HCP outweigh the benefits of critical habitat designation.

Exclusion Will Not Result in Extinction of the Species—We conclude that the exclusion of 211,700 ac from the designation of critical habitat for the northern spotted owl of lands owned and managed by the Humboldt Redwood Company, as identified in their HCP, will not result in extinction of the species because current conservation efforts under the plan adequately protect the geographical areas containing the physical or biological features essential to the conservation of the species. For projects having a Federal nexus and affecting northern spotted owls in occupied areas, which is the case here, the jeopardy standard of section 7 of the Act, coupled with protection provided by the current Humboldt Redwood Company HCP, would provide a high level of assurance that this species will not go extinct as a result of excluding these lands from the critical habitat designation.

Regli Estate Habitat Conservation Plan

The Regli Estate HCP covers lands in the Redwood Coast CHU. The permit issued under this HCP in 1995 (noticed July 17, 1995 (60 FR 36432) and issued August 30, 1995) covers 484 ac in Humboldt County, California, to be used for forest management activities.

Two listed species, the marbled murrelet and northern spotted owl, as well as two nonlisted species, are covered under the incidental take permit. Provisions in the HCP for the northern spotted owl include the mitigation of impacts from forest management activities by using single-tree selection silviculture that would retain owl foraging habitat suitability in all harvested areas; protecting an 80-ac core nesting area for one of the two owl pairs known to exist in the HCP area; and planting conifer tree species on approximately 73 ac of currently nonforested habitat within the HCP area, which would result in a net increase in forested habitat over time. In addition, take of owls would be minimized using seasonal protection measures specified in the HCP.

Benefits of Inclusion—There are minimal benefits to including these lands in critical habitat. As discussed above, the designation of critical habitat invokes the provisions of section 7. However, in this case, we find the requirement that Federal agencies consult with us and ensure that their actions are not likely to destroy or adversely modify critical habitat will not result in substantial benefits to the species because the possibility of a Federal nexus for a project on these lands that might trigger such consultation is limited (there is little likelihood of an action that will involve Federal funding, authorization, or implementation). In addition, since the lands under the HCP in question are occupied by the northern spotted owl, if a Federal nexus were to occur, section 7 consultation would already be triggered and the Federal agency would consider the effects of its actions on the species through a jeopardy analysis. The additional conservation that could be attained through the supplemental adverse modification analysis for critical habitat under section 7 would not be substantial. Because the possibility of a Federal nexus on these private lands is limited, the additional regulatory benefits to the species and its habitat through inclusion in critical habitat, if any, are anticipated to be minimal.

The benefits of inclusion for this property are further limited because this HCP incorporates measures that specifically benefit the northern spotted owl and its habitat. The HCP incorporates protections and management objectives for the northern spotted owl designed to produce a net increase in forested habitat for the species over time. The conservation measures identified within the HCP seek to achieve conservation goals for northern spotted owls and their habitat can be of greater conservation benefit than the designation of critical habitat, which does not require specific, proactive actions. HCPs typically provide for greater conservation benefits to a covered species than section 7 consultations because HCPs ensure the long-term protection and management of a covered species and its habitat. In addition, funding for such management is ensured through the Implementation Agreement. Such assurances are typically not provided by section 7 consultations, which in contrast to HCPs,

often do not commit the project proponent to long-term, special management practices or protections. Thus, a section 7 consultation typically does not afford the lands it covers similar extensive benefits as an HCP. In addition, the protections of critical habitat come into play only in the event of a Federal action, whereas the protections of an HCP are in continuous force.

Another benefit of including lands in a critical habitat designation is that it serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. The landowners in this case are aware of the needs of the species through the development of their HCP, in which they have agreed to take measures to protect the northern spotted owl and its habitat. Any additional educational and information benefits that might arise from critical habitat designation have been largely accomplished through the public review of and comment on the HCP and the associated permit. The release of the Revised Recovery Plan for the Northern Spotted Owl in 2011 was also preceded by outreach efforts and public comment opportunities. In addition, the rulemaking process associated with critical habitat designation included several opportunities for public comment, and we also held multiple public information meetings across the range of the species. Through these outreach opportunities, land owners, State agencies, and local governments have become aware of the current status of and threats to the northern spotted owl, and the conservation actions needed for recovery.

The designation of critical habitat may also indirectly cause State or County jurisdictions to initiate their own additional requirements in areas identified as critical habitat. These measures may include additional permitting requirements or a higher level of local review on proposed projects. However, CAL FIRE has indicated to use that it is unlikely to impose any new requirements on project proponents if critical habitat is designated in areas already subject to California Forest Practice Rules. Therefore, we believe this potential benefit of critical will be limited.

Benefits of Exclusion—The benefits of excluding from critical habitat designation the approximately 484 ac of lands currently managed under the HCP are greater than those that would accrue from inclusion. We have developed a conservation partnership with Regli Estate through the development and implementation of the HCP. The conservation measures that provide a benefit to the northern spotted owl and its habitat have been, and will continue to be, implemented continuously beginning with the issuance of the Incidental Taking Permit in 1995 and continuing through the 20-year term of the permit, through 2015. These measures include use of single-tree selection silviculture to retain owl foraging habitat suitability, protection of an 80-ac core nesting area for one of the two known owl pairs, and reforestation of approximately 73 ac of “old-field” grasslands, the latter which has already been

accomplished and will result in a net increase in forested habitat over time. A substantial benefit of exclusion would be the increased likelihood of this landowner continuing with conservation actions for the northern spotted owl and its habitat, such as the development of a new HCP and application for a new incidental take permit upon the expiration of their current permit.

The HCP incorporates protections and management objectives for the northern spotted owl and the habitat upon which it depends for breeding, sheltering, and foraging activities. The approach used in the HCP, along with our close coordination with the landowner, addresses the identified threats to northern spotted owl on covered lands that contain the physical or biological features essential to the conservation of the species. The conservation measures identified within the HCP seek to maintain or surpass current habitat suitability for northern spotted owls, and thus can be of greater conservation benefit than the designation of critical habitat, which does not require specific, proactive actions.

Excluding the approximately 484 ac of this covered land from critical habitat designation will sustain and enhance the working relationship between the Service and the owner, and will increase the likelihood that the owner will update the HCP and apply for a new incidental take permit when the current permit expires in 2015. The willingness of the landowner to work with the Service to manage federally listed species will continue to reinforce those conservation efforts and our partnership, which contribute toward achieving recovery of the northern spotted owl. We consider this voluntary partnership in conservation important in maintaining our ability to implement recovery actions such as habitat protection and restoration, and beneficial management actions for species on non-Federal lands. The Service recognizes the importance of non-Federal landowners in contributing to the conservation and recovery of listed species, and seeks to maintain and promote these partnerships for the benefit of all threatened and endangered species.

We consider conservation partnerships with private landowners to represent an integral component of recovery for listed species. However, the designation of critical habitat could have an unintended negative effect on our relationship with non-Federal landowners due to the perceived imposition of redundant government regulation. If lands within the Regli Estate HCP are designated as critical habitat, it would likely have a chilling effect on our continued ability to seek new partnerships with future participants including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement various conservation actions (such as SHAs, HCPs, and other conservation plans) that we would be unable to accomplish otherwise. We therefore consider the positive effect of excluding proven conservation partners from critical habitat to be an important benefit of exclusion.

The Benefits of Exclusion Outweigh the Benefits of Inclusion—We reviewed and evaluated the exclusion of approximately 484 ac of land owned and managed by Regli Estate from our

designation of critical habitat. The benefits of including these lands in the designation are relatively small. Because one of the primary threats to the northern spotted owl is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus in areas occupied by the species, such as is the case here, will, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or function of the habitat for the species regardless of whether critical habitat is designated for these lands. The analytical requirements to support a jeopardy determination on excluded land are similar, but not identical, to the requirements in an analysis for an adverse modification determination on included land. However, the HCP provides habitat conservation measures that apply for the benefit of northern spotted owl, and remains in place regardless of critical habitat.

In addition, educational benefits are limited because public visitation to the land is directed to the commercial enterprises: the winery and vineyard. There is no public access to the lands at issue here and we are not aware of any public constituency connected with this ownership that is informed and involved and effective in influencing conservation activities. Since outreach efforts associated with various conservation actions for this species have been extensive, members of the public, as well as State and local agencies, are likely familiar with the species and its biological needs. In this case, the regulatory and education benefits of inclusion have less benefit than the continued benefit of the provisions of the HCP, including the educational benefits derived from the HCP.

Exclusion of these lands from critical habitat will help foster the partnership we have developed with the company, through the continuing implementation of the HCP. Furthermore, we believe exclusion of these lands from critical habitat will increase the likelihood that the owner will update the HCP and apply for a new incidental take permit when the current permit expires in 2015, thereby ensuring continuing benefits to the northern spotted owl and its habitat on these lands. The HCP has provisions for protecting and maintaining northern spotted owl habitat that exceed the conservation benefits that could be obtained through section 7 consultation. These measures will not only prevent the degradation of essential features of the northern spotted owl, but they will maintain or improve these features over time. Finally, this partnership may serve as a model and aid in fostering future cooperative relationships with other parties in other locations for the benefit of listed species.

In summary, we conclude that our conservation partnership with the Regli Estate, in conjunction with the conservation measures provided in the HCP, provide a greater benefit than would the regulatory and educational benefits of critical habitat designation. We have determined that the additional regulatory benefits of designating critical habitat, afforded through the section 7(a)(2) consultation process, are minimal because the probability of a Federal nexus for projects on this land is limited in scope and will occur episodically at most. On the other hand, the conservation measures specifically benefitting the northern spotted owl and its habitat are in continuous effect throughout the lands covered by this HCP. Finally, the Service acknowledges the importance of conservation partnerships with private landowners in achieving the recovery of listed species, such as the northern spotted owl, and recognizes the

positive benefits that accrue to conservation through the exclusion of recognized conservation partners from critical habitat. Therefore, in consideration of the factors discussed above in the *Benefits of Exclusion* section, including the relevant impact to current and future partnerships, we conclude that the benefits of exclusion of lands covered by the Regli Estate Habitat Conservation Plan outweigh the benefits of critical habitat designation.

Exclusion Will Not Result in Extinction of the Species—We conclude that the exclusion of 484 ac of Regli Estate lands from the designation of critical habitat for the northern spotted owl, as identified in their HCP, will not result in extinction of the species because current conservation efforts under the plan adequately protect the geographical areas containing the physical or biological features essential to the conservation of the species. For projects having a Federal nexus and affecting northern spotted owls in occupied areas, as is the case here, the jeopardy standard of section 7 of the Act, coupled with protection provided under the terms of the HCP, would provide assurances that this species will not go extinct as a result of excluding these lands from the critical habitat designation.

Terra Springs Habitat Conservation Plan

The Terra Springs LLC HCP occurs on lands in subunit 6 of the Interior California Coast CHU. The permit issued in association with this HCP (noticed October 29, 2002 (67 FR 65998), and issued in 2004) has a term of 30 years and includes a total of 76 ac of covered land second-growth forest lands in Napa County, California. This HCP addresses the effects of timber harvest and conversion of 22 ac of forest lands to vineyard and subsequent maintenance, in perpetuity, of suitable northern spotted owl habitat characteristics on the remaining 41 ac of mature (80–120 years) Douglas-fir forest on covered lands. The HCP provides a conservation program to minimize and mitigate for the covered activities, including a deed restriction that requires management in perpetuity of 41 ac of the property as nesting and roosting quality habitat for the northern spotted owl. In addition to mitigation, the Plan also includes measures to minimize take of the northern spotted owl.

Benefits of Inclusion—We conclude there are minimal benefits to including these lands in critical habitat. As discussed above, the designation of critical habitat invokes the provisions of section 7. However, in this case, we find the requirement that Federal agencies consult with us and ensure that their actions are not likely to destroy or adversely modify critical habitat will not result in substantial benefits to the species because the possibility of a Federal nexus for a project on these lands that might trigger such consultation is limited (there is little likelihood of

an action that will involve Federal funding, authorization, or implementation). In addition, since the lands under the HCP in question are occupied by the northern spotted owl, if a Federal nexus were to occur, section 7 consultation would already be triggered and the Federal agency would consider the effects of its actions on the species through a jeopardy analysis. The additional conservation that could be attained through the supplemental adverse modification analysis for critical habitat under section 7 would not be substantial. Because the possibility of a Federal nexus on these private lands is limited, the additional regulatory benefits to the species and its habitat through inclusion in critical habitat, if any, are anticipated to be minimal.

The benefits of inclusion for this property are further limited because this HCP incorporates measures that specifically benefit the northern spotted owl and its habitat. The HCP incorporates protections and management objectives for the northern spotted owl designed to maintain suitable habitat on the property for the species in perpetuity. The conservation measures identified within the HCP seek to achieve conservation goals for northern spotted owls and their habitat that can be of greater conservation benefit than the designation of critical habitat, which does not require specific, proactive actions. HCPs typically provide for greater conservation benefits to a covered species than section 7 consultations because HCPs ensure the long-term protection and management of a covered species and its habitat. In addition, funding for such management is ensured through the Implementation Agreement. Such assurances are typically not provided by section 7 consultations, which in contrast to HCPs, often do not commit the project proponent to long-term, special management practices or protections. Thus, a section 7 consultation typically does not afford the lands it covers similar extensive benefits as an HCP. In addition, the protections of critical habitat come into play only in the event of a Federal action, whereas the protections of an HCP are in continuous force.

Another benefit of including lands in a critical habitat designation is that it serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. The landowners in this case are aware of the needs of the species through the development of their HCP, in which they have agreed to take measures to protect the northern spotted owl and its habitat. Any additional educational and information benefits that might arise from critical habitat designation have been largely accomplished through the public review of and comment on the HCP and the associated permit. The release of the Revised Recovery Plan for the Northern Spotted Owl in 2011 was also preceded by outreach efforts and public comment opportunities. In addition, the rulemaking process associated with critical habitat designation included several opportunities for public comment, and we also held multiple public information meetings across the range of the species. Through these outreach opportunities, land owners, State agencies, and local governments have become aware of the current status of and threats to the northern spotted owl, and the conservation actions needed for recovery.

The designation of critical habitat may also indirectly cause State or County jurisdictions to initiate their own additional requirements in areas identified as critical habitat. These measures may include additional permitting requirements or a higher level of local review on proposed projects. However, CAL FIRE has indicated to use that it is unlikely to impose any new requirements on project proponents if critical habitat is designated in areas already subject to California Forest Practice Rules. Therefore, we believe this potential benefit of critical will be limited.

Benefits of Exclusion—The benefits of excluding from designated critical habitat the approximately 76 ac of lands currently managed under the HCP are substantial. We have developed a conservation partnership with Terra Springs through the development and implementation of the HCP.

Excluding the approximately 76 ac owned and managed by Terra Springs, LLC from critical habitat designation will sustain and enhance the working relationship between the Service and the company. The willingness of the company to work with the Service to manage federally listed species will continue to reinforce those conservation efforts and our partnership, which contribute toward achieving recovery of the northern spotted owl. We consider this voluntary partnership in conservation important in maintaining our ability to implement recovery actions, such as habitat protection and restoration, and beneficial management actions for species on non-Federal lands. The Service recognizes the importance of non-Federal landowners in contributing to the conservation and recovery of listed species, and seeks to maintain and promote these partnerships for the benefit of all threatened and endangered species.

We consider conservation partnerships with private landowners to represent an integral component of recovery for listed species. However, the designation of critical habitat could have an unintended negative effect on our relationship with non-Federal landowners due to the perceived imposition of redundant government regulation. If lands within the Terra Springs HCP are designated as critical habitat, it would likely have a chilling effect on our continued ability to seek new partnerships with future participants including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement various conservation actions (such as SHAs, HCPs, and other conservation plans) that we would be unable to accomplish otherwise. We therefore consider the positive effect of excluding proven conservation partners from critical habitat to be a substantial benefit of exclusion.

The Benefits of Exclusion Outweigh the Benefits of Inclusion—We reviewed and evaluated the exclusion of approximately 76 ac of land owned and managed by Terra Springs, LLC from our designation of critical habitat. The benefits of including these lands in the designation are relatively small. Because one of the primary threats to the northern spotted owl is habitat loss

and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus in areas occupied by the species, such as is the case here, will, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or function of the habitat for the species regardless of whether critical habitat is designated for these lands. The analytical requirements to support a jeopardy determination on excluded land are similar, but not identical, to the requirements in an analysis for an adverse modification determination on included land. However, the HCP provides habitat conservation measures that apply for the benefit of northern spotted owl, and remains in place regardless of critical habitat. These measures will not only prevent the degradation of essential features of the northern spotted owl, but will preserve some suitable northern spotted owl habitat in perpetuity.

We conclude that the preservation of our conservation partnership with Terra Springs, in conjunction with the conservation measures provided by the HCP, provide a greater benefit than would the regulatory and educational benefits of critical habitat designation. The additional regulatory benefits of designating critical habitat, afforded through the section 7(a)(2) consultation process, are minimal because there is little probability of a Federal nexus on these private lands. On the other hand, the conservation measures specifically benefitting the northern spotted owl and its habitat are in continuous effect throughout the lands covered by this HCP. Finally, the Service acknowledges the importance of conservation partnerships with private landowners in achieving the recovery of listed species, such as the northern spotted owl, and recognizes the positive benefits that accrue to conservation through the exclusion of recognized conservation partners from critical habitat. Therefore, in consideration of the factors discussed above in the *Benefits of Exclusion* section, including the relevant impact to current and future partnerships, we conclude that the benefits of exclusion of lands covered by the Terra Springs Habitat Conservation Plan outweigh the benefits of critical habitat designation.

Exclusion Will Not Result in Extinction of the Species—We conclude that the exclusion of 76 ac from the designation of critical habitat for the northern spotted owl of lands owned and managed by Terra Springs, LLC, as identified in their HCP, will not result in extinction of the species because current conservation efforts under the plan adequately protect the geographical areas containing the physical or biological features essential to the conservation of the species. For projects having a Federal nexus and affecting northern spotted owls in occupied areas, as is the case here, the jeopardy standard of section 7 of the Act, coupled with protection provided under the terms of the HCP would provide assurances that this species will not go extinct as a result of excluding these lands from the critical habitat designation.

State of Oregon

No lands covered under an HCP in the State of Oregon are proposed for designation as critical habitat.

State of Washington

Cedar River Watershed Habitat Conservation Plan in King County, Washington

Approximately 3,244 ac are covered under the Cedar River Watershed HCP (Cedar River HCP) in King County, Washington. The permit associated with this HCP was noticed in the **Federal Register** on December 11, 1998 (63 FR 68469), and issued on April 21, 2000. The term of the permit and HCP is 50 years. The plan was prepared to address declining populations of salmon, steelhead, bull trout, northern spotted owl, marbled murrelet, and 76 unlisted species of fish and wildlife in the Cedar River watershed. The City of Seattle's HCP covers 90,535 ac of City-owned land in the upper Cedar River watershed and the City's water supply and hydroelectric operations on the Cedar River, which flows into Lake Washington. Participants involved in the development and implementation of the Cedar River HCP include the City of Seattle, Seattle City Light, Seattle Public Utilities, Washington Department of Fish and Wildlife, Washington Department of Ecology, Muckelshoot Indian Tribe, King County, and several conservation-oriented nongovernmental organizations.

At the time the HCP was approved, the 90,535 ac in upper Cedar River Watershed, owned and managed by the City of Seattle as a closed-watershed, consisted of approximately 13,889 ac of old growth forest (190–800 years old), 91 ac of late-successional (120–189 years old), 1,074 ac of mature forests (80–119 years old), and 70,223 ac of second growth forests (greater than 80 years old). Conservation strategies in the HCP for covered lands are centered around protecting and preserving the remaining old growth, late-successional, and mature forest habitats; accelerating the development of mature forest characteristics in the existing second growth forests though a combination of riparian, ecological, and restoration thinnings; and minimizing human disturbance through road closures and road abandonments, elimination of commercial harvest on covered lands, and continued management of the covered lands as a closed Municipal watershed.

At the time the HCP was approved, only two northern spotted owl reproductive site centers and two single-resident site centers had been identified on covered lands. In addition, two reproductive site enters located outside the watershed boundary had owl circles that partially overlap the Cedar River watershed. The boundaries of all known reproductive site centers are protected by the City of Seattle's commitment to conservation strategies and species-specific measures in the Cedar River HCP. The objectives of the northern spotted owl conservation

strategy are to avoid, minimize, and mitigate impacts of watershed activities to northern spotted owls, provide a long-term net benefit to the northern spotted owl, and contribute to the owl's recovery. These objectives are to be accomplished by protecting existing habitat; enhancing and recruiting substantially more nesting, roosting, foraging, and dispersal habitat in the Cedar River watershed; and protecting nest sites, reproductive pairs, and their offspring from disturbances. In addition, the City of Seattle committed to implementing a monitoring and research program that will be used to help determine if the conservation strategies for the northern spotted owl achieve their conservation objectives and support the adaptive management program designed to provide a means by which conservation measures could be altered to meet these conservation objectives. Elements of the monitoring and research program important to northern spotted owls include a project to improve the City's forest habitat inventory and data base, a project to track changes in forest habitat characteristics, a study to classify old-growth types in the Cedar River watershed, and projects to monitor all forest restoration efforts.

Benefits of Inclusion—There is minimal benefit from designating critical habitat for the northern spotted owl within the Cedar River HCP because, as explained above, these covered lands are already managed for the conservation of the species over the term of the HCP. As discussed above, the inclusion of these covered lands as critical habitat would provide some additional Federal regulatory benefits for the species consistent with the conservation standard based on the Ninth Circuit Court's decision in Gifford Pinchot. A benefit of inclusion would be the requirement of a Federal agency to ensure that their actions on these non-Federal lands would not likely result in the destruction or adverse modification of critical habitat. This additional analysis to determine destruction or adverse modification of critical habitat is not likely to be substantial because these covered lands are not under Federal ownership making the application of section 7 less likely, and we are not aware of any other potential Federal nexus. In addition, any Federal agency proposing a Federal action on these covered lands would have to consider the conservation restrictions on these lands and incorporate measures necessary to ensure the conservation of these resources, thereby reducing any incremental benefit critical habitat may have. We also find that the conservation achieved through implementing these types of agreements is typically greater than would be achieved through multiple site-by-site, project-by-project, section 7 consultations involving consideration of critical habitat.

The incremental benefit from designating critical habitat for the northern spotted owl within the Cedar River HCP is further minimized because, as explained above, these covered lands are already managed for the conservation of the species over the term of the HCP and the conservation measures provided by the HCP will provide greater protection to northern spotted owl habitat than the designation of critical habitat.

The Cedar River HCP provides for the needs of the northern spotted owl by protecting and preserving thousands of acres of existing suitable northern spotted owl habitat in the Cedar

River watershed, committing to the enhancement and recruitment of approximately 70,000 ac of additional habitat over the term of the Cedar River HCP, and implementing species-specific conservation measures designed to avoid and minimize impacts to northern spotted owls. Monitoring and research and adaptive management programs were developed to track HCP progress over the term of the permit and provide critical feedback on management actions that allow for management changes in response to this feedback or to larger trends outside the HCP boundaries such as climate change. Therefore, designation of critical habitat would be redundant on these lands, and would not provide additional measureable protections.

Another benefit of including lands in a critical habitat designation is that it serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Designation of critical habitat would inform State agencies and local governments about areas that could be conserved under State laws or local ordinances, such as the Washington State Growth Management Act, which encourage the protection of ‘‘critical areas’’ including fish and wildlife habitat conservation areas. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. However, the additional educational and informational benefits that might arise from critical habitat designation here have been largely accomplished through the public review and comment of the HCP, Environmental Impact Statement, and Implementation Agreement. Through these processes, this HCP included intensive public involvement.

The designation of critical habitat may also indirectly cause State or County jurisdictions to initiate their own additional requirements in areas identified as critical habitat. These measures may include additional permitting requirements or a higher level of local review on proposed projects. However, in Washington, State forest practices regulations provide an exemption for review for lands managed under an HCP. Thus, even should the State respond to designation of critical habitat by instituting additional protections, the HCP will not be subject to those protections as the species is considered already addressed, and therefore no additional benefit would accrue through State regulations.

Benefits of Exclusion—Compared to the minimal benefits of inclusion of this area in critical habitat, the benefits of excluding it from designated critical habitat the approximately 3,244 ac of lands currently managed under the HCP are more substantial.

HCP-conservation measures that provide a benefit to the northern spotted owl and its habitat have been implemented continuously since 1998 on all covered lands owned and managed under the Cedar River HCP. Excluding the lands managed under the Cedar River HCP from critical habitat designation will sustain and enhance the working relationship between the Service and the permit holder.

Excluding lands within HCPs from critical habitat designation can also facilitate our ability to seek new partnerships with future HCP participants including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement conservation actions that we would be unable to accomplish otherwise. If lands within HCP plan areas are designated as critical habitat, it would likely have a negative effect on our ability to establish new partnerships to develop HCPs, particularly large, regional HCPs that involve numerous participants and/or address landscape-level conservation of species and habitats. By excluding these lands, we preserve our current partnerships and encourage additional conservation actions in the future.

Benefits of Exclusion Outweigh the Benefits of Inclusion—In summary, we conclude that the benefits of excluding the Cedar River HCP from the designation of critical habitat for the northern spotted owl outweigh the benefits of including this area in critical habitat. The regulatory and informational benefits of inclusion will be minimal. Because one of the primary threats to the northern spotted owl is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus will, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or functionality of the habitat for the species regardless of whether critical habitat is designated for these lands. The analytical requirements to support a jeopardy determination on excluded land are similar, but not identical, to the requirements in an analysis for an adverse modification determination on included land. However, the additional benefits of inclusion on the section 7 process are relatively unlikely because a Federal nexus on these relatively remote forest lands would rarely occur. If one were to occur, it would most likely be a linear project such as a powerline, pipeline, or transportation. In the last 12 years of the permit, none have occurred.

In addition, the management strategies of the Cedar River HCP are designed to protect and enhance habitat for the northern spotted owl. The Cedar River HCP includes species-specific avoidance and minimization measures, monitoring requirements to track success and ensure proper implementation, and forest management practices and habitat conservation objectives that benefit the northern spotted owl and its habitat which further minimizes the benefits that would be provided as a result of a critical habitat designation. On the other hand, the benefit of excluding these lands is that it will help us maintain an important and successful conservation partnership with a major city, and may encourage others to join in conservation partnerships as well. For these reasons, we have determined that the benefits of exclusion outweigh the benefits of inclusion in this case.

Exclusion Will Not Result in Extinction of the Species—We conclude that exclusion of approximately 3,244 ac of lands covered under the Cedar River HCP will not result in extinction

of the northern spotted owl because the Cedar River HCP provides for the needs of the northern spotted owl by protecting and preserving thousands of acres of existing suitable northern spotted owl habitat in the Cedar River watershed, committing to the enhancement and recruitment of additional habitat over the term of the Cedar River HCP, and implementing species-specific conservation measures designed to avoid and minimize impacts to northern spotted owls. In addition, monitoring, research, and adaptive management programs were developed to track HCP progress and provide critical feedback on management actions that allow for management changes in response. Further, for projects having a Federal nexus and affecting northern spotted owls in occupied areas, the jeopardy standard of section 7 of the Act, coupled with protection provided by the Cedar River HCP, would provide a level of assurance that this species will not go extinct as a result of excluding these lands from the critical habitat designation. The species is also protected from take under section 9 of the Act. For these reasons we conclude that exclusion of these lands within the Cedar River HCP will not result in extinction of the northern spotted owl.

Green River Water Supply Operations and Watershed Protection Habitat Conservation Plan

Approximately 3,162 ac of land are covered under Tacoma Water's Green River Water Supply Operations and Watershed Protection HCP (Green River HCP) in the State of Washington. The permit associated with this HCP was noticed in the **Federal Register** on August 21, 1998 (63 FR 44918), and issued on July 6, 2001. The term of the permit and HCP is 50 years. The Green River HCP addresses upstream and downstream fish passage issues, flows in the middle and lower Green River, and timber and watershed-management activities on15,843 ac of Tacoma-owned land in the upper Green River Watershed. The Green River HCP covers 32 species of fish and wildlife, including the northern spotted owl and 10 other listed species, under an agreement designed to allow the continuation of water-supply operations on the Green River, forest management practice in the upper Green River watershed, and aquatic restoration and enhancement activities. The plan also provides for fish passage into and out of the upper Green River Watershed.

The City of Tacoma manages approximately 15,843 ac of covered lands in the upper Green River watershed for water quality benefits and timber harvest. The Green River HCP divides Tacoma-owned lands into three distinct management zones, and contains a series of conservation measures that address upland forest management, riparian buffers, and avoid or minimize impacts to covered species. Each management zone has specific goals and objectives that focus on water quality, fish and wildlife, and timber management. The Natural Zone contains 5,850 ac. In this zone, Tacoma is committed to conduct no timber harvest management except for danger tree removal. The long-term goal is to allow these timber stands to develop into late-seral (greater than 155 years old) and mature timber (106–155 years old) conditions through natural succession. The Conservation Zone contains 5,180 ac of

covered lands. In this zone, Tacoma will conduct no even-aged harvest in conifer stands and no harvest of any form in stands over 100 years old (except for danger tree removal). Tacoma may conduct uneven-aged harvest in stands less than 100 years old to improve stand condition. Once stands reach 100 years of age, no timber harvest will be conducted and stands will be allowed to develop through natural succession. The Commercial Zone contains 3,858 ac of covered lands. Stands in this zone will be managed sustainably for timber production on a 70-year rotation. A considerable area of late-seral and mature forest capable of supporting nesting, roosting, foraging, and dispersal of northern spotted owls is expected to develop over time in the Natural Zone, Conservation Zone, and to a lesser extent, riparian buffers. Over the term of the permit, the amount of late-seral forest is expect to increase from 41 ac to 292 ac, and the amount of mature forest is expected to increase from 268 ac to 4,027 ac.

At the time the permit was approved, there were 16 known northern spotted owl activity centers within 1.8 miles of covered lands. Fifteen were reproductive site centers and one was a single-resident site center. Only the single-resident site center was actually located on covered lands. Species-specific conservation measures are designed to protect habitat around known nest sites and minimize disturbance during the nesting season.

Benefits of Inclusion—There is minimal benefit from designating critical habitat for the northern spotted owl within the Green River HCP because, as explained above, these covered lands are already managed for the conservation of the species over the term of the HCP. As discussed above the inclusion of these covered lands as critical habitat could provide some additional Federal regulatory benefits for the species consistent with the conservation standard based on the Ninth Circuit Court's decision in *Gifford Pinchot*. A benefit of inclusion would be the requirement of a Federal agency to ensure that their actions on these non-Federal lands would not likely result in the destruction or adverse modification of critical habitat. However, this additional analysis to determine destruction or adverse modification of critical habitat is not likely to be substantial not only because a Federal nexus is unlikely (these covered lands are not under Federal ownership), any Federal agency proposing a Federal action on these covered lands would likely consider the conservation value of these lands and take the necessary steps to avoid adverse effects to northern spotted owl habitat. If a Federal nexus did occur, it would most likely be in the context of a linear project such as a powerline, pipeline, or transportation project. In the last 11 years of the permit, none have occurred.

Another factor that minimizes any regulatory benefits that might result from critical habitat designation is that the Green River HCP already provides for the needs of the northern spotted owl by protecting and preserving acres of existing suitable northern spotted owl habitat in the Green River watershed, committing to the enhancement and recruitment of additional area of suitable habitat over the term of the Green River HCP, and implementing species-specific conservation measures designed to avoid and minimize impacts to northern spotted owls. Monitoring was developed to track HCP progress over the term of the permit and provide

critical feedback on management actions, which allow for management changes in response to this feedback or to larger trends outside the HCP boundaries such as climate change. Therefore, designation of critical habitat would be redundant on these lands, and would not provide additional measurable protections.

Another benefit of including lands in a critical habitat designation is that it serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Designation of critical habitat would inform State agencies and local governments about areas that could be conserved under State laws or local ordinances, such as the Washington State Growth Management Act, which encourage the protection of ''critical areas'' including fish and wildlife habitat conservation areas. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. However, the additional educational and informational benefits that might arise from critical habitat designation here have been largely accomplished through the public review and comment on the HCP, Environmental Impact Statement, and Implementation Agreement. .

The designation of critical habitat may also indirectly cause State or County jurisdictions to initiate their own additional requirements in areas identified as critical habitat. These measures may include additional permitting requirements or a higher level of local review on proposed projects. However, in Washington, State forest practices regulations provide an exemption for review for lands managed under an HCP. Thus, even should the State respond to designation of critical habitat by instituting additional protections, the HCP will not be subject to those protections as the species is considered already addressed, and therefore no additional benefit would accrue through State regulations.

Benefits of Exclusion—The benefits of excluding from designated critical habitat the approximately 3,162 ac of lands currently managed under the HCP are substantial. Conservation measures that provide a benefit to the northern spotted owl and its habitat have been implemented continuously since 2001 on all covered lands owned and managed under the Green River HCP. Excluding the lands managed under the Green River HCP from critical habitat designation will sustain and enhance the working relationship between the Service and the permit holder.

Excluding lands within HCPs from critical habitat designation may also support our continued ability to seek new partnerships with future HCP participants including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement conservation actions that we would be unable to accomplish otherwise. If lands within HCP plan areas are designated as critical habitat, it would likely have a negative effect on our ability to establish new partnerships to develop HCPs, particularly HCPs address landscape-level conservation of species and habitats. By excluding these lands, we preserve our current

partnerships and encourage additional conservation actions in the future.

Benefits of Exclusion Outweigh the Benefits of Inclusion—In summary, we conclude that the benefits of excluding the Green River HCP from the designation of critical habitat for the northern spotted owl outweigh the benefits of including this area in critical habitat. The regulatory and informational benefits of inclusion will be minimal. Because one of the primary threats to the northern spotted owl is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus will, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or functionality of the habitat for the species regardless of whether critical habitat is designated for these lands. The analytical requirements to support a jeopardy determination on excluded land are similar, but not identical, to the requirements in an analysis for an adverse modification determination on included land. In addition, any benefits from the section 7 process are unlikely because Federal projects would be rare on these relatively remote forest lands. The regulatory benefits of inclusion are even more minimal in light of the fact that the Green River HCP includes species-specific avoidance and minimization measures, monitoring requirements to track success and ensure proper implementation, and forest management practices and habitat conservation objectives that benefit the northern spotted owl and its habitat, which exceeds any conservation value provided as a result of a critical habitat designation. On the other hand, the benefit of excluding these lands is that it will help us maintain an important and successful conservation partnership with a major city, and may encourage others to join in conservation partnerships as well. Therefore, we conclude that the benefits of exclusion of the lands covered by Green River HCP outweigh the benefits of inclusion.

Exclusion Will Not Result in Extinction of the Species—We conclude that exclusion of approximately 3,162 ac of lands covered under the Green River HCP will not result in extinction of the northern spotted owl because the Green River HCP provides for the needs of the northern spotted owl by protecting and preserving acres of existing suitable northern spotted owl habitat in the Green River watershed, committing to the enhancement and recruitment of additional area of suitable habitat over the term of the Green River HCP, and implementing species-specific conservation measures designed to avoid and minimize impacts to northern spotted owls. Monitoring was developed to track HCP progress over the term of the permit and provide critical feedback on management actions, which allow for management changes in response to this feedback or to larger trends outside the HCP boundaries such as climate change. The conservation measures provided by this HCP have been implemented continuously since 1998 on all covered lands owned and managed under the Green River HCP. Further, for projects having a Federal nexus and affecting northern spotted owls in occupied areas, the jeopardy standard of section 7 of the Act, coupled with protection provided by the Green River HCP, would provide a level of assurance that this species will not go extinct as a result of

excluding these lands from the critical habitat designation. The species is also protected by ESA section 9, which prohibits the take of listed species. For these reasons, we conclude that exclusion of these lands within the Green River HCP will not result in extinction of the northern spotted owl.

Plum Creek Timber Central Cascades Habitat Conservation Plan

About 33,144 ac of land proposed for critical habitat designation are covered under the Plum Creek Timber Central Cascades HCP (Plum Creek HCP) in the State of Washington. The permit associated with the Plum Creek HCP was first noticed in the **Federal Register** on November 17, 1995 (60 FR 57722), issued on June 27, 1996, and later modified in December of 1999 as noticed on February 10, 2000 (65 FR 6590). The permit has a term of 50 years (with an option to extend to 100 years if certain conditions are met) and currently covers 84,600 ac of lands in the Interstate-90 corridor in King and Kittitas Counties, Washington. The HCP includes over 315 species of fish and wildlife, including the northern spotted owl and 7 other listed species. The plan addresses forest-management activities across an area of industrial timberlands in Washington's central Cascade Mountains, and provides for management of the northern spotted owl based on landscape conditions tailored to the guidelines provided by the NWFP by providing additional protection to northern spotted owl sites near late-successional reserves. Wildlife trees are retained in buffers of natural features (e.g., caves, wetlands, springs, cliffs, talus slopes) and streams, as well as scattered and clumped within harvest units. The HCP also requires Plum Creek to maintain and grow nesting, roosting, and foraging habitat as well as habitat that can be used for foraging and dispersal. They are also required to provide forests of various structural stages across all of their HCP ownerships. This commitment of owl habitat and forest stages, in combination with wildlife trees retained within harvest units and stream and landscape-feature buffers will provide a matrix of habitat conditions that complements the owl habitat provided in the Plum Creek HCP and nearby LSRs. Stands containing scattered leave trees following harvest will be expected to become more valuable for northern spotted owls at earlier ages than those harvested using previous methods.

At the time the permit was approved, there were 107 known northern spotted owl activity centers within 1.82 miles of covered lands, which included reproductive site centers, single-resident site centers, and historic sites. A detailed description of each sites history is provided in the HCP and associated technical papers.

Benefits of Inclusion—There are minimal benefits to including these lands in critical habitat. As discussed above, the designation of critical habitat invokes the provisions of section 7. However, in this case, we find the requirement that Federal agencies consult with us and

ensure that their actions are not likely to destroy or adversely modify critical habitat will not result in substantial benefits to the species because the possibility of a Federal nexus for a project on these lands is small unless it was a larger project covering adjacent Federal lands as well, in which case section 7 consultation would already be triggered and the Federal agency would consider the effects of its actions on the species. Since most of the habitat on these HCP lands would be assumed occupied the margin of conservation that could be attained through section 7 would not be substantial. In addition, it would be small in comparison to the benefits already derived from the HCP.

HCPs typically provide for greater conservation benefits to a covered species than section 7 consultations because HCPs ensure the long-term protection and management of a covered species and its habitat. In addition, funding for such management is ensured through the Implementation Agreement. Such assurances are typically not provided by section 7 consultations, which in contrast to HCPs, often do not commit the project proponent to long-term, special management practices or protections. Thus, a section 7 consultation typically does not afford the lands it covers similar extensive benefits as a HCP. The development and implementation of HCPs provide other important conservation benefits, including the development of biological information to guide the conservation efforts and assist in species conservation, and the creation of innovative solutions to conserve species while meeting the needs of the applicant. In this case, substantial information has been developed from the research, monitoring, and surveys conducted under the Plum Creek HCP.

There is minimal incremental benefit from designating critical habitat for the northern spotted owl within the Plum Creek HCP because, as explained above, these covered lands are already managed for the conservation of the species over the term of the HCP and the conservation measures provided by the HCP will provide greater protection to northern spotted owl habitat than the designation of critical habitat, which provides regulatory protections only in the event of a Federal action. The Plum Creek HCP provides for the needs of the northern spotted owl by protecting and preserving landscape levels of suitable northern spotted owl nesting, roosting, and foraging habitat as well as foraging and dispersal habitat over the term of the HCP in strategic landscapes, and implementing species-specific conservation measures designed to avoid and minimize effects to northern spotted owls. The HCP also provides for the ability to make ongoing adjustments in a number of forms including adaptive management. The ability to change is crucial to meet new recovery challenges. The Service negotiated this plan with Plum Creek, which contains mandatory permit conditions in the form of HCP commitments, and continues to be involved in its ongoing implementation. The Service conducts compliance monitoring on the covered lands and routinely meets with Plum Creek to discuss ongoing implementation. The HCP contains provisions that address ownership changes and the outcomes expected by the Service. Monitoring was developed to track HCP progress over the term of the permit and provide feedback on management actions. Therefore, designation of critical habitat would be redundant on these lands, and would not provide additional measureable protections.

Another benefit of including lands in a critical habitat designation is that it serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Designation of critical habitat would inform State agencies and local governments about areas that could be conserved under State laws or local ordinances, such as the Washington State Growth Management Act, which encourage the protection of ''critical areas'' including fish and wildlife habitat conservation areas. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. However, Plum Creek is knowledgeable about the northern spotted owl and the company has made substantial contributions in research and science for the species. The additional educational and informational benefits that might arise from critical habitat designation here have been largely accomplished through the public review and comment of the HCP, Environmental Impact Statement, and Implementation Agreement, as well as the supplemental Environmental Impact Statements associated with the modification of the HCP and the I-90 Land Exchange. Through these processes, this HCP included intensive public involvement. This HCP continues to receive a high degree of scrutiny and study by academics, as well as informational releases to the general public and has resulted in improved understanding by the public. This level of exposure in local newspapers and television stations exceeds the level of education that would come from a designation that would be read by few people in the public. Moreover, the rulemaking process associated with critical habitat designation includes several opportunities for public comment, and thus also provides for public education. Through these outreach opportunities, land owners, State agencies, and local governments have become more aware of the status of and threats to the northern spotted owl and the conservation actions needed for recovery.

The designation of critical habitat may also indirectly cause State or County jurisdictions to initiate their own additional requirements in areas identified as critical habitat. These measures may include additional permitting requirements or a higher level of local review on proposed projects. However, in Washington, State forest practices regulations provide an exemption for review for lands managed under an HCP. Thus, even should the State respond to designation of critical habitat by instituting additional protections, the HCP will not be subject to those protections as the species is considered already addressed, and therefore no additional benefit would accrue through State regulations.

Benefits of Exclusion—The benefits of excluding from designated critical habitat the approximately 33,144 ac of lands currently managed under the HCP are more substantial. The designation of critical habitat could have an unintended negative effect on our relationship with non-Federal landowners due to the perceived imposition of redundant government regulation. If lands within the Plum Creek HCP area are designated as critical habitat, it would likely have a negative effect on our continued ability to seek new partnerships with future participants

including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement conservation actions (such as SHAs, HCPs, and other conservation plans, particularly those that address landscape-level conservation of species and habitats) that we would be unable to accomplish otherwise. This HCP is currently serving as a model for ongoing and future efforts. Due to the high level of visibility in the Interstate-90 corridor and the overlap with recreational lands used by many residents of the Seattle metropolitan area, this HCP received an unusual amount of scrutiny. Because it was one of the first HCPs to address species using a habitat-based approach, it set a high standard for application of the best available science. Plum Creek has been a long-standing partner and advocate for HCPs across the nation. They are viewed as leaders in their industry and as an example in the HCP community. By excluding these lands, we preserve our current private and local conservation partnerships and encourage additional conservation actions in the future.

In addition, exclusion may encourage Plum Creek to engage in further land exchanges or sales of their lands for conservation purposes. This HCP is located in a key landscape between the I-90 and other Federal lands and represents a unique opportunity in maintaining northern spotted owls at the western extreme of the Cascades, which may support dispersal between the Cascades. This HCP contributes meaningfully to the recovery of the northern spotted owl and serves as an example to other industrial companies. Since issuance of the Plum Creek HCP, Plum Creek's ownership has decreased from about 170,000 ac to about 81,000 ac. This decrease is mostly due to land exchanges and sales by Plum Creek for conservation purposes. Conservation sales have been completed on a number of sensitive sites. Plum Creek has worked to find conservation buyers and has responded to requests from agencies and conservation groups. They have sold lands to a various parties using differing funding mechanisms, but sold lands have been transferred to public ownership, primarily the U.S. Forest Service. All of these lands have been placed in conservation status. If lands within the Plum Creek HCP plan areas are designated as critical habitat, it would likely have a negative effect on the willingness of various groups and funding sources to accomplish these conservation sales, and could also negatively affect Plum Creek's willingness to participate in these acquisition processes.

Benefits of Exclusion Outweigh the Benefits of Inclusion—The benefits of including these lands in the designation are small. Because one of the primary threats to the northern spotted owl is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus will, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or functionality of the habitat for the species regardless of whether critical habitat is designated for these lands. The analytical requirements to support a jeopardy determination on excluded land are similar, but not identical, to the requirements in an analysis for an adverse modification determination on included land. However, the HCP contains provisions for protecting and maintaining northern spotted owl habitat that far exceed the conservation benefits afforded through section 7 consultation. It provides for comprehensive measures applied across a large landscape that will benefit spotted owls. Plum

Creek personnel are knowledgeable in the ecology of the northern spotted owl and have contributed to the body of scientific information about the northern spotted owl. In this instance, the regulatory and educational reasons for inclusion have much less benefit than the continued benefit of the HCP, including the educational benefits derived from the HCP.

On the other hand, the benefits of exclusion will continue the positive relationship we currently have with Plum Creek and encourage others to engage in conservation partnerships such as HCPs as well. For these reasons, we conclude that the benefits of excluding the Plum Creek Cascades HCP from the designation of critical habitat for the northern spotted owl outweigh the benefits of including this area in critical habitat.

Exclusion Will Not Result in Extinction of the Species—We conclude that exclusion of approximately 33,144 ac of lands covered under the Plum Creek HCP will not result in extinction of the northern spotted owl because the Plum Creek HCP provides for the needs of the northern spotted owl by protecting and preserving landscape levels of suitable northern spotted owl nesting, roosting, and foraging habitat as well as foraging and dispersal habitat over the term of the HCP in strategic landscapes, and implementing species-specific conservation measures designed to avoid and minimize effects to northern spotted owls. Monitoring was developed to track HCP progress over the term of the permit and provide feedback on management actions. The Plum Creek HCP provides for the ability to make ongoing adjustments in a number of forms including adaptive management. The ability to change is crucial to meet new recovery challenges. The HCP contains provisions that address ownership changes and the outcomes expected by the Service. Further, for projects having a Federal nexus and affecting northern spotted owls in occupied areas, the jeopardy standard of section 7 of the Act, coupled with protection provided by the Plum Creek HCP, would provide a level of assurance that this species will not go extinct as a result of excluding these lands from the critical habitat designation. We conclude that exclusion of these lands within the Plum Creek HCP will not result in extinction of the northern spotted owl

Washington State Department of Natural Resources State Lands Habitat Conservation Plan

The Washington State Department of Natural Resources State Lands Habitat Conservation Plan (WDNR HCP) covers approximately 1.7 million ac of State forest lands within the range of the northern spotted owl in the State of Washington. Approximately 225,751 ac are overlain by proposed critical habitat. The majority of the area covered by the HCP is west of the Cascade Crest and includes the Olympic Experimental State Forest. The HCP area on the east side of the Cascade Range includes lands within the range of the northern spotted owl. The permit associated with this HCP, issued January 30, 1997, was noticed in the **Federal Register** on April

5, 1996 (61 FR 15297), has a term of 70 to 100 years, and covers activities primarily associated with commercial forest management, but also includes limited nontimber activities such as some recreational activities. The HCP covers all species, including the northern spotted owl and other listed species.

The HCP addressed multiple species through a combination of strategies. The HCP includes a series of Natural Area Preserves and Natural Resource Conservation Areas. The marbled murrelet is addressed through a combination of steps culminating in the development of a long-term plan to retain and protect important old-forest habitat, which will also benefit the northern spotted owl. Riparian conservation includes buffers on fish-bearing streams as well as substantial buffers on streams and wetlands without fish, and deferring harvest on unstable slopes. Wildlife trees are retained in buffers of natural features (e.g., caves, wetlands, springs, cliffs, talus slopes) and streams, as well as scattered and clumped within harvest units. The HCP also requires WDNR to maintain and grow forests of various structural stages across all of their HCP ownerships. Specifically for northern spotted owls, they have identified portions of the landscape upon which they will manage for nesting, roosting, and foraging (NRF) habitat for northern spotted owls. These areas are known as NRF Management Areas (NRFMAs) and were located to provide demographic support that would strategically complement the NWFP's Late-Successional Reserves as well as those Adaptive Management Areas that have late-successional objectives. The NRFMAs also were situated to help maintain species distribution. Generally, these NRFMAs will be managed so that approximately 50 percent of those lands will develop into NRF habitat for the northern spotted owl over time. Within this 50 percent, certain nest patches containing high-quality nesting habitat are to be retained and grown. Since the HCP was implemented, within the NRFMAs, WDNR has carried out 5,100 ac of precommercial thinning and 7,800 ac of timber harvest specifically configured to enhance northern spotted owl habitat. WDNR's habitat-enhancement activities will continue under the HCP.

Some areas outside of the NRFMAs are managed to provide for dispersal and foraging conditions in 50 percent of the forests in those areas; these were strategically located in landscapes important for connectivity. The Olympic Experimental State Forest is managed to provide for northern spotted owl conservation across all of its lands. Even in areas not specifically managed for northern spotted owls, WDNR has committed to providing a range of forest stages across the landscape to address multiple species. This commitment of forest stages, in combination with wildlife trees retained within harvest units and stream and landscape-feature buffers, will provide a matrix of habitat conditions that will also provide some assistance in conserving northern spotted owls. Stands containing scattered leave trees following harvest will become more valuable for northern spotted owls at earlier ages than those stands harvested using previous methods. Northern Spotted owls across the WDNR HCP are expected to benefit from the combination of these strategies.

At the time the permit was approved, there were approximately 292 northern spotted owl site centers overlapping on WDNR covered lands, including 76 known site centers (excluding historic sites and non-territorial singles). There were approximately 484,717 ac of suitable

habitat on covered lands, which comprised over 10 percent of all suitable habitat in Washington State at that time.

Benefits of Inclusion—There are minimal benefits to including these lands in critical habitat. As discussed above, the designation of critical habitat invokes the provisions of section 7. However, in this case, we find the requirement that Federal agencies consult with us and ensure that their actions are not likely to destroy or adversely modify critical habitat will not result in substantial benefits to the species because the possibility of a Federal nexus for a project on these lands is small unless it was a larger project covering adjacent Federal lands as well, in which case section 7 consultation would already be triggered and the Federal agency would consider the effects of its actions on the species. In addition, most of the habitat on these HCP lands would be assumed to be occupied, further minimizing the margin of conservation that could be attained through section 7 would. In addition, it would be small in comparison to the benefits already derived from the HCP.

HCPs typically provide for greater conservation benefits to a covered species than section 7 consultations because HCPs ensure the long-term protection and management of a covered species and its habitat. Funding for such management is ensured through the Implementation Agreement. Such assurances are typically not provided by section 7 consultations, which in contrast to HCPs, often do not commit the project proponent to long-term, special management practices or protections. Thus, a section 7 consultation typically does not afford the lands the same benefits as a HCP. The development and implementation of HCPs provide other important conservation benefits, including the development of biological information to guide the conservation efforts and assist in species conservation, and the creation of innovative solutions to conserve species while meeting the needs of the applicant. In this case, substantial information has been developed from the research, monitoring, and surveys conducted under the WDNR HCP.

There is minimal incremental benefit from designating critical habitat for the northern spotted owl within the WDNR HCP because, as explained above, these covered lands are already managed for the conservation of the species over the term of the HCP and the conservation measures provided by the HCP will provide greater protection to northern spotted owl habitat than the designation of critical habitat, which provides regulatory protections only in the event of a Federal action. The WDNR HCP provides for the needs of the northern spotted owl by protecting and preserving landscape levels of suitable northern spotted owl nesting, roosting, and foraging habitat as well as foraging and dispersal habitat over the term of the HCP in strategic landscapes, and implementing species-specific conservation measures designed to avoid and minimize effects to northern spotted owls. The HCP also provides for the ability to make ongoing adjustments in a number of forms including adaptive management. The ability to change is crucial to meet new recovery challenges. The Service continues to be involved in the implementation of this HCP. The Service conducts compliance monitoring on the covered lands

and routinely meets with WDNR to discuss ongoing implementation. The HCP contains provisions that address ownership changes and the outcomes expected by the Service. Monitoring was developed to track HCP progress over the term of the permit and provide feedback on management actions. Therefore, designation of critical habitat would be redundant on these lands, and would not provide additional measureable protections.

Another benefit of including lands in a critical habitat designation is that it serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Designation of critical habitat would inform State agencies and local governments about areas that could be conserved under State laws or local ordinances, such as the Washington State Growth Management Act, which encourage the protection of ‘‘critical areas’’ including fish and wildlife habitat conservation areas. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. However, WDNR, as the State’s natural resource agency, is knowledgeable about the species and has made substantial contributions to our knowledge of the species. In addition the additional educational and informational benefits that might arise from critical habitat designation here have been largely accomplished through the public review and comment of the HCP, Environmental Impact Statement, and Implementation Agreement, as well as the supplemental Environmental Impact Statements associated with the modification of the HCP. This HCP included intensive public involvement and continues to be an example used when discussing HCPs. The HCP is frequently a topic of open and public discussion during meetings of the Washington State Board of Natural Resources, whose meetings are open to the public and frequently televised. This level of exposure in local newspapers and television stations exceeds the level of education that would come from a designation that would be read by few people in the public. Moreover, the rulemaking process associated with critical habitat designation includes several opportunities for public comment, and thus also provides for public education.

Benefits of Exclusion—A benefit of excluding lands within this HCP from critical habitat designation is that it would encourage the State and other parties to continue to work for owl conservation. Since issuance of this HCP, a number of land transactions and land exchanges with the HCP area have occurred. These transactions have included creation of additional Natural Resource Conservation Areas and Natural Area Preserves (both land designations with high degree of protection) and have also included large land exchanges and purchases that have changed the footprint of the HCP. These land-based adjustments have facilitated better management on many important parcels and across larger landscapes than would otherwise have been possible. If lands within HCP plan areas are designated as critical habitat, it would likely have a negative effect on the willingness of various groups and funding sources to accomplish these land-ownership adjustments because of a reluctance to acquire lands designated as critical habitat as well as a reduced willingness on the part of WDNR to

accommodate the Services goals. This HCP is located in key landscapes across the State and contributes meaningfully to the recovery of the northern spotted owl.

If lands within the WDNR HCP plan area are designated as critical habitat, it would also likely have a negative effect on our ability to establish new partnerships to develop HCPs, particularly large, regional HCPs that involve numerous participants and/or address landscape-level conservation of species and habitats. This HCP has served as a model for several completed and ongoing HCP efforts, including the Washington State Forest Practices HCP. By excluding these lands, we would preserve our current private and local conservation partnerships and encourage additional conservation actions in the future because other parties see our exclusion as a sign that the Service will not impose duplicative regulatory burdens on landowners who have developed an HCP.

HCPs typically provide for greater conservation benefits to a covered species than section 7 consultations because HCPs ensure the long-term protection and management of a covered species and its habitat. In addition, funding for such management is ensured through the Implementation Agreement. Such assurances are typically not provided by section 7 consultations, which in contrast to HCPs often do not commit the project proponent to long-term, special management practices or protections. Thus, a section 7 consultation typically does not afford the lands it covers similar extensive benefits as an HCP. The development and implementation of HCPs provide other important conservation benefits, including the development of biological information to guide the conservation efforts and assist in species conservation, and the creation of innovative solutions to conserve species while meeting the needs of the applicant. In this case, substantial information has been developed from the research, monitoring, and surveys conducted under the WDNR HCP. Therefore, exclusion would be a benefit because it would maintain and fosters development of biological information and innovative solutions.

Benefits of Exclusion Outweigh the Benefits of Inclusion—The benefits of including these lands in the designation are small. Because one of the primary threats to the northern spotted owl is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus will, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or functionality of the habitat for the species regardless of whether critical habitat is designated for these lands. The analytical requirements to support a jeopardy determination on excluded land are similar, but not identical, to the requirements in an analysis for an adverse modification determination on included land. However, the HCP contains provisions for protecting and maintaining northern spotted owl habitat that far exceed the conservation benefits afforded through section 7 consultation. It provides for comprehensive measures applied across a large landscape that will benefit spotted owls. Washington State DNR personnel are extremely knowledgeable regarding the ecology of the northern spotted owl and have contributed to the body of scientific information about the

northern spotted owl. In this instance, the regulatory and educational benefits of inclusion have much less benefit than the continued benefit of the HCP including the educational benefits derived from the HCP.

The WDNR HCP provides for substantial conservation and management within geographical areas that contain the physical or biological features essential to the conservation of the northern spotted owl and help achieve recovery of this species through the conservation measures of the HCP. Exclusion of these lands from critical habitat would help foster the partnership we have developed with WDNR, through the development and continuing implementation of the HCP. Furthermore, this partnership may aid in fostering future cooperative relationships with other parties in other locations for the benefit of listed species.

In summary, we conclude that the benefits of excluding the WDNR HCP from the designation of critical habitat for the northern spotted owl outweigh the benefits of including this area in critical habitat. We find that including the HCP would result in minimal, if any, additional benefits to the northern spotted owl, as explained above. The HCP includes species-specific avoidance and minimization measures, monitoring requirements to track success and ensure proper implementation, and forest-management practices and habitat conservation objectives that benefit the northern spotted owl and its habitat, which exceeds any conservation value provided as a result of a critical habitat designation. We have determined that our partnership with WDNR, in conjunction with the conservation measures in the WDNR HCP, provide a greater benefit to the northern spotted owl than would the regulatory and educational benefits of critical habitat designation. Furthermore, we have determined that the additional regulatory benefits of designating critical habitat, afforded through the section 7(a)(2) consultation process, are minimal because of limited Federal nexus and that conservation measures specifically benefitting the northern spotted owl and its habitat are in place through the HCP. We also have concluded that the potential educational and ancillary benefits of critical habitat designation on lands containing the physical or biological features essential to the conservation of the northern spotted owl would be minimal, because WDNR has already made substantial contributions to our understanding of the ecology of the northern spotted owl, and continues to do so through HCP implementation and through participation in range wide demographic studies. Therefore, in consideration of the factors discussed above in the Benefits of Exclusion section, including the relevant impact to current and future partnerships, we have concluded that the benefits of exclusion of lands covered by the WDNR HCP outweigh the benefits of critical habitat.

Exclusion Will Not Result in Extinction of the Species—We conclude that exclusion of approximately 225,751 ac of lands covered under the WDNR HCP will not result in extinction of the northern spotted owl. The WDNR HCP protects and preserves landscape levels of suitable northern spotted owl nesting, roosting, and foraging habitat as well as foraging and dispersal habitat over the term of the HCP in strategic landscapes, and implements species-specific

conservation measures designed to avoid and minimize effects to northern spotted owls. Monitoring was developed to track HCP progress over the term of the permit and provide critical feedback on management actions. Adaptive management provides for responses to this feedback. Further, for projects having a Federal nexus and affecting northern spotted owls in occupied areas, the jeopardy standard of section 7 of the Act, coupled with protection provided by the WDNR HCP, would provide a level of assurance that this species will not go extinct as a result of excluding these lands from the critical habitat designation. We conclude that exclusion of these lands within the WDNR HCP will not result in extinction of the northern spotted owl.

West Fork Timber Habitat Conservation Plan

Approximately 5,105 ac of lands are covered under the West Fork Timber HCP (West Fork HCP) (formerly known as Murray Pacific Corporation) in the West Cascades Central CHU in Washington. The West Fork HCP was the first multispecies HCP on forested lands in the Nation. The permit associated with the West Fork HCP has a term of 100 years and was first issued on September 24, 1993; amended on June 26, 1995; and amended again on October 16, 2001 (66 FR 52638). The HCP includes 53,558 ac of commercial timber lands managed as a tree farm in Lewis County, Washington. The HCP is situated between an area of Federal land known as the Mineral Block and the larger block of Federal lands in the Cascades. The HCP was first developed to allow for forest-management activities and provide for the conservation of the northern spotted owl; the amended HCP provides for all species, including six listed species. The HCP is designed to develop and maintain northern spotted owl dispersal habitat across 43 percent of the tree farm, and must also meet quantitative measures of amount and distribution. As a result, total dispersal habitat will more than double in amount, and wide gaps between stands of dispersal habitat will be decreased.

In addition, the West Fork HCP provides for leaving at least 10 percent of the tree farm in reserves for the next 100 years. These reserves will primarily take the form of riparian buffers averaging at least 100 feet on each side of all fish-bearing streams, as well as other buffers and set-a-side areas. Other provisions of the HCP are designed to ensure that all forest habitat types and age classes currently on the tree farm, as well as special habitat types such as talus slopes, caves, nest trees, and den sites, are protected or enhanced. Seasonal protection is provided within ¼ mile of an active northern spotted owl nest site.

At the time the permit was approved, there were approximately 4,678 ac of suitable habitat in small stands sporadically located, comprising about 8 percent of the ownership. The HCP included 3 resident northern spotted owls and included about 20 percent of the ownership in dispersal habitat.

Benefits of Inclusion—There are minimal benefits to including these lands in critical habitat. As discussed above, the designation of critical habitat invokes the provisions of section 7. However, in this case, we find the requirement that Federal agencies consult with us and ensure that their actions are not likely to destroy or adversely modify critical habitat will not result in substantial benefits to the species because the possibility of a Federal nexus for a project on these lands is small unless it was a larger project covering adjacent Federal lands as well, in which case section 7 consultation would already be triggered and the Federal agency would consider the effects of its actions on the species. In addition, most of the habitat on these HCP lands would be assumed to be occupied, further minimizing the margin of conservation that could be attained through section 7. In addition, it would be small in comparison to the benefits already derived from the HCP.

HCPs typically provide for greater conservation benefits to a covered species than section 7 consultations because HCPs ensure the long-term protection and management of a covered species and its habitat. In addition, funding for such management is ensured through the Implementation Agreement. Such assurances are typically not provided by section 7 consultations, which in contrast to HCPs, usually do not commit the project proponent to long-term, special management practices or protections. Thus, a section 7 consultation typically does not afford the lands it covers benefits similar to those provided by an HCP. The development and implementation of HCPs provide other important conservation benefits, including the development of biological information to guide the conservation efforts and assist in species conservation, and the creation of innovative solutions to conserve species while meeting the needs of the applicant.

There is minimal incremental benefit from designating critical habitat for the northern spotted owl within the West Fork HCP because, as explained above, these covered lands are already managed for the conservation of the species over the term of the HCP and the conservation measures provided by the HCP will provide greater protection to northern spotted owl habitat than the designation of critical habitat, which provides regulatory protections only in the event of a Federal action. The West Fork HCP provides for the needs of the northern spotted owl by protecting and preserving landscape levels of suitable northern spotted owl dispersal habitat over the term of the HCP in strategic landscapes, and implementing species-specific conservation measures designed to avoid and minimize effects to northern spotted owls. The HCP also provides for the ability to make ongoing adjustments in a number of forms including adaptive management. The ability to change is crucial to meet new recovery challenges. The Service continues to be involved in implementation of the HCP. It contains provisions that address ownership changes and the outcomes expected by the Service. Monitoring was developed to track HCP progress over the term of the permit and provide feedback on management actions. Therefore, designation of critical habitat would be redundant on these lands, and would not provide additional measureable protections.

Another benefit of including lands in a critical habitat designation is that it serves to educate landowners, State and local governments, and the public regarding the potential conservation

value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Designation of critical habitat would inform State agencies and local governments about areas that could be conserved under State laws or local ordinances, such as the Washington State Growth Management Act, which encourage the protection of ''critical areas'' including fish and wildlife habitat conservation areas. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. However, this landowner is knowledgeable about the species through its implementation of the HCP. In addition the additional educational and informational benefits that might arise from critical habitat designation here have been largely accomplished through the public review and comment of the HCP, Environmental Impact Statement, and Implementation Agreement. Through these processes, this HCP included intensive public involvement. Moreover, the rulemaking process associated with critical habitat designation includes several opportunities for public comment, and thus also provides for public education. Through these outreach opportunities, land owners, State agencies, and local governments have become more aware of the status of and threats to the northern spotted owl and the conservation actions needed for recovery.

The designation of critical habitat may also indirectly cause State or County jurisdictions to initiate their own additional requirements in areas identified as critical habitat. These measures may include additional permitting requirements or a higher level of local review on proposed projects. However, in Washington, State forest practices regulations provide an exemption for review for lands managed under an HCP. Thus, even should the State respond to designation of critical habitat by instituting additional protections, the HCP will not be subject to those protections as the species is considered already addressed, and therefore no additional benefit would accrue through State regulations.

Benefits of Exclusion—Compared to the minimal benefits of inclusion of this area in critical habitat, the benefits of excluding it from designated critical habitat are more substantial. HCP conservation measures that provide a benefit to the northern spotted owl and its habitat have been implemented continuously since 1993 on all covered lands owned and managed under the HCP. Excluding these lands from critical habitat designation will sustain and enhance the working relationship between the Service and the permit holder.

A related benefit of excluding lands within HCPs from critical habitat designation is the unhindered, continued ability to seek new partnerships with future HCP participants including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement conservation actions that we would be unable to accomplish otherwise. If lands within the West Fork HCP plan area are designated as critical habitat, it would likely have a negative effect on our ability to establish new partnerships to develop HCPs, particularly large, regional HCPs that involve numerous participants and/or address landscape-

level conservation of species and habitats. If excluded, the willingness of the landowner to work with the Service to manage federally listed species will continue to reinforce those conservation efforts and our partnership, which contribute toward achieving recovery of the northern spotted owl. We consider this voluntary partnership in conservation important in maintaining our ability to implement recovery actions such as habitat protection and restoration, and beneficial management actions for species on non-Federal lands.

In summary, the designation of critical habitat could have an unintended negative effect on our relationship with non-Federal landowners due to the perceived imposition of redundant government regulation. If lands within the West Fork HCP area are designated as critical habitat, it would likely have a negative effect on our continued ability to seek new partnerships with future participants can implement conservation actions (such as SHAs, and HCPs) that we would be unable to accomplish otherwise. By excluding these lands, we preserve our current private and local conservation partnerships and encourage additional conservation actions in the future.

Benefits of Exclusion Outweigh the Benefits of Inclusion—The benefits of including these lands in the designation are comparatively small. Because one of the primary threats to the northern spotted owl is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus will, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or functionality of the habitat for the species regardless of whether critical habitat is designated for these lands. The analytical requirements to support a jeopardy determination on excluded land are similar, but not identical, to the requirements in an analysis for an adverse modification determination on included land. However, the HCP contains provisions for protecting and maintaining northern spotted owl habitat that far exceed the conservation benefits afforded through section 7 consultation. It provides for comprehensive measures applied across a large landscape that will benefit spotted owls. In this instance, the regulatory and educational benefits of inclusion have much less benefit than the continued benefit of the HCP including the educational benefits derived from the HCP.

The West Fork HCP provides for substantial conservation and management within geographical areas that contain the physical or biological features essential to the conservation of the northern spotted owl and help achieve recovery of this species through the conservation measures of the HCP. Exclusion of these lands from critical habitat will help foster the partnership we have developed with West Fork, through the development and continuing implementation of the HCP. Furthermore, this partnership may aid in fostering future cooperative relationships with other parties in other locations for the benefit of listed species.

In summary, we conclude that the benefits of excluding the West Fork HCP from the designation of critical habitat for the northern spotted owl outweigh the benefits of including this area in critical habitat. Including the HCP would result in minimal, if any, additional benefits

to the northern spotted owl, as explained above. The HCP includes species-specific avoidance and minimization measures and forest-management practices and habitat conservation objectives that benefit the northern spotted owl and its habitat, which exceeds any conservation value provided as a result of a critical habitat designation. We have determined that the conservation measures in the West Fork HCP, in conjunction with our partnership, provide a greater benefit to the northern spotted owl than would the regulatory and educational benefits of critical habitat designation. Furthermore, we have determined that the additional regulatory benefits of designating critical habitat, afforded through the section 7(a)(2) consultation process, are minimal because of limited Federal nexus and that conservation measures specifically benefitting the northern spotted owl and its habitat are in place through the HCP. We also have determined that the potential educational and ancillary benefits of critical habitat designation on lands containing the physical or biological features essential to the conservation of the northern spotted owl would be minimal. Therefore, in consideration of the factors discussed above in the Benefits of Exclusion section, including the relevant impact to current and future partnerships, have determined that the benefits of exclusion of lands covered by the West Fork HCP outweigh the benefits of critical habitat.

Exclusion Will Not Result in Extinction of the Species—We conclude that exclusion of approximately 5,105 ac of lands covered under the West Fork HCP will not result in extinction of the northern spotted owl because the conservation measures identified within the HCP seek to maintain or surpass current habitat suitability for northern spotted owls. The HCP is designed to develop and maintain northern spotted owl dispersal habitat; as a result, total dispersal habitat will more than double in amount and wide gaps between stands of dispersal habitat will be decreased. In addition, the West Fork HCP provides for reserves for the next 100 years, ensuring that all forest habitat types and age classes currently on the tree farm, as well as special habitat types such as talus slopes, caves, nest trees, and den sites, are protected or enhanced. Seasonal protection is provided for active northern spotted owl nest sites. Further, for projects having a Federal nexus and affecting northern spotted owls in occupied areas, the jeopardy standard of section 7 of the Act, coupled with protection provided by the West Fork HCP, would provide a level of assurance that this species will not go extinct as a result of excluding these lands from the critical habitat designation. We find that exclusion of these lands within the West Fork HCP would not result in extinction of the northern spotted owl.

Other Conservation Measures or Partnerships

<u>State of California</u>

Mendocino Redwood Company

The Mendocino Redwood Company (MRC, the company) owns approximately 232,584 total ac in Unit 3 – Redwood Coast, in Mendocino and Sonoma Counties, California. This land is distributed among three critical habitat subunits as described in the following. In subunit RDC-2, we proposed approximately 209,550 ac for critical habitat designation. In subunit RDC-3, we proposed approximately 22,733 ac for critical habitat designation. In subunit RDC-4, we proposed 301 ac for critical habitat designation.

MRC has a long-standing voluntary partnership with the Service to protect the northern spotted owl on MRC lands. MRC initially approached the Service in 1998 to develop a combined habitat conservation plan and a State-level counterpart draft natural communities conservation plan (HCP/NCCP). Knowing that the completion of an HCP/NCCP would take an extended period of time, MRC and the Service worked together to develop a set of interim standards and measures to conserve and protect the northern spotted owl and its habitat, pending the completion of the HCP/NCCP. These written interim standards and measures are detailed and specific and have been incorporated into each of MRC's timber harvest plans since their development. These interim standards and measures are detailed within MRC's January 15, 2010, Northern Spotted Owl Resource Plan/Management Plan (SORP) (MRC 2010, pp. 1–30). The SORP was intended to serve as a bridge document to reduce resource impacts to both the northern spotted owl and its habitat until the completion of the HCP/NCCP. The SORP includes monitoring and survey requirements and northern spotted owl habitat protection measures that are implemented across the landscape. The SORP describes methodologies to locate owls, assess reproductive status, and provide a framework that includes habitat definitions and protections associated with northern spotted owl activity centers which provide measurable standards for habitat conservation. MRC and the Service meet frequently to discuss northern spotted owl study results provided by the company and this information is used by both the Service and MRC to develop measures that conserve the species through an iterative process that will assist in the development of the HCP/NCCP. In reviewing the SORP and monitoring results, we find that the SORP and protective measures therein provide substantial conservation benefits for the northern spotted owl and its habitat at a landscape scale.

The standards and measures described within the SORP are also included in the "Planning Agreement" (dated August 5, 2009) that MRC entered into with the California Department of Fish and Game (CDFG) for preparation of the NCCP element of the HCP/NCCP. Planning Agreements are mandatory under the California Natural Community Conservation Planning Act, and inasmuch as the northern spotted owl standards and measures are included in a planning agreement that MRC is party to, they are mandatory. MRC has no legal obligation to the Service to adhere to the standards and measures because the Service is not a party to the NCCP Planning Agreement. Instead, MRC has implemented them, and revised them when requested by the Service, as part of a voluntary partnership with the Service.

MRC has two State-level planning documents that are in effect now and which contain substantial long-terms benefits for northern spotted owl habitat. One is the company's 2008 Option A plan, entered into with CALFIRE, which sets sustainable long-term timber harvest levels and controls on standing forest inventory, and the other is the companion 2012 Management Plan, also entered into with CALFIRE, which outlines company-specific management practices used in conjunction with the Option A harvesting program. Together, these documents have enabled the company to maintain its forest certification through the Forest Stewardship Council (FSC) which gives the company access to certain wholesale lumber markets that promote "green" certified wood products. The State-level planning documents have also enabled the company to obtain registration through the California Climate Action Registry which is the designated clearinghouse for carbon-credit sellers under California's developing cap-and-trade program. The company's long-term management direction under Option A (2008) and the Management Plan (2012) is to greatly expand their stock of standing forest inventory, with a near-doubling of that inventory over the next nine decades. While we do not consider here the northern spotted owl conservation measures in the company's proposed HCP in support of 4(b)(2) exclusion, since that plan is not yet finalized, we do note that practically all of the long-term habitat and demographic objectives in the proposed HCP are dependent on the forest inventory trajectory that is established and in effect under Option A and the Management Plan; and are partly dependent on the distribution and array of silvicultural treatments that is specified under the Management Plan. Time intervals, measurable targets, and enforcement mechanisms for forest inventory development are already in place through the State-level forest planning processes, whether or not the proposed HCP is finalized. There is a second line of evidence for the company's long term commitment to expanding standing forest inventory, which is their position as a seller in the State's emerging carbon credit market. In order to sell carbon credits, the seller has to possess surplus carbon; and in forest management terms, the only way to have a continuous supply of surplus carbon is to have a body of inventory that is on a continuous-net-growth trajectory. The 2012 Management Plan also explicitly documents some of the company's internal management direction on the northern spotted owl with regard to the linkages between future forest conditions and owl habitat utilization, direction on the acquisition and analysis of owl breeding site surveys, and future development of northern spotted owl habitat models.

Following are summaries of specific measures in the 2012 Management Plan that will have direct, indirect, near-term and long-term benefits for the northern spotted owl, which are in effect currently: (1) the company, having inherited a severely depleted forest inventory from the previous owners, has a standing policy to rebuild inventories, which will result in a doubling of total standing volume by the ninth decade of the planning horizon; (2) total harvest levels through the 100-year planning horizon are constrained to a graduating percentage of periodic growth volume, from a current 48 percent to 84 percent in the tenth decade of the plan; (3) a shift in the use of uneven-aged silviculture from a current 65 percent of harvest acres to 99 percent in the fifth decade of the plan; (4) protection policies for unharvested old-growth stands and previously harvested stands containing residual old-growth trees; (5) wildlife tree and snag retention requirements that meet or exceed Service recommendations and exceed

current State Forest Practice rules; (6) a minimum forest floor large woody debris (LWD) standard on general forest land of 70 cubic feet per ac based on minimum-sized logs 16 in diameter and 10 ft in length, increasing to 98 cubic feet per ac in riparian areas; and (7) a hardwood management policy that maintains a minimum hardwood basal area of 15 square feet per ac in mixed conifer-hardwood stands. Each policy outlined above will result in: (a) a long term increase in standing forest biomass per unit of land area; or (b) increased spatial continuity of vegetative types that are suitable northern spotted owl habitat; or (c) retention of specific features such as old-growth trees or stands, and retention of a minimum level of hardwoods, snags, and wildlife trees. All of these policies will either lead to maintenance or enhancement of northern spotted owl habitat suitability or lead to emergence of suitable habitat where it is currently not present, thereby benefiting the conservation of the northern spotted owl and its habitat.

The company has completed a draft of their proposed HCP/NCCP, and the northern spotted owl is one of the covered species in this document. The company has submitted the HCP application and application fee to the Service. If the HCP/NCCP is approved and permits issued, the term of the incidental take permit and counterpart State permit would be 80 years. The combined draft Environmental Impact Statement (EIS) and State draft Environmental Impact Report (EIR) is scheduled for issuance in fall of 2012, and a final HCP/NCCP and final EIS/EIR is anticipated in spring or summer, 2013. However, as noted above, we have not taken the proposed HCP/NCCP into account in determining the level of protection currently provided to the northern spotted owl on MRC land, as it is not yet final. We cite to the development of this HCP/NCCP only in terms of evidence of MRC's commitment to partnering with the Service for the conservation of the northern spotted owl.

Benefits of Inclusion—There are minimal benefits to including MRC lands in critical habitat. As discussed above, the designation of critical habitat invokes the provisions of section 7. However, in this case, the requirement that Federal agencies consult with us and ensure that their actions are not likely to destroy or adversely modify critical habitat will not result in substantial benefits to the species because the possibility of a Federal nexus for a project on these lands that might trigger such consultation is limited (there is little likelihood of an action that will involve Federal funding, authorization, or implementation). In addition, since the lands under in question are occupied by the northern spotted owl, if a Federal nexus were to occur, section 7 consultation would already be triggered and the Federal agency would consider the effects of its actions on the species through a jeopardy analysis. Because one of the primary threats to the northern spotted owl is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus will, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or function of the habitat for the species regardless of whether critical habitat is designated for these lands. The additional conservation that could be attained through the supplemental adverse modification analysis for critical habitat under section 7 would not likely be substantial. Because the

possibility of a Federal nexus on these private lands is limited, the additional regulatory benefits to the species and its habitat through inclusion in critical habitat, if any, are anticipated to be minimal. In addition, existing State regulations provide strong protections for the northern spotted owl and its habitat, and these protections are in continuous force. The protections to the critical habitat of the northern spotted owl, by contrast, come into effect only in the event of a Federal action.

Another potential benefit of including lands in a critical habitat designation is that the designation can serve to educate landowners, State and local government agencies, and the public regarding the potential conservation value of an area, and may help focus conservation efforts on areas of high conservation value for certain species. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. However, in this case the educational value of critical habitat is limited. The northern spotted owl is a high-profile species, and most forestland owners in the range of the northern spotted owl are knowledgeable about the species. The release of the Revised Recovery Plan for the Northern Spotted Owl in 2011 was preceded by outreach efforts and public comment opportunities, and provided information about the northern spotted owl and its conservation needs to a wide constituency. Furthermore, we conducted extensive outreach efforts on the proposed revision of critical habitat, including multiple public information meetings and opportunities for public comment. Through these outreach opportunities, land owners, State agencies, and local governments have become aware of the status of and threats to the northern spotted owl, and the conservation actions needed for recovery.

The designation of critical habitat may also indirectly cause State or County jurisdictions to initiate their own additional requirements in areas identified as critical habitat. These measures may include additional permitting requirements or a higher level of local review on proposed projects. However, CAL FIRE has indicated to us that it is unlikely to impose any new requirements on project proponents if critical habitat is designated in areas already subject to California Forest Practice Rules. Therefore, we believe this potential benefit of critical will be limited.

Benefits of Exclusion—The benefits of excluding from designated critical habitat the approximately 232,584 ac of lands currently owned by the MRC are substantial. We have created a close partnership with the company through the development of the SORP and the resulting draft HCP/NCCP. The SORP contains provisions that will improve inventory of redwood, Douglas-fir, and other conifers across MRC's ownership and includes measures that will return forest types to those that support the northern spotted owl. In addition, the SORP stipulates a series of actions intended to increase canopy cover and move management of forest stands to uneven-aged management to promote multilayered canopies and protect old growth stands and individual trees with old-growth structural features. The SORP also contain

provisions that will result in stands being grown in Watercourse and Lake Protection Zones (WLPZ) that exceed current State Forest Practice requirements and that meet the Service's recommended standards for standing tree basal area and retention of large woody debris in watercourse protection zones. All of these measures are consistent with recommendations from the Service for the conservation of the northern spotted owl, and will afford benefits to the species and its habitat.

Other MRC actions also demonstrate their commitment to the Federal-State-private partnership. The company's Management Plan in connection to their FSC forest certification is already in effect. That Plan has numerous measures within it that the company has been implementing on the ground for several years without any inducement from the cooperating Federal and State agencies. Much of the Management Plan is concerned with harvest scheduling and how the company will remedy its current deficit in standing forest inventory. The major part of that remedy is found in the 10-decade harvesting schedule in the Management Plan, which tightly constrains harvest levels in the early decades of the Plan and relaxes the constraint in later decades. The company has implemented the designed harvest schedule since 2000, which is supported in the certification audit reports of 2005 and 2010. This means that MRC has, in fact, foregone a portion of their potential short-term harvest revenues for nearly 12 years to fulfill a Management Plan that is not under Federal purview. Company policies embodied in the Management Plan will result in (a) a long term increase in standing forest biomass per unit of land area; or (b) increased spatial continuity of vegetative types that are suitable northern spotted owl habitat; or (c) retention of specific features such as old-growth trees/stands, retention of a minimum level of hardwoods, snags, and wildlife trees. All of these policies will either lead to maintenance of northern spotted owl habitat suitability or lead to emergence of suitable habitat where it is currently not present.

Excluding the approximately 232,584 ac owned and managed by MRC from critical habitat designation would provide substantial benefit in terms of sustaining and enhancing the excellent partnership between the Service and the company, with positive consequences for conservation. The willingness of MRC to voluntarily undertake conservation efforts for the benefit of the northern spotted owl and work with the Service to develop new conservation plans for the species will continue to reinforce those conservation efforts and our partnership, which contribute toward achieving recovery of the northern spotted owl. We consider this voluntary partnership in conservation vital to our understanding of the northern spotted owl status of species on MRC lands and in the redwood region, and necessary for us to implement recovery actions such as habitat protection and restoration, and beneficial management actions for species.

The designation of critical habitat could have an unintended negative effect on our relationship with non-Federal landowners due to the perceived imposition of government regulation. If lands within the area managed by MRC for the benefit of the northern spotted owl are designated as critical habitat, it would likely have a chilling effect on our continued ability to seek new partnerships with future participants including States, counties, local jurisdictions,

conservation organizations, and private landowners, which together can implement various conservation actions (such as SHAs, HCPs, and other conservation plans, particularly large, regional Conservation Plans that involve numerous participants and/or address landscape-level conservation of species and habitats) that we would be unable to accomplish otherwise. In addition, MRC serves as a model of voluntary conservation by a private landowner, and may aid in fostering future voluntary conservation efforts by other parties in other locations for the benefit of listed species. We consider the positive effect of excluding proven conservation partners from critical habitat to be a substantial benefit of exclusion.

The Benefits of Exclusion Outweigh the Benefits of Inclusion—We have reviewed and evaluated the potential exclusion of approximately 232,584 ac of land owned and managed by MRC from the critical habitat designation. The benefits of including these lands in the designation are comparatively small, since the habitat on the covered lands is already being monitored and managed under the current Management Plan and the Timber Management Plan to improve the habitat elements that are equivalent to the physical or biological features that are outlined in this critical habitat rule. Because one of the primary threats to the northern spotted owl is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus in areas occupied by the species, such as is the case here, will, in evaluating effects to the northern spotted owl, evaluate the effects of the action on the conservation or function of the habitat for the species regardless of whether critical habitat is designated for these lands. The analytical requirements to support a jeopardy determination on excluded land are similar, but not identical, to the requirements in an analysis for an adverse modification determination on included land. We therefore anticipate little, if any, additional protections through a supplemental analysis of potential adverse modification due to the designation of critical habitat on these lands.

The potential educational benefits of inclusion are also limited. The company has an active monitoring program on over 150 northern spotted owl activity sites and is making increasing contributions to our knowledge of the species through focused research. In addition, there is a growing local constituency for current land management direction as a result of the company's outreach efforts in the form of public informational presentations and tours of the property. In this instance, any potential educational benefits of inclusion would have much less practical effect than any of the scientific and informational activities that the company has initiated to date.

In contrast, the benefits derived from excluding this ownership and enhancing our private lands partnership with MRC are substantial. We have developed a solid working relationship with MRC, and expect this beneficial conservation partnership to continue through the development of their HCP. The benefits of this partnership are tremendous, because MRC has demonstrated that its actions will contribute substantially to the conservation of the northern spotted owl and its habitat and influence long-term management outcomes across the entire ownership. We

noted the positive conservation benefits that accrue from exclusion from critical habitat, including relief from perceived potentially duplicative regulatory burden and the increased potential of pursuing additional conservation agreements with other private landowners. As discussed above, MRC has developed a long-standing practice of managing its lands in a sustainable nature that benefits the northern spotted owl and its habitat. We also discussed the long-term value of the partnership with MRC, and evidence of the company's commitment to that partnership through voluntary implementation and coordination of conservation actions. We will not repeat that discussion here, but point to it as the strongest among all factors we considered in the weighing of the benefits of exclusion against the benefits of inclusion.

We conclude that maintaining the existing partnership with the MRC, as indicated by the provisions of the SORP, Management Plan, and Timber Management Plan, and the HCP when it is finalized, provide a greater benefit than would the regulatory and educational benefits of critical habitat designation. We further conclude that the additional regulatory benefits of designating critical habitat, afforded through the section 7(a)(2) consultation process, are minimal because of limited Federal nexus and because conservation measures specifically benefitting the northern spotted owl and its habitat are in place as a result of our partnership with the company and as demonstrated by the provisions of the SORP and other planning documents, as discussed above. The potential educational and informational benefits of critical habitat designation on lands containing the physical or biological features essential to the conservation of the northern spotted owl would be minimal, because MRC is making substantial contributions to our understanding of the ecology of the northern spotted owl and its habitats in the redwood region, and continues to disseminate useful information through public education events. Therefore, in consideration of the factors discussed above in the *Benefits of Exclusion* section, including the relevant impact to current and future partnerships, we conclude that the benefits of exclusion of lands owned by the MRC outweigh the benefits of designating these areas as critical habitat.

Exclusion Will Not Result in Extinction of the Species—We conclude that the exclusion of 232,584 ac from the designation of critical habitat for the northern spotted owl on lands owned and managed by MRC will not result in extinction of the species. Conservation efforts that are currently in effect through the SORP (and not taking into account the draft HCP/NCCP) will adequately protect the geographical areas containing the physical or biological features essential to the conservation of the species. For projects having a Federal nexus and affecting northern spotted owls in occupied areas, as is the case here, the jeopardy standard of section 7 of the Act, coupled with current land management measures that are not under Federal purview, would provide assurances that this species will not go extinct as a result of excluding these lands from the critical habitat designation.

State of Washington

Scofield Corporation Deed Restriction (Formerly Habitat Conservation Plan)

The Scofield Corporation Deed Restriction covers 40 ac of lands in the East Cascades North CHU. An incidental take permit based on an HCP was issued to Scofield Corporation in 1996 (noticed February 20, 1996 (61 FR 6381), issued April 3, 1996). The permit had a duration for only one year, but as provided in the permit terms, the lands under this HCP are now covered by a Deed Restriction for those lands in perpetuity. This HCP and deed restriction includes 40 ac of forest lands in Chelan County, Washington. The HCP-covered forest-management activities and the associated incidental take permit included only the northern spotted owl. The HCP provided for mitigation and minimization measures by retaining a buffer of intact habitat, implementing selective timber-harvest practices, and placing a perpetual deed restriction on the property permanently prohibiting further timber harvest or tree removal except with the express written consent of the Service. These measures were designed to ensure the retention of some northern spotted owl habitat and approximately 72 percent of the total number of trees after harvest.

At the time the permit was approved, the HCP-covered lands included a single northern spotted owl site with most of its habitat on adjacent Federal lands. The amount of habitat was low, due to natural eastside Cascades characteristics and recent fire. Approximately 55 percent of the mature trees in the 40-acre project area were allowed to be removed, which in the short term further reduced the availability of potential nesting, roosting, or foraging sites for northern spotted owls. However, the adverse effects on this northern spotted owl pair due to loss of habitat was likely low, because the habitat was marginal Type C (young forest marginal) at best, and surveys in the project area suggested low use by northern spotted owls. In addition, the no-harvest buffer along the highway ensured that is less than 40 ac was affected by the action, which is a small portion of the suitable habitat that is available for use by northern spotted owls within the median home range of that site as well as the eastern Cascades

Under the HCP, about 55 percent of the mature trees and 28 percent of the total number of trees in the project area were allowed to be harvested. Selective harvest resulted in retention of different size and age classes of trees to contribute to stand structure and species diversity, important components to northern spotted owl habitat. Thinning the stand will allow younger age-class trees to grow, and continue to contribute to the multilayer structure of the stand. Since the project area is being allowed to grow and develop into perpetuity, suitable northern spotted owl habitat will be available in the future. This potential habitat will complement habitat that is likely to occur on adjacent national forest lands being managed as late-successional forest. In the long-term, the potential for the project area to become northern spotted owl habitat and remain in that condition is substantially greater than it would have been without the HCP. In addition, the Deed Restriction identified in the land contract provides for the permanent protection of this habitat

Benefits of Inclusion—There is minimal benefit from designating critical habitat for the northern spotted owl within the Scofield Deed Restriction because, as explained above, these lands are already managed for the conservation of the species under the deed restrictions. Section 7 is unlikely to provide additional regulatory protection, not only because Federal actions on this small 40-acre parcel are unlikely, but also because any such Federal action would have to be consistent with the Deed Restriction. Thus the existence of this Deed Restriction reduces any incremental benefits that may be provided by section 7. The Deed Restriction provides for the needs of the northern spotted owl by providing northern spotted owl dispersal habitat and improving conditions. Therefore, designation of critical habitat would be redundant on these lands, and would not provide additional measureable protections. In addition, the conservation measures identified within the Deed Restriction seek to achieve conservation goals for northern spotted owls and their habitat, and thus can be of greater conservation benefit than the designation of critical habitat, which does not require specific management actions.

A potential benefit of including lands in a critical habitat designation is that the designation can serve to educate landowners and the public regarding the potential conservation value of an area, and may help focus conservation efforts on areas of high conservation value for certain species. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. However, the additional educational and informational benefits that might arise from critical habitat designation have been largely accomplished through the public review and comment of the HCP/ Environmental Assessment, as well as the Implementation Agreement. In addition, through the Deed Restriction, the current landowner and any future owner are made fully aware of the needs of the northern spotted owl on this parcel.

Benefits of Exclusion—A benefit of excluding lands within HCPs from critical habitat designation is the unhindered, continued ability to seek new partnerships with future HCP participants including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement conservation actions that we would be unable to accomplish otherwise. In particular, if lands within the Scofield Corporation Deed Restriction area are designated as critical habitat, it would likely have a negative effect on our ability to establish new partnerships to develop HCPs with smaller landowners who occupy key landscapes. It could be perceived as adding redundant Federal regulation on top of the HCP's requirement to protect the land in perpetuity. By excluding these lands, we may encourage additional conservation actions in the future.

Benefits of Exclusion Outweigh the Benefits of Inclusion—In summary, we conclude that the benefits of excluding the Scofield Corporation lands subject to the Deed Restriction from the

designation of critical habitat for the northern spotted owl outweigh the benefits of including this area in critical habitat. We find that including this area in the designation would result in minimal, if any, additional benefits to the northern spotted owl, as explained above. Excluding this parcel from critical habitat could result in real benefits by encouraging other small landowners to participate in northern spotted owl conservation efforts by demonstrating that we will not impose redundant regulatory burdens when they undertake meaningful conservation efforts. The management strategies of the Scofield Deed Restriction are designed to maintain and enhance habitat for the northern spotted owl. The Scofield Deed Restriction includes forest-management practices and habitat conservation objectives that benefit the northern spotted owl and its habitat, which exceeds any conservation value provided as a result of a critical habitat designation.

Exclusion Will Not Result in Extinction of the Species—We conclude that exclusion of approximately 40 ac of lands covered under the Scofield Deed Restriction will not result in extinction of the northern spotted owl because it provides northern spotted owl dispersal habitat and improves habitat conditions, and it the possibility for the project area to become northern spotted owl habitat and remain in that condition is substantially greater than without the HCP. Further, the protection provided by the Scofield Deed Restriction would provide a level of assurance that this species will not go extinct as a result of excluding these lands from the critical habitat designation. We find that exclusion of these lands within the Scofield Deed Restriction would not result in extinction of the northern spotted owl.

Congressionally Reserved Natural Areas and State Park Lands

Before making a final decision of whether to exclude congressionally and State reserved natural areas, we weighed the relative benefits and costs a designation of these lands would confer and compared them to the costs and benefits of no designation. We concluded that these areas are essential to the conservation of the northern spotted owl, but a designation of these areas in this particular case would confer no current or potential regulatory benefit and a very minor education benefit. The primary habitat threat to the northern spotted owl is from commercial timber harvest. Since commercial timber harvest is not allowed on these lands, there would be little benefit to additional section 7 consultation on effects to critical habitat. We also agree with the National Park Service that a designation would impose some, albeit relatively small, additional administrative costs to land managers who would need to consult with the Service if their actions or programs might affect northern spotted owl critical habitat. Likewise, we find that State Park lands could experience some additional minor administrative costs as a consequence of this designation, especially those State Parks jointly managed with Redwood National Park and those that may use Federal funding for research and monitoring or program

and capital improvements. However, we conclude that even these minimal costs would outweigh the minor informational benefits of including these areas in the critical habitat designation. This conclusion is based on the unique circumstances associated with this critical habitat designation

Benefits of Inclusion—The proposed critical habitat rule published on March 8, 2012 (77 FR 14062), as part of "Possible Outcome 3" in Table 1 (p. 14068), proposed to exclude 2,631,736 ac of congressionally reserved lands and 164,776 ac of State Park lands from final critical habitat. These Federal reserved lands include all National Parks and Monuments, Wilderness Areas, Wild and Scenic Rivers, National Scenic Areas, and other congressionally designated areas identified in the proposed rule. State Parks lands included Iron Horse State Park in Washington, and all or portions of 30 State Parks in California, including Jedediah Smith, Del Norte Coast, Prairie Creek, Grizzly Creek, Humboldt Redwoods, DeWitt Redwoods, Richardson Grove, Reynolds Wayside, Smithe Redwoods, Standish-Hickey, Wm. Standley, Russian Gulch, Mendocino Headlands, Mendocino Woodlands, Van Damme, Montgomery Woods, Navarro Redwoods, Hendy Woods, Mailliard, Salt Point, Austin Creek, Armstrong State Reserve, Tomales Bay, Samuel P. Taylor, Mount Tamalpais, Robert Louis Stevenson, Bothe – Napa Valley, Sugarloaf Ridge, Jack London, and Annadel State Park.

A primary purpose of these Congressional and State reserved natural areas is to conserve natural ecosystems, including those of the northern spotted owl and its habitat, and educate the public regarding the conservation of these areas. Unlike other Federal and State lands that have multiple use mandates that include commercial harvest of timber in the range of the spotted owl, such as National Forests, State Forests, and forests managed by the BLM, these reserved natural areas are unlikely to have uses that are incompatible with the purposes of critical habitat because the primary threat to spotted owl critical habitat—commercial timber harvest—is prohibited on these lands. These natural areas are managed under explicit Federal and State laws and policies consistent with the conservation of the northern spotted owl, and there is generally little or no timber management beyond the removal of hazard trees or fuels management to protect structures, roads, human safety, and important natural attributes. For example, the Wilderness Act (P.L. 88-577) provides conservation for the northern spotted owl because it prohibits commercial activities unrelated to wilderness recreation. Thus, not only is commercial timber harvest directly barred on these Federal lands, but the Wilderness Act also precludes the construction of roads and most uses of mechanical equipment. Similarly, all of the State Parks lands proposed for exclusion occur in California except for 104 ac in Washington. California State Parks are managed by the California Department of Parks and Recreation. This Agency's mission is to "administer, protect, provide for recreational opportunity, and develop the State Park System…" We are unaware of any commercial timber harvests in California or Washington State Parks.

Therefore, any habitat-disturbing activities that might occur as the land managers carry out their conservation programs (e.g., trail maintenance, education and outreach, operations and maintenance, etc.) are likely to be relatively minor and are unlikely to be regulated by a critical habitat designation. On the Federal reserved lands, the section 7 prohibition on the destruction or adverse modification of critical habitat would be redundant and unlikely to add any protection to these important habitat areas. Likewise, many of these State Parks have close working relationships with Federal agencies and may experience, through those Federal partners, a section 7 nexus or other administrative costs if the States utilize Federal funds or require a Federal permit for their activities. For example, several State Parks in California (i.e., Del Norte Redwoods, Prairie Creek Redwoods, and Jedediah Smith Redwoods) are jointly managed with Redwood National Park through an agreement signed in 1994. In the San Francisco Bay Area, the National Park Service manages an inventory and monitoring program that includes actions by State Parks and other Federal partners such as the U.S. Geological Survey. Further, Land managers monitor spotted owl territories within these reserved areas as part of long term population monitoring efforts, and barred owl populations are also monitored as part of spotted owl recovery efforts. For example, spotted owl territories in Crater Lake National Park have been monitored since 1992, and there are multiple spotted owl monitoring and conservation efforts occurring in many these parks throughout the species' range. A critical habitat designation on these State Parks may introduce some additional administrative costs but confer no increase in regulatory protection. Therefore, we conclude there would be no regulatory benefits to inclusion of these lands in critical habitat.

We also conclude that a critical habitat designation for these specific natural areas would confer minimal additional educational benefit toward spotted owl conservation. These areas are generally well known for their value to the conservation of listed species due to the education and communication programs of the natural area management agencies during the time since the listing of the spotted owl. Educational materials are distributed and other communication programs occur regarding the conservation of late successional forests and the species that inhabit them such as the spotted owl (see, e.g., Olympic National Park website featuring spotted owl information at *http://www.nps.gov/olym/naturescience/animals.htm*, or *http://www.nps.gov/muwo/naturescience/life-of-spotted-owls.htm* for NPS lands in central California). We also note that the management agencies overseeing these congressionally and State reserved natural areas have a positive history of over 20 years of conserving northern spotted owls and supporting research and conservation of the owl on their protected lands. While in other cases we have found benefits where critical habitat would highlight the importance of the habitat to owl conservation for future planning and management purposes, in the case of these lands, management is already consistent with habitat protection. Therefore, it is unlikely that designation of critical habitat of these areas would provide any substantial informational benefits to the land managers or the public.

Benefits of Exclusion—We attempted to quantify the potential increase in administrative costs for the Service associated with a proposed designation of critical habitat in congressionally reserved land allocations. There is generally little or no timber management beyond removal of hazard trees or fuels reduction to protect structures and road maintenance, in addition to fire-management activities. Management guidelines for congressionally reserved lands are generally protective, so we do not anticipate requesting any changes of proposed management as a result of a critical habitat designation, and we would not anticipate reaching an adverse modification determination. In reserve areas where we do consult, the designation of critical habitat would likely add an adverse-modification analysis to an existing consultation. Total incremental effects would likely be about 4-6 hours of staff time per action for both the action agency and the Service, although this estimate could vary widely depending on the size and scope of the action.

The final economic analysis (FEA) (IEC 2012b) quantified this potential for an increase in administrative costs, and they described the potential indirect impacts due to time delays for project processing and regulatory uncertainty. The analysis states, "While critical habitat is not expected to generate changes to forest management practices or to testing or training missions on NPS or DOD lands, these areas may be subject to new or increasingly complex section 7 consultations as a result of critical habitat designation. Activities that may involve section 7 consultations include the construction or maintenance of visitor facilities on NPS lands and access roads to projects or military training including the use of vehicles, explosives, and soldiers. DOD and NPS will likely experience an additional administrative burden to provide biological assessments for projects in consultations with the Service as a result of critical habitat designation." (IEC 2012b, p. 4-4). The FEA forecast an additional 16 informal consultations with NPS on planned or ongoing recreation and habitat management projects (IEc 2012). (Although the text refers to the NPS lands, the same rationale generally applies to other federally reserved lands in the proposed exclusion.) The FEA did not quantify the potential for direct incremental economic impacts on State Park lands, but it does identify the potential for indirect impacts due to time delays and regulatory uncertainty. Again, it is expected that these impacts would be relatively minor, but they nevertheless are not offset by a proportional increase in conservation benefits that would accrue as a consequence of this critical habitat designation on these lands.

Benefits of Exclusion Outweigh the Benefits of Inclusion—In sum, we conclude there are no regulatory benefits and such minimal educational benefits to including these lands in the designation that they are outweighed by the minor increase in administrative costs. We reach this conclusion for several reasons: (1) A critical habitat designation of these reserved areas in the range of the spotted owl would provide no additional regulatory benefits beyond what is already on these lands due to their permanent status as fully protected lands and importantly, the fact that commercial timber harvest is not permitted on these lands under Federal and State law and policy; (2) the designation of these reserve areas would confer little additional educational benefits associated with the conservation of the spotted owl, as these educational

messages are already being communicated in many of these areas under existing programs; and (3) as identified by the economic analysis and the NPS, there is the potential for a small but measureable increase in administrative costs, time delays, and regulatory uncertainty for the Service and Federal and State land managers if these lands were designated, without any offsetting positive conservation benefits to justify the increased administrative costs.

The Federal agencies are managing these reserved natural areas under statutes that already impose a clear conservation mandate consistent with the specific needs of the northern spotted owl, and a critical habitat designation would confer no additional conservation benefits to the spotted owl that offset the potential increase in administrative costs. We also note the historic role of Congressionally and State reserved natural areas as part of northern spotted owl critical habitat. In 1992, the Service concluded that certain congressionally reserved parks and wilderness areas were essential to spotted owl conservation, but we declined to include these lands in the final designation of critical habitat because their current classification and management was deemed adequate to meet spotted owl conservation goals (January 15, 1992; 57 FR 1796, p. 1806). Likewise, in 2008, the Service revised northern spotted owl critical habitat and again concluded that congressionally reserved natural areas would not be included in final critical habitat for the same reasons as those identified in the 1992 decision (August 13, 2008; 73 FR 47325, p. 47334). Although not a factor in this section 4(b)(2) weighing, this determination would maintain the consistent management approach for spotted owls that has occurred on these lands over the last 20 years and should minimize the potential for confusion among land managers and the public.

This analysis is based in large part on the particular conservation requirements of the northern spotted owl and is specific to this designation. Thus, our determination that the benefits of exclusion outweigh the benefits of inclusion in this case does not necessarily have a bearing on future critical habitat designations.

Exclusion Will Not Result in Extinction of the Species—We conclude that an exclusion of Congressionally and State reserved natural areas would not result in the extinction of the species. As described above, all of these areas are managed under State and Federal law and policy to provide for the conservation of species and their natural habitat, including the northern spotted owl. A critical habitat designation would not enhance or incrementally improve this dedicated management or increase the protections of these lands, nor would its absence somehow fail to provide protections that otherwise would not be present. Therefore, we conclude this exclusion from final critical habitat would not result in any appreciable risk of extinction to the species because these lands will continue to be managed to provide for the conservation of the spotted owl.

Cumulative Analysis—Exclusion Will Not Result in Extinction of the Species

We have concluded that exclusion of approximately 3,879,506 ac of lands from critical habitat would not result in extinction of the northern spotted owl. We have reached this conclusion in part, based on the substantial conservation benefits afforded to the northern spotted owl and its habitat on these lands through the positive conservation measures provided through SHAs, HCPs, or other agreements with private landowner partners with a proven track record of conservation actions. Each of these agreements, as discussed here, provides substantial conservation benefits to the species in terms of maintaining, enhancing, or recruiting additional suitable habitat for the northern spotted owl, and implementing species-specific conservation measures designed to avoid and minimize impacts to northern spotted owls. Further, for projects having a Federal nexus and affecting northern spotted owls in the potentially excluded areas, all of which are occupied by the species, the jeopardy standard of section 7 of the Act provides a level of assurance that this species will not go extinct as a result of excluding these lands from the critical habitat designation. The species is also protected by section 9 of the Act, which prohibits the take of listed species. Congressionally and State reserved natural areas considered for exclusion as described above are managed under State and Federal law and policy to provide for the conservation of species and their natural habitat, including the northern spotted owl. These lands will continue to be managed under a clear conservation mandate, and exclusion of these lands from critical habitat will not deprive the species or its habitat of any protections that are not already present. For these reasons, we conclude that the exclusion of these areas under section 4(b)(2) of the Act will not cumulatively result in the extinction of the species.

Exclusion of Private Lands without Conservation Agreements

State of California

Our proposed designation included 123,348 ac (49,917 ha) of privately-owned lands without existing Federal conservation agreements in the State of California that we identified as critical habitat for the northern spotted owl.

Forest management and forest practices on private lands in California, including harvesting for forest products or converting land to another use are regulated by the State under Division 4 of the Public Resources Code, and in accordance with the California Forest Practice Rules (California Code of Regulations, (CCR) Title 14, Sections 895-1115). Under this framework, the California Department of Forestry and Fire Protection (CALFIRE) is the designated authority on forest management and forest practices on private lands in California.

All private land timber harvesting in California must be conducted in accordance with a site-specific timber harvest plan (THP) that is submitted by the owner and is subject to administrative approval by CALFIRE. The THP must be prepared by a State-registered professional forester, and must contain site-specific details on the quantity of timber involved, where and how it will be harvested, and the steps that will be taken to mitigate potential environmental damage. The THP and CALFIRE's review process are recognized as the functional equivalent to the environmental review processes required under the California Environmental Quality Act of 1970 (CEQA). The policy of the State with regard to the northern spotted owl can be characterized as one of take-avoidance. The Director of CALFIRE is not authorized to approve any proposed THP that would result in take of a federally-listed species, including the northern spotted owl unless that taking is authorized under a Federal Incidental Take Permit (review process is outlined in 14 CCR 919.9 and 919.10). This latter point creates an incentive for private landowners to enter into Federal safe harbor agreements or habitat conservation plans. CALFIRE also regulates the conversion permitting process in which private forest and woodland can be converted to agricultural uses (in contrast, conversions of forest and woodlands to residential, commercial, and industrial uses are evaluated and permitted under local land use planning authorities).

Benefits of Inclusion—We find there are minimal benefits to including these lands in critical habitat. As discussed above, the principal benefit of including an area in critical habitat is the requirement that Federal agencies consult with the Service under section 7(a)(2) of the Act to ensure actions they fund, authorize, or carry out are not likely to result in the destruction or adverse modification of any designated critical habitat. Section 7(a)(2) also requires that Federal agencies must consult with us on actions that may affect a listed species and refrain from undertaking actions likely to jeopardize the continued existence of such species.

Our Final Economic Analysis (IEC 2012) concludes that critical habitat designation for the northern spotted owl is unlikely to directly affect timber harvests on private lands in California because of the low likelihood that such harvests would be simultaneously connected to a Federal permitting or funding action. Without a pending Federal action, there is no basis for initiating a consultation process under section 7 of the Act. In northern California, the Service has seen very few section 7 actions resulting from Federal permitting or funding activity on private lands. The U.S. Army Corps of Engineers (Corps) through the U.S. Environmental Protection Agency (EPA) are the Federal agencies responsible for regulating section 404 of the Clean Water Act, which deals with discharge of dredged or fill material into waters of the United States. In the areas identified as critical habitat for the northern spotted owl the Corps has not taken jurisdiction over activities associated with stream alteration or fill and has deferred to the State of California for regulating these activities. As a result many proposed actions involving water quality issues and stream disturbance are not referred to the Service for section 7 consultation. The majority of the water quality permitting actions in California are now administered by the California Department of Fish and Game (CDFG) and by Regional

Water Quality Control Boards. Water quality permit reviews by the Corps are very uncommon. When Federal consultation does occur, the affected areas are typically limited to streams or roadways adjacent to streams and thus in areas not considered habitat for the northern spotted owl. CALFIRE has indicated (in its correspondence of July 6, 2012) that it has no plans to enact additional requirements for protection of the northern spotted owl in response to a possible critical habitat designation of private lands in the State.

We therefore conclude that the requirement that permitting and funding agencies consult with us and ensure that their actions are not likely to destroy or adversely modify critical habitat will not result in substantial benefits to the species because the possibility of a Federal nexus for a project on these lands that might trigger such consultation is limited (there is little likelihood of an action that will involve Federal funding, authorization, or implementation). In addition, since the lands in question are occupied by the northern spotted owl, if a Federal nexus were to occur, section 7 consultation would already be triggered and the Federal agency would consider the effects of its actions on the species through a jeopardy analysis. Because the possibility of a Federal nexus on these private lands is limited, the additional regulatory benefits to the species and its habitat through inclusion in critical habitat, if any, are anticipated to be minimal. In addition, existing State regulations provide strong protections for the northern spotted owl and its habitat, and these protections are in continuous effect. The protections to the critical habitat of the northern spotted owl, by contrast, come into effect only in the event of a Federal action.

Another benefit of including lands in a critical habitat designation is that it serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. In the case of the northern spotted owl, any potential educational benefits that might be attributable to critical habitat designation are minimized by the existing State regulatory framework for the northern spotted owl in timber harvest planning. Private landowners who harvest timber in proximity to northern spotted owl activity sites are required to conduct surveys of owl activity and report those results in their proposed timber harvest plans that are submitted to CALFIRE for approval, so critical habitat designation will not result in any additional data collection. While the State's existing take-avoidance strategy for the northern spotted owl does not necessarily provide for long term conservation of suitable habitat, it does serve an important informational service with private landowners through the timber harvest planning process. Thus, CALFIRE's existing regulatory framework provides adequate and consistent education to the affected community regarding the northern spotted owl and its conservation needs.

Similarly, the great majority of industrial and non-industrial forest landowners, along with the in-house and consulting biologists who conduct the owl survey work, already voluntarily submit their survey results to the CDFG for entry into the California Natural Diversity Database (CNDDB), which is the State's clearinghouse for occupancy, activity, and spatial data on special

status species. It is highly unlikely that inclusion in the final critical habitat designation could cause any increases in landowner and biologist participation in the CNDDB reporting. Voluntary participation rates are currently very high, and we have no evidence to suggest that inclusion in critical habitat would increase those rates any further.

In this case the educational value of critical habitat is further limited by the fact that the northern spotted owl is a high-profile species, and most forestland owners in the range of the northern spotted owl are knowledgeable about the species. The release of the Revised Recovery Plan for the Northern Spotted Owl in 2011 was preceded by outreach efforts and public comment opportunities, and provided information about the northern spotted owl and its conservation needs to a wide constituency. Furthermore, we conducted extensive outreach efforts on the proposed revision of critical habitat, including multiple public information meetings and opportunities for public comment. Through these outreach opportunities, land owners, State agencies, and local governments have become aware of the status of and threats to the northern spotted owl, and the conservation actions needed for recovery.

Another potential benefit of the designation of critical habitat is that it may indirectly cause State or County jurisdictions to initiate their own additional protective requirements in areas identified as critical habitat. These measures may include additional permitting requirements or a higher level of local review on proposed projects. However, CALFIRE has indicated to use that it is unlikely to impose any new requirements on project proponents if critical habitat is designated in areas already subject to California Forest Practice Rules. Therefore, we believe this potential benefit of critical will be limited.

Finally, there may be some ancillary benefits if the designation resulted in changed timber management practices on these private lands. These benefits could include but are not limited to: public safety benefits by increasing resiliency of timber stands; improved water quality; aesthetic benefits; and carbon storage. However, as discussed above, the possibility of a Federal nexus on these private lands is limited, so changes in timber management as a result of critical habitat, and any attendant ancillary benefits, are anticipated to be minimal.

Benefits of Exclusion—The benefits of excluding from designated critical habitat the approximately 123,348 ac (49,917 ha) of private lands in California are relatively greater.

Excluding the approximately 123,348 ac (49,917 ha) of private lands from critical habitat designation will sustain and enhance the conservation partnership between the Service and CALFIRE. The Service is currently working with CALFIRE to explore avenues for more comprehensive conservation planning for the northern spotted owl in northern California that goes beyond the existing take-avoidance strategy. Development of a landscape scale analysis and plan (e.g., general conservation plan) would provide for greater protections to the northern spotted owl and could incorporate critical habitat conservation elements within that planning process. Current revisions and improvements to the CNDDB database would aid in the

development of this plan, with the ability to evaluate status and trends across the region versus on a singular THP or Non-industrial Timber Management Plan (NTMP) level. Critical habitat designation could be viewed as another layer of regulatory process to that already overseen by CALFIRE and could impede landowner support for the development of this larger programmatic conservation plan and undercut the efforts of CALFIRE to contribute to such a discussion. We received several public comments objecting to this perceived redundancy in regulation. Excluding those private lands from the designation would avoid a chilling effect on the partnership between the Service and the affected State regulatory agencies in California regarding administration of their existing conservation programs to protect and conserve northern spotted owls on private lands. We consider the maintenance of our partnership between the Service and the affected State regulatory agencies in California to be a major benefit of exclusion.

In addition, there are many other opportunities for private landowners to enter into conservation agreements without Federal involvement that will benefit northern spotted owls. Landowners can obtain "green" forest certification through the Forest Stewardship Council (FSC) or the Sustainable Forestry Initiative (SFI) that enables access to certain wholesale lumber markets. They can register their property with the California Climate Action Registry to gain access to the emerging carbon credit market in California, or they can sell conservation easement rights on their properties to a land trust. In all cases, the landowner gains immediate economic benefits in exchange for agreeing to a management program on their lands that meets the objectives of the certification or registration entity, or the land trust. All of these instruments, by design, involve the conservation and expansion of standing forest inventory and forest cover on the participating ownerships. Whether by design or not, that will lead to the long-term improvement of existing northern spotted owl habitat suitability and to the emergence of suitable habitat in areas where it is currently unsuitable. These market-based agreements have the long term potential for substantially more on-the-ground benefits for the northern spotted owl on private lands than would the limited regulatory and educational benefits that would result from critical habitat designation.

The economic incentives for landowners to enter into these agreements are independent of a critical habitat designation. We are not certain how designation might affect perceptions and priorities among the grantors in agreements (i.e., the certification and registration entities and the land trusts). For example, land trusts operate on limited funds and we do not know how critical habitat designation might influence them in prioritizing properties for easement acquisition; that is, whether it might lead them to look more or less favorably on designated lands, or treat some geographic areas preferentially over others. Thus, exclusion from designation could avoid any uncertain, and possibly detrimental, effects on both buyers (land trusts, certification entities) and sellers (landowners) in market-based conservation programs (IEC 2012, p. 5-21).

Excluding these lands may also reduce the perception that some private landowners have that they are being subjected to redundant and unnecessary regulation. As noted above, all private

land timber harvesting in California must be conducted in accordance with a site-specific THP that is submitted by the owner and is subject to administrative approval by CALFIRE. The Director of CALFIRE is not authorized to approve any proposed THP that would result in take of a federally-listed species, including the northern spotted owl, unless that taking is authorized under a Federal Incidental Take Permit. The additional overlay of Federal critical habitat on these private lands may result in lack of support for the development of a programmatic conservation agreement (e.g. general conservation plan) with CALFIRE and their valuable contribution of information to the CNDDB due to their perception of duplicative and burdensome regulation specific to the northern spotted owl.

Benefits of Exclusion Outweigh the Benefits of Inclusion—We have reviewed and evaluated the exclusion of approximately 123,348 ac (49,917 ha) of privately-owned lands in the State of California from the critical habitat designation. The benefits of including these lands in the designation are comparatively small. We find there is little likelihood of a Federal nexus on these private lands that would trigger the regulatory protections of critical habitat under section 7 of the Act. We therefore anticipate little, if any, additional protections through a supplemental analysis of potential adverse modification due to the designation of critical habitat on these lands.

The potential educational benefits of inclusion are also limited. Under existing State regulations, private landowners who harvest timber in proximity to northern spotted owl activity sites are required to conduct surveys of owl activity consistent with the Service-recommended protocol and report those results in their proposed timber harvest plans that are submitted to CALFIRE for approval, so landowners are already aware of the presence of the northern spotted owl and its habitat needs, and critical habitat designation will not result in any additional data collection. The State of California's existing take-avoidance strategy for the northern spotted owl provides an important informational service with private landowners through the timber harvest planning process. Therefore, in this instance, any potential educational benefits of inclusion are minimal.

In contrast, the benefits derived from excluding private lands and enhancing our partnership with California State regulatory agencies are relatively greater. The minimal benefits of inclusion are outweighed by the benefits of fostering conservation partnerships with CALFIRE that would relieve private landowners of what they might perceive as duplicative regulations. Exclusion could also encourage the partnership and collaboration in development of the landscape conservation planning between the Service and CALFIRE by focusing efforts towards that planning effort versus applying a regulatory process that would have limited private land involvement.

We also considered the avoidance of potential issues associated with regulatory uncertainty due to critical habitat designation to be a substantial benefit of exclusion. For example, there may be considerable benefit of exclusion from designation that would accrue due to the

avoidance of any uncertain, and possibly detrimental, effects on both buyers (land trusts, certification entities) and sellers (landowners) in market-based conservation programs that stand to provide important conservation benefits to the northern spotted owl.

We have determined that maintaining our partnership with California State regulatory agencies provides a greater benefit than would the regulatory and educational benefits of critical habitat designation. Therefore, in consideration of the factors discussed above, we conclude that the benefits of exclusion of private lands in California outweigh the benefits of designating these areas as critical habitat.

Exclusion Will Not Result in Extinction of the Species—We have determined that exclusion of 123,348 ac (49,917 ha) of private lands in northern California that are not currently under a Federal agreement from critical habitat for the northern spotted owl will not result in the extinction of the species. Habitat protection provisions in the current California forest practice regulation on private forestlands provides some level of protection for the northern spotted owl and its habitats. We reiterate here that under the California State Code (14 CCR 919.9 and 919.10), the Director of CALFIRE is not authorized to approve any proposed THP that would result in take of a federally-listed species unless that taking is authorized under a Federal Incidental Take Permit. For projects having a Federal nexus and affecting northern spotted owls in occupied areas, as is the case here, the jeopardy standard of section 7 of the Act, coupled with current land management measures that are not under Federal purview, would provide assurances that this species will not go extinct as a result of excluding these lands from the critical habitat designation. Further, the exclusion of these lands from the final critical habitat designation does not preclude advances in our scientific knowledge of the species and using that knowledge to effectively advocate future improvements in State forest practice policies and procedures.

State of Washington

In Washington we proposed 133,895 ac (54,186 ha) of private lands within Spotted Owl Special Emphasis Areas (SOSEAs) as critical habitat; all of these lands were identified as under consideration for exclusion. However, many of the small, private parcels were removed from the final designation upon a determination that they did not meet the definition of critical habitat, leaving. The remaining areas of private lands in Washington contained in this designation covered by HCPs or SHAs and are private industrial forest lands; these private lands are not currently covered by HCPs or SHAs but are covered under the WDNR Forest Practices Rules (FPR) and largely located in SOSEAs. We have excluded areas covered by HCPs and SHAs because, for the reasons discussed above, the benefits of excluding them outweigh the benefits of including them in critical habitat. We sought to make our designation of private lands in Washington as consistent as possible with Washington State regulations governing forest

practices on private lands. Most of the remaining private lands are located only within SOSEAs, areas designated by the State to provide for demographic and/or dispersal support as necessary to complement the northern spotted owl protection strategies on Federal land within or adjacent to the SOSEAs. We find that for these lands, too, the benefits of excluding them in critical habitat outweigh the benefits of including them.

In Washington, private timber harvest must obtain a permit for forest harvest and comply with the Washington Forest Practices Act (RCW 76.09) as well as the Washington Forest Practices Rules (WAC 222). In the absence of a federally-approved HCP covering spotted owls or a State-approved special wildlife management plan, suitable spotted owl habitat in State-designated SOSEAs on nonfederal lands is are protected by the special Washington Forest Practices Rules in State-designated SOSEAs. Within SOSEAs, the Forest Practices rules provide protection for suitable spotted owl habitat. The Washington Forest Practices Rules maintain the viability of each spotted owl site center by protecting: (a) all suitable spotted owl habitat within 0.7 mile of each spotted owl site center; and (b) a total of 2,605 acres of suitable spotted owl habitat within the median home range circle with a radius of 1.8 miles. Under the rules, proposed forest practices likely to adversely affect spotted owl habitat in either category (a) or (b) above are likely to have significant adverse impacts to the spotted owl, and such activities would require a Class IV special forest practices permit and an environmental impact statement per the State Environmental Policy Act. The overarching policy goal of the Washington Forest Practices Rules is to complement the conservation strategy on Federal lands, and as such the SOSEAs are adjacent to Federal lands. SOSEAs are designed to provide a larger landscape for demographic and dispersal support for NSOs. The long-term goal is to support a viable population of NSOs in Washington.

In Washington, the Forest Practices Board (the State regulatory rule-making body) has a long-standing relationship with the Service and collaborates extensively on owl conservation. The Service was heavily engaged provided extensive technical assistance in the development of the Board's existing owl rules. The Board was recognized in the Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011) for its ongoing owl conservation efforts and encouraged to continue to use its existing processes "to identify areas on non-federal lands in Washington that can make strategic contributions to spotted owl conservation over time. The Service encourages timely completion of the Board's efforts and will be available to assist as necessary." The Board convened the Northern Spotted Owl Implementation Team (NSOIT). The NSOIT has been tasked to develop incentives for landowners to conserve owl habitat, identify the temporal and spatial allocation of conservation efforts on non-federal lands, and make recommendations to the Board, should any rules need to be updated. The NSOIT is also conducting a pilot project testing different thinning prescriptions in northern spotted owl habitat. These efforts underway have evolved over years of collaboration and are designed to change the dynamic away from fear and resistance to partnership and participation. The Service has and is providing funding to support the work of the NSOIT.

Benefits of Inclusion—The areas of private land retained in our final designation at issue here support both essential demographic and dispersal needs of spotted owls, and highlight the important conservation roles of private lands in Washington. Designation of these private lands may raise public awareness of conservation actions needed for spotted owl recovery, although the educational benefit of the designation is somewhat limited currently since these areas have already been identified as SOSEAs.

We find there are minimal benefits to including these lands in critical habitat. The designation of critical habitat invokes the provisions of section 7. Our Final Economic Analysis (IEC 2012, p. ES-17) concludes that critical habitat designation for the northern spotted owl is unlikely to directly affect timber harvests on private lands in Washington because of the low likelihood that such harvests would be simultaneously connected to a Federal permitting or funding action. Without a pending Federal action, there is no basis for initiating a consultation process under section 7 of the Act. As discussed previously, the designation of critical habitat invokes the provisions of section 7. However, in this case, we find the requirement that Federal agencies consult with us and ensure that their actions are not likely to destroy or adversely modify critical habitat will not result in substantial benefits to the species. The possibility of a Federal nexus for a project on these lands is small unless it was a larger project covering adjacent Federal lands as well, in which case section 7 consultation would already be triggered and the Federal agency would consider the effects of its actions on the species. In addition, most of the habitat on these private lands would be assumed to be occupied, further minimizing to some extent the margin of conservation that could be attained through section 7. Any incremental benefits would be further minimized because of the protections already in place In addition, it would be small in comparison to the benefits already derived under the WDNR FPR.

There is minimal incremental benefit from designating critical habitat for the northern spotted owl within private lands covered by the WDNR Forest Practices Rules (FPR) because these lands are already managed for the conservation of the species through the WDNR FPR. The conservation measures provided by that process will provide greater protection to northern spotted owl habitat than the designation of critical habitat, which provides regulatory protections only in the event of a Federal action. In addition, the final rule designation would provide for protection of fewer acres than the existing FPR. The WDNR FPR provides for the needs of the northern spotted owl by protecting and preserving landscape levels of suitable northern spotted owl nesting, roosting, and foraging habitat as well as foraging and dispersal habitat in strategic landscapes, and implementing species-specific conservation measures designed to avoid and minimize effects to northern spotted owls. The WDNR FPR also contains provisions that address ownership changes and provides for the ability to make ongoing adjustments in a number of forms including adaptive management. The ability to change is crucial to meet new recovery challenges. The Service continues to be work with WDNR to provide technical assistance in the implementation of these rules. The WDNR FPR contains provisions that address ownership changes and the outcomes expected by the Service.

Therefore, designation of critical habitat would be redundant on these lands, and would not provide additional measureable protections.

Including lands in a critical habitat designation does serve to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by identifying areas of high conservation value for northern spotted owls. Designation of critical habitat would inform State agencies and local governments about areas that could be conserved under State laws or local ordinances, such as the Washington State Growth Management Act, which encourage the protection of "critical areas" including fish and wildlife habitat conservation areas. Any information about the northern spotted owl and its habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. However, WDNR, as the State's natural resource agency, is knowledgeable about the species and has made substantial contributions to our knowledge of the species. The additional educational and informational benefits that might arise from critical habitat designation here have been largely accomplished through the public review and comment during reviews of the FPR and associated with the modification of the FPR, and through implementation of the FPR by landowners. The existing public process for FPR development provides for extensive opportunities for engagement in the development and refinement of the rules. The FPR includes intensive public involvement and is frequently a topic of open and public discussion during meetings of the Washington State Forest Practices Board, whose meetings are open to the public and frequently televised. This level of exposure in local newspapers and television stations exceeds the level of education that would come from a designation that would be read by few people in the public. Moreover, the rulemaking process associated with critical habitat designation includes several opportunities for public comment, and thus also provides for public education.

Benefits of Exclusion—With regard to the benefits of exclusion from designation, although the final economic analysis (FEA) noted that one possible outcome of the critical habitat designation would be that the State could revise its regulations, and in a worst case scenario such revision could result in some private acres no longer being harvestable, we note that the likelihood of such revision actually occurring is characterized as speculative (IEC 2012, p. 5-20). The FEA notes two possible outcomes of critical habitat designation, one being no change in Forest Practices Rules, the other is that State would revise their regulations and designate all suitable habitat overlapping with Federal critical habitat as "critical habitat state." However, Washington DNR representatives only offered examples of potential responses to Federal designation of critical habitat in Washington, and did not comment upon the likelihood that any of these scenarios would occur (IEC 2012, p. 5-11). The FEA also makes note of the potential indirect effects of critical habitat on private lands, in terms of private landowners possibly reacting by changing their timber harvest practices in response to perceived regulatory uncertainty as a result of critical habitat (IEC 2012, p. 5-19).

In particular, a benefit of excluding lands covered under the WDNR FPR from critical habitat designation is that it would encourage the State and other parties to continue to work for owl conservation. If lands within the WDNR FPR area are designated as critical habitat, it would also likely have a negative effect on our ability to continue to partner with the WDNR on this conservation. In particular, the WDNR comment letter (WDNR 2012) states that if inclusion of private land is warranted, then WDNR requests that the Service "create and bolster incentive based conservation opportunities for private landowners". This recognizes the potential negative effects to their existing collaborative approach. By excluding these lands, we preserve our current private and local conservation partnerships and encourage additional conservation actions in the future because other parties see our exclusion as a sign that the Service will not impose duplicative regulatory burdens on landowners who are already have a regulatory responsibility under the WDNR FPR. Private parcels were removed from the final designation upon a determination that they did not meet the definition of critical habitat. The remaining areas of private lands (40,732 ac; 16,483 ha) in Washington contained in this designation are private industrial forest lands; these private lands are not currently covered by HCPs or SHAs but are covered under the WDNR Forest Practices Rules (FPR). Of these, 37,000 ac (14,974 ha) occur within the spotted owl circles currently regulated by the existing FPR. It is unlikely that the benefit of overlaying an additional regulatory burden within the SOSEAs to protect an additional 4,000 ac (1,619 ha) would be an important benefit within the range of the owl. Excluding these private lands from the designation would avoid a chilling effect on the partnership between the Service and the affected State regulatory agencies regarding administration of their existing conservation programs to protect and conserve northern spotted owls on private lands. We consider the maintenance of our partnership between the Service and the affected State regulatory agencies to be a substantial benefit of exclusion.

Benefits of Exclusion Outweigh the Benefits of Inclusion—The benefits of including these lands in the designation are small. The WDNR FPR contains provisions for protecting and maintaining northern spotted owl habitat that provides for comprehensive measures applied across a large landscape that will benefit spotted owls. WDNR personnel are extremely knowledgeable regarding the ecology of the northern spotted owl and have contributed to the body of scientific information about the northern spotted owl. The landowners subject to these State regulations are also informed by them. In this instance, the regulatory and educational benefits of inclusion have much less benefit than the continued benefit of the WDNR FPR including the educational benefits derived from the FPR.

The WDNR FPR provides for considerable conservation and management within geographical areas that contain the physical or biological features essential to the conservation of the northern spotted owl and help achieve recovery of this species. Exclusion of private lands already covered under the WDNR FPR will help foster the partnership we have developed with WDNR. Furthermore, this partnership may aid in fostering future cooperative relationships with other parties in other locations for the benefit of listed species.

In summary, we conclude that the benefits of excluding private lands already covered under the WDNR FPR from the designation of critical habitat for the northern spotted owl outweigh the benefits of including this area in critical habitat. We find that including these lands would result in minimal, if any, additional benefits to the northern spotted owl, as explained above. The WDNR FPR includes species-specific avoidance and minimization measures, rule enforcement procedures, and forest-management practices and habitat conservation objectives that benefit the northern spotted owl and its habitat, which exceeds substantially minimizes the incremental any conservation value provided as a result of a critical habitat designation. Given the active and ongoing efforts of the State of Washington to address northern spotted owl conservation, we have determined that maintaining our partnership with WDNR, in conjunction with the conservation measures under the WDNR FPR, provides a greater benefit to the northern spotted owl than would the regulatory and educational benefits of critical habitat designation. We also have determined that the potential incremental educational and ancillary benefits of critical habitat designation on lands containing the physical or biological features essential to the conservation of the northern spotted owl would be minimal, because WDNR has already made considerable contributions to our understanding of the ecology of the northern spotted owl, and continues to do so through implementation and through participation in range wide demographic studies.

Exclusion Will Not Result in Extinction of the Species—We have determined that exclusion of approximately 40,732 ac (16,483 ha) of private lands covered under the WDNR FPR will not result in extinction of the northern spotted owl. The WDNR FPR protects and preserves landscape levels of suitable northern spotted owl nesting, roosting, and foraging habitat as well as foraging and dispersal habitat in strategic landscapes, and implements species-specific conservation measures designed to avoid and minimize effects to northern spotted owls. The Board has adopted a Wildlife Work Plan that requires rule review and revision should new information warrant that. We find that exclusion of private lands currently covered under the WDNR FPR will not result in extinction of the northern spotted owl.

Lands for which an exclusion analysis indicates the benefits of exclusion do not outweigh the benefits of inclusion

In the proposed revised rule (77 FR 14062; March 8, 2012), we identified numerous areas under consideration for exclusion from the final designation, and solicited public comment on whether the benefits of exclusion of these lands would outweigh the benefits of inclusion, for example, based on active conservation agreements or conservation plans. We did a thorough evaluation of all the areas identified in the proposed rule, as well as others identified through

our review and through information received from the public, and concluded that the benefits of exclusion for many of these areas outweighed the benefits of inclusion in critical habitat and that excluding these areas will not lead to the extinction of the species. For some areas identified for potential exclusion, we could not conclude, based on the best available scientific information, that the benefits of excluding them outweigh the benefits of including them in the designation, as these lands do not have management agreements or other reasons to exclude them from the final designation (such as significant economic impacts or national security interests).

State, County, and Municipal Lands

California

A relatively limited area of State, County, and Municipally owned or managed lands in California would be designated as critical habitat under our proposal. These areas include lands managed as State Forests, County Parks, and a Municipal Water District. No HCPs or SHAs are currently in place on these lands. Most of these lands are in areas that have repeatedly been identified as critical to maintaining linkages among northern spotted owl populations in California. These State and County lands play an essential conservation role in this area of limited Federal ownership. Retaining these lands in the critical habitat designation promotes movement of northern spotted owls, and maintains the potential for genetic interchange. Including these lands would increase the awareness of State, County and local agencies about the status of and threats to spotted owls, the conservation actions needed for recovery, and the essential conservation role this habitat plays. It also increases the potential for educating visitors to County Parks and Open Space areas about northern spotted owl conservation needs. Excluding these lands would have little impact on regulatory burdens because (a) management of these lands is generally consistent with maintenance of habitat values, limiting the potential for adverse effects to critical habitat, and (b) management activities typically do not involve a Federal nexus. Below we provide our assessment for each of these categories of lands that we considered for exclusion.

California Demonstration State Forests

Two California State Forests would be overlain by critical habitat designation: (1) Jackson Demonstration State Forest (DSF), within subunit 2 in the Redwood Coast CHU in Mendocino County, California; and (2) Las Posadas DSF within subunit 6 of the Interior Coastal California CHU in Napa County, California. The California Department of Forestry and Fire Protection

(CALFIRE) requested that the Jackson DSF be excluded from the final critical habitat designation for the northern spotted owl.

CALFIRE developed the Las Posadas DSF Management Plan (California Department of Forestry and Fire Protection, 1992) for the Las Posadas DSF and characterizes current management on the forest as "custodial." Goals for fish and wildlife under the plan include maintenance of the "... Forest's status as one of the last relatively undisturbed fish and wildlife habitats in Napa County." However, the management plan is quite dated, having been approved in 1992. There is acknowledgment of the presence of northern spotted owl activity sites in the management plan, but no specific provisions for owl management or conservation actions in the plan. There have been no publicly-available amendments or updates to the plan since its enactment in 1992 and the timeframe in which any revisions to the plan may take place is uncertain. The designation of critical habitat on these lands would perform an important educational function in highlighting their essential role in owl conservation as the State updates its plan and conducts management activities. Habitat within the plan area is not typical forested habitat often associated with the northern spotted owl but includes oak woodlands and grasslands in this southern part of the species range and represents a unique ecological setting for the species; the educational benefit of including this area in critical habitat is therefore high, as landowners may not be aware that the northern spotted owl inhabits this atypical habitat type. After reviewing the information available, we conclude that the benefits of including these areas as critical habitat will assist in maintaining linkages and movement among and between northern spotted owl populations, and heightening the awareness and educating visitors of the conservation role this habitat plays for recovery of the northern spotted owl. As a result, we conclude that the benefits of exclusion of the Las Posadas State Forest would not outweigh the benefits of inclusion.

CALFIRE has also developed a management plan for the Jackson DSF (Jackson Demonstration State Forest Management Plan (dated January 2008) and CALFIRE has requested that the area be excluded from the final designation. In their request for exclusion CALFIRE stated that the designation of the Jackson DSF as critical habitat was unnecessary given: (1) Extensive conservation planning and environmental assessment has already been completed for the area; (2) the designation would potentially have negative impacts on the mission of the Jackson DSF on implementing restoration and research projects; (3) that the draft economic analysis for the proposed critical habitat concluded that the designation would not affect timber harvest on State lands; and (4) designation not provide meaningful wildlife benefits any different from those already in place.

The Service responds, as follows, to the four elements in CALFIRE'S request for exclusion. While there are efforts by CALFIRE in the development of a forest management plan and environmental assessment for the Jackson DSF, the plan does not specifically provide for northern spotted owl conservation. We believe that the Jackson DSF Management Plan (CALFIRE, 2008) could provide potential benefits to the northern spotted owl, in that there is a high likelihood that land allocations stated in the plan, along with the long-term desired

conditions for forest composition will improve habitat over time. However, we find that: (a) existing management direction in the Plan relating to the northern spotted owl is vague; (b) the stated conservation policy for the owl is limited to a take-avoidance strategy; and (c) while CALFIRE collects monitoring data on northern spotted owl activity sites on a continuous basis, there is no apparent strategy for evaluating that information or applying it to the benefit of the species.

The only overt policy statement in the 2008 Plan regarding the northern spotted states that "... forest management objectives ... are to maintain or increase the number and productivity of nesting owl pairs through forest management practices that enhance nesting/roosting opportunities and availability of a suitable prey base." The terms "maintain" and "increase" are not supported with measurable standards or targets; and there are no remedial measures or mechanisms in the 2008 Plan that are triggered by a decrease in activity sites or demographic productivity. The northern spotted owl conservation strategy in the 2008 Plan is predicated on take-avoidance (CALFIRE 2008, pp. 109 and 267). Take avoidance alone is not a sufficient conservation strategy and it will not necessarily satisfy CALFIRE's direction to maintain or increase owl activity sites or demographic performance. If there are local variations in the "true" optimal forest conditions that support owl occupancy, strict adherence to the take-avoidance provisions may not be satisfactory and occupancy rates may decrease, and there are no corrective mechanisms in the 2008 Plan to account for this possibility. This dual problem of the suitability and occupancy of activity sites is further complicated by barred owl intrusion, and likewise is not addressed by total reliance on a take-avoidance strategy. In addition, in the monitoring chapter for the 2008 Plan we find that there is continuous monitoring of northern spotted owl activity sites (CALFIRE 2008, p. 149), but it is not spelled out in detail. (For example, it does not include the detail and adaptability (i.e., adaptive management provisions) as are specified for instream conditions and fisheries (CALFIRE 2008, pp. 153-154). In addition, the 2008 Plan does not appear to guidance on how to process, evaluate, and interpret the continuous data that is currently being collected on northern spotted owl activity sites, on on how to apply that information to agency decision-making in the event that activity sites and demographic performance are not maintained or increased under the existing management direction. In summary, although the 2008 Jackson DSF Management Plan can produce positive long-term outcomes for the northern spotted owl, it contains an incomplete conservation plan for the species.

We do not agree with CALFIRE's that the designation would potentially have negative impacts on their ability to implement restoration and research projects. The fact that a Federal agency (i.e., U.S. Forest Service) is a research cooperator does not, by itself, create a section 7 nexus. The Service contacted the senior Forest Service scientist connected with the research program at Jackson DSF who described the Forest Service research activities as simply a scientific examination of the State's proposed actions. At this time, we see no Federal regulatory mechanism in connection with the Jackson DSF's existing cooperative research program that would trigger consultation under section 7 of the Act. Therefore, we believe any regulatory burden from designation would be minimal

The Service agrees with CALFIRE's observation, in their July 6, 2012 correspondence, that the economic analysis rightly concluded that critical habitat designation would have no effect on Jackson DSF harvest levels. The only potential effect on harvest schedules would occur if Federal permits or grants-of-funds were connected to the harvest activity.

We disagree with CALFIRE's position that "designation would provide no meaningful wildlife benefits from those already in place." Our response above, indicates that there are potentially meaningful informational benefits that may assist implementation of the existing Jackson DSF Management Plan. We believe designating these lands as critical habitat would serve a very important informational function as the management plan is implemented; it would highlight the fact that this habitat is essential to the conservation of the northern spotted owl.

While acknowledging that the 2008 Management Plan contains many features that have the potential to benefit northern spotted owls over the long term, and also recognizing that there several remediable omissions in that Plan, we conclude that the benefits of inclusion outweigh the benefits of exclusion.

Mount Tamalpais Municipal Watershed of the Marin Municipal Water District

The Mount Tamalpais Watershed (MMWD or Watershed) (18,500 ac) is administered by the Marin Municipal Water District (MMWD) in Marin County, California. The Watershed is flanked on all sides by public parks, County-administered open space areas, grazing land, and residential areas within the triangle formed by U.S. Highway 101, California State Route 1 and Sir Francis Drake Boulevard. The MMWD currently does not operate under a conservation plan such as an HCP or SHA.

A key management consideration for the MMWD is the practical need to limit sediment delivery thereby extending the service life of the five reservoirs within the Watershed (Kent, Alpine, Bon Tempe, Lagunitas, and Phoenix Lakes). To that end, the policy of the MMWD is to maintain land in a natural condition and limit human activities to those that have the least impact on the Watershed. Within specified constraints, permitted public activities include hiking, bicycling, horseback riding, fishing and picnicking. Camping, swimming and boating are prohibited. There is limited public motor vehicle access into the Watershed on Panoramic Highway, Ridgecrest Boulevard and the Fairfax-Bolinas Road. These roads mostly access scenic vistas and day use areas around the reservoirs. The remainder of the road network in the Watershed is dedicated for firefighter access and administrative use, and is closed to public motor vehicles. The MMWD has produced several current management plans addressing specific subject areas, including public access, vegetation management, road and trail management, and long term fire and fuels management. Several elements in those plans are compatible with long-term northern spotted owl conservation. However, there is no explicit

discussion about long-term owl management in any of the MMWD's planning documents. The upcoming Vegetation Management Plan (projected in 2013) may provide additional information that is relevant to northern spotted owl habitat management. We are not aware of any substantial benefits to excluding these areas from critical habitat and find that there would be substantial educational benefits to including them in the designation in that it would highlight the importance this area has for northern spotted owl conservation in future planning efforts.

Marin County Parks and Open Space Department

Six Open Space Preserves (OSPs) totaling 3,626 ac administered by the Marin County (California) Parks and Open Space Department (Department) are proposed for designation as critical habitat. Critical habitat designation would occur on three contiguous OSPs adjacent the Mount Tamalpais Watershed and south of the communities of Lagunitas and Fairfax including Gary Giacomini (1,476 ac), White Hill (390 ac), and Cascade Falls (498 ac). Critical habitat designation would also occur on three contiguous OSPs adjacent the Watershed and west of the community of Corte Madera including Baltimore Canyon (193 ac), Blithedale Summit (899 ac), and Camino Alto (170 ac). The Parks Department currently does not operate under a conservation plan such as an HCP or SHA.

Park management emphasizes non-motorized public use. Five of the six OSPs are served only by fire roads that are closed to public motor vehicle access. The exception is the Camino Alto OSP which is flanked on the east by a public street. Several land management elements in the park system strategic plan (Marin County Parks and Open Space Department, 2008) are compatible with northern spotted owl. However, there is no explicit discussion about long term owl management in this planning document. We are not aware of any substantial benefits to excluding these areas from critical habitat and conclude that there would be substantial educational benefits to including them in the designation.

Sonoma County Regional Parks Department

Lands within Hood Mountain Regional Park, administered by the Sonoma County (California) Regional Parks Department (SCRPD), are proposed for critical habitat designation in subunit 6 of the Interior California Coast CHU. The proposed critical habitat designation includes all, or portions of, four assessor's parcels totaling 460 ac within the park boundary. The SCRPD does not operate under an HCP or SHA.

Hood Mountain Regional Park is minimally roaded; the Sonoma County General Plan of 2008 indicates a modest program of trail construction and management within the Countywide regional parks system. Public information materials, along with maps showing the local road

network, and the types and locations of facilities within Hood Mountain Regional Park, indicate that the SCRPD is emphasizing non-motorized recreation and protection of undeveloped land. Through public information sources in Sonoma County, we located a mission statement for the SCRPD but were unable to find any planning or guidance documents to indicate how the regional parks system would be managed over the long term. The absence of planning direction and the reasons for inclusion are similar to those for the Marin Municipal Water District and for the Marin County Parks and Open Space Department. We are not aware of any substantial benefits to excluding these areas from critical habitat and conclude that there would be substantial educational benefits to including them in the designation.

Oregon

In Oregon, we considered excluding 228,733 ac of State lands managed by the Oregon Department of Forestry (ODF). These lands contain both demographically productive sites for northern spotted owls and provide connectivity linkages among northern spotted owl populations in the Oregon Coast and North Coast-Olympic Modeling Regions. These lands are not currently managed under any sort of conservation plan or agreement with the Service, but are managed by ODF for multiple benefits including commodity production.

The State of Oregon has indicated that the designation of their lands as critical habitat would have “virtually no impact—positive or negative…” on either the management of their lands or their ability to pursue HCPs, SHAs or other conservation agreements (ODF *in litt.*). This is because there is rarely a Federal nexus that would trigger Service regulatory authority, such as the section 7 consultation process and the adverse modification analysis. Thus, there would be little negative impact of including State lands in the critical habitat designation.

Inclusion of these lands in the critical habitat designation highlights their essential conservation role and provides opportunities for educating visitors to these areas, nearby landowners, and ODF about the potential conservation contribution of these lands to northern spotted owls. If ODF were to pursue some sort of conservation agreement, this critical habitat designation would provide a blueprint not only for the lands that would be essential to include in such an effort but also the types of management that would be appropriate there. If ODF does not pursue such an effort this designation clearly indicates the value of these lands for the conservation of the northern spotted owl. We believe the educational value of the information included in the designation may provide an opportunity for management direction that focuses on benefits to the species.

Because we are unaware of any negative impacts of including these ODF lands, we conclude that the benefits of exclusion do not outweigh the benefits of inclusion for these lands.

Washington

In Washington we considered excluding State lands managed by the Washington Department of Fish and Wildlife (8,328 ac) for wildlife habitat. No conservation agreements are currently in place on these lands, but some could be covered by an HCP which is currently under development. Most of these lands are located in the central Cascades in an area that has repeatedly been identified as critical to maintaining linkages among spotted owl populations in Washington. These State lands play an essential conservation role in this area of limited or checkerboard Federal ownership. Retaining these lands in the critical habitat designation would promote movement of northern spotted owls between the northern and southern Cascades Range, as well as between the western and eastern slopes of the Cascades. Including these State lands would increase the awareness of State agencies about the status of and threats to spotted owls, the conservation actions needed for recovery, and the essential conservation role these lands play. Excluding these lands would have little impact on regulatory burdens because (a) management of these lands is consistent with maintenance of habitat values, limiting the potential for adverse effects to critical habitat, and (b) management activities typically do not involve a Federal nexus. Therefore, we conclude that the benefits of exclusion of lands managed by the Washington Department of Fish and Wildlife do not outweigh the benefits of inclusion.

Literature Cited

California Department of Forestry and Fire Protection (CALFIRE). 1992. Las posadas State Forest Management Plan. The Resources Agency. Sacramento, CA.

California Department of Forestry and Fire Protection (CALFIRE). 2008. Jackson Demonstration State Forest Management Plan. The Resources Agency. Sacramento, CA.

Marin County Department of Parks and Open Space. 2008. Strategic Plan. San Raphael, CA.

Industrial Economic, Inc. (IEc), "Economic Analysis of Critical Habitat Designation for the Northern Spotted Owl, Final Report," prepared for the U.S. Fish and Wildlife Service, November 2012.

USFWS (U.S. Fish and Wildlife Service). 2011. Revised recovery plan for the northern spotted owl (*Strix occidentalis caurina*). U.S. Fish and Wildlife Service, Portland, Oregon. Xvi + 258 pp.

In Litt References

USFWS (U.S. Fish and Wildlife Service). 2004. Application of the "Destruction or Adverse Modification" Standard under Section 7(a)(2) of the Endangered Species Act. Memo from Acting Director Marshall Jones to Regional Directors. Dated December 9, 2004.

ODF (Oregon Department of Forestry). 2012. Letter received from the Oregon Department of Forestry commenting on the proposed revision to critical habitat for the northern spotted owl. Dated july 6, 2012.

7.5 Appendix E: Response to Comments

The draft EA was announced in the Federal Register on June 1, 2012 (77 Fed. Reg. 32483) and made available to the public for a 30-day comment period. The following substantive comments were received relating to application of the National Environmental Policy Act (NEPA) in general, or specifically to the draft EA.

Comments Regarding the National Environmental Policy Act (NEPA)

(1) Comment: In regard to the Service's recognition in the Draft Environmental Assessment that the requirement of the National Environmental Policy Act (NEPA) for critical habitat designation has been interpreted differently in different circuit courts, one commenter stated that the Service failed to "take the practical step" of considering how this split among the circuits will likely be resolved.

Our Response: It is difficult to predict how differing district courts will affect activities in each other's districts or whether there will be a policy response. This sort of prediction would not add to our analysis.

(2) Comment: One commenter believed that the Secretary has not met the NEPA standard of full cooperation with State and County agencies in two different ways: 1) by setting a public comment time frame that limits the agencies' ability to fully and knowingly provide comments; and 2) by denying the County the opportunity to be a cooperating agency under CEQ regulations and DOI policy.

Our Response: We believe the 30 day public comment period is adequate for review and comment on the draft environmental analysis and is consistent with the public comment period on many NEPA documents. With respect to denying the counties the opportunity to be a cooperating agency under CEQ regulations and DOI policy, these regulations do not discuss cooperating agencies in the context of environmental assessments because they are generally concise documents prepared to determine whether the proposed action will significantly affect the quality of the human environment and whether an environmental impact statement (EIS) is needed. Thus, environmental assessments normally do not warrant use of formally-designated cooperating agencies. Because we initiated the NEPA analysis with an environmental

assessment, and we subsequently determined that impacts to the human environment were not significant and did not require an EIS, we did not formally appoint any agency as a cooperating agency.

(3) Comment: Several commenters requested the Service do an Environmental Impact Statement to address the effects of thinning, ecological forestry, and other active management activities on northern spotted owl populations. Commenters believe an EIS needs to be done for the critical habitat rule for a number of reasons, including that effects are significant, that critical habitat designation could harm, rather than recover the northern spotted owl, the need to accurately identify relevant environmental concerns and to take a "hard look" at these concerns, and that the analysis in the draft environmental assessment is insufficient to prove effects are not significant (i.e., presents no information to justify a FONSI).

Our Response: This rulemaking is limited to the designation of critical habitat for the northern spotted owl. This final rule does not mandate or prescribe specific management activities, and the implementation of thinning, ecological forestry, or other types of activities is not required by this rulemaking. Should any such activities be proposed by the land management agencies when implementing specific projects on their managed lands, the only effect of this critical habitat rule is that Federal agencies must consult with the Service on their activities that may affect designated northern spotted owl critical habitat. Our critical habitat proposal was fully compliant with NEPA, although we note that we elected to develop an environmental assessment pursuant to NEPA in this case entirely at our discretion, and not as a legal requirement It is the Service's position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to apply the procedures of NEPA in connection with the designation of critical habitat (48 Fed. Reg. 49244). The proposal presented an overview of the state of the science on active management and provides guidance at the broadest landscape level; such guidance is to be viewed only as a general recommendation. Specific plans and decisions concerning active forest management are appropriately made at the land management unit level (e.g., National Forest or BLM District) and are beyond the authority of this rulemaking. Actions proposed on Federal lands must be consistent with the requirements of the NWFP and associated plans, and these plans have already undergone NEPA compliance. Step down implementation of specific actions such as thinning projects on USFS or BLM lands also require NEPA compliance on a case by case basis and usually include an EIS or environmental assessment. Furthermore, implementing any actions that modify, amend, or deviate from these plans will also require NEPA compliance.

(4) Comment: One commenter stated that the barred owl EIS should not be a separate analysis document from the NEPA analysis done for the critical habitat rule, but that a single EIS should be prepared to address the entire proposal.

Our Response: The barred owl EIS represents an entirely separate action from the present rulemaking, and is an evaluation of an experiment stemming from the recommendations of the Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011). The Federal action requiring NEPA for the barred owl EIS is the issuance of a permit under the Migratory Bird Treaty Act for the scientific collection of barred owls, as well as additional permits that may be required for the experiment. In contrast, the designation of critical habitat is a statutory requirement under the Act, and is an entirely separate action from the issuance of necessary permits for research, take, or special use. Furthermore, we elected to conduct an environmental assessment on this critical habitat designation entirely at our discretion, and not as a legal requirement (see Response to Comment 125, above). Finally, we did not determine that the action of designating critical habitat was significant, thus not requiring an EIS. We have addressed the barred owl EIS as an ongoing action in the cumulative effects analysis section of the environmental assessment of this rulemaking.

Environmental Analysis Comments

(5) Comment: Commenters believed that the Draft Environmental Assessment is pre-decisional because it has committed to completing the NEPA process in a pre-ordained timeline that does not allow sufficient time to meet the NEPA requirements of an EIS.

Our Response: An EIS is required only when an action is determined to have likelihood of significant impact on the human environment. Completion of an environmental assessment is a step in the NEPA process to determine whether or not impacts of the Federal action are significant and thus require an EIS. We have not pre-determined the outcome of our environmental assessment. Rather, we have used the environmental assessment to establish whether or not impacts of the designation of critical habitat for the northern spotted owl are significant. If our environmental assessment had determined that impacts were significant, we would have had to approach the court to request additional time to complete our NEPA analysis. Thus, we believe our environmental analysis was consistent with the spirit and intent of NEPA, and was not pre-decisional.

(6) Comment: One commenter described errors in public scoping in that we did not disclose our purpose and need during the scoping process.

Our Response: Public scoping is not required for the development of an environmental assessment. As stated in the environmental assessment, we used internal scoping (internal discussions among Service divisions regionally and nationally, and among staff with long-term

experience with land-use activities conducted within critical habitat on Federal and non-Federal lands) to identify concerns, potential impacts, relevant effects of past actions, and possible alternative actions (Fed. Reg. 61292).

(7) Comment: One commenter described several errors and inaccuracies in defining the purpose and need. Specifically: 1) the stated purpose of achieving the greatest conservation and recovery for the northern spotted owl is erroneous and more than required to meet the Act, and is also too narrow, overly restricting the range of reasonable alternatives; 2) the court ordered due date of November 15 does not drive the need but rather the need is whatever was the Service's motivation in arranging the date with the court; and 3) the purpose of complying with the Act is not a purpose but an agency duty.

Our Response: Regarding item number 1, the commenter only partially described the purpose. The full purpose stated in the draft environmental assessment is to "achieve the greatest relative conservation and recovery goals for the northern spotted owl but simultaneously minimize effects to other land and resources uses." We disagree that the purpose, as a whole, is more than required to meet the Act. Rather, our intent is to balance the effects of designation on land and resource uses with protections against habitat loss, hence the use of the term "relative". This balance does not result in more action than is required to meet the provisions of the Act, and we have clarified this in the environmental assessment. Regarding item number 2, we did not mean to imply that the court deadline drives the need. The need is to revise critical habitat to resolve an ongoing lawsuit (*Carpenters' Industrial Council (CIC) v. Salazar*, 734 F. Supp. 2d126(D.D.C. 2010). . . .); we have clarified this in the final environmental assessment. Regarding item number 3, the *purpose* of an action proposed by the Service or any other Federal agency, based on common NEPA practice and Federal NEPA guidance includes but is not limited to statutory authority. The Service cannot carry out an action that is inconsistent with our authorities; hence our purpose explicitly included reference to those authorities.

(8) Comment: One commenter believed there was an inadequate range of alternatives. Furthermore, they believed that the alternatives the Service noted in the draft environmental assessment as considered but not fully developed were not fully considered because there was no environmental review of these alternatives.

Our Response: NEPA requires that we must analyze those alternatives necessary to permit a reasoned choice (40 CFR 1502.14). When there are potentially a very large number of alternatives, NEPA requires we analyze only a reasonable number to cover the full spectrum of

alternatives that are consistent with the purpose and need. We did consider but exclude some modeling outcomes from further analysis. NEPA allows the elimination of an action alternative from detailed analysis for a variety of reasons including ineffectiveness, technical or economic infeasibility, inconsistency with management objectives of the area, remote or speculative implementation, and substantial similarity in design and/or effects of an alternative that has been analyzed. We disagree with the commenter in that NEPA does not require an "environmental review" of alternatives eliminated from detailed study, but rather, a brief discussion of the reasons for their having been eliminated (40 CFR 1502.16(a)). We have further clarified our reasons for eliminating these alternatives from further analysis in the final NEPA document.

(9) Comment: One commenter believed we did not adequately identify the range of issues that could be affected by critical habitat designation. They further pointed out that limiting our analysis to threatened and endangered species and stating in the environmental assessment that it is not possible to analyze effects on the other 1,200 species is wrong because it is possible and has been done for such actions as the NWFP.

Our Response: Only potentially significant issues must be the focus of the environmental analysis. Issues that are not significant (i.e., related to potentially significant effects) can be eliminated from detailed study, "narrowing the discussion of these issues in the statement to a brief presentation of why they will not have a significant effect on the human environment." (50 CFR 1501.7(a)(2), 50 CFR 1501.7(a)(3). We have further elaborated in the final environmental assessment why we found that these issues will not have a significant effect on the human environment. Regarding our error in concluding that it is not possible to analyze effects on 1,200 species given that such an analysis was done in the NWFP, we agree and will remove that language from the final environmental assessment. However, we do not find that this impels us to analyze effects on all 1,200 late-successional species. In the case of the NWFP, the intent of the revision to USFS and BLM land management plans was to provide comprehensive management of habitat for late-successional and old-growth forest species. Thus, it was prudent to examine those species as part of the NWFP analysis. We do not believe that such a level of analysis is necessary and have thus limited our analysis to effects on listed species to ensure critical habitat designation does not reduce their potential for recovery.

(10) Comment: Three commenters believed the analysis failed to disclose that current habitat set-asides have not produced measurable success in northern spotted owl recovery, and that expanding critical habitat will also fail because barred owls are the primary causal factor in the northern spotted owl decline. On a related topic, one commenter felt the environmental assessment failed to describe how the proposed action would lead to recovery and why other alternatives would not.

Our Response: Threats to northern spotted owls are described in the Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011) as habitat loss and competition from the barred owl. We acknowledge in the critical habitat rule that we need to address both of these threats if we are to recover the northern spotted owl. As to the need to describe how the proposed action would lead to recovery while other alternatives would not, we do not need to show that alternatives not chosen would not lead to recovery; we merely need to disclose the effects of each alternative on the relevant issues, in this case, primarily northern spotted owl populations, to provide information to decision-makers. Recovery of northern spotted owls will require addressing multiple issues, of which habitat loss is only one and will be partly addressed through critical habitat designation.

(11) Comment: One commenter noted we did not analyze the effects of eliminating LSRs as part of the critical habitat designation.

Our Response: This comment is based on a misunderstanding of the critical habitat designation, which does not eliminate the Late-Successional Reserve Network of the Northwest Forest Plan.

(12) Comment: One commenter felt we failed to fully disclose the existing regulatory structure, and also failed to fully disclose the disincentives to landowners to retain habitat, resulting the potential elimination of northern spotted owl habitat.

Our Response: We noted in the draft environmental assessment the potential for landowners to prematurely harvest existing habitat, maintain shorter harvest rotations, or change from forest management to development. We received several comments from landowners indicating their intention to deforest their property if designated as critical habitat. We acknowledge that possibility for some landowners in the final environmental assessment based on these comments, but cannot describe the extent or degree of these effects based on the comments we received.

(13) Comment: One commenter disagreed with what effects we considered speculative and not reasonably foreseeable, and believed we are obligated to display environmental consequences of potential effects even if actual outcomes are unknown.

Our Response: DOI NEPA implementation regulations define reasonably foreseeable future action as, "activities not yet undertaken, but sufficiently likely to occur, that a Responsible Official of ordinary prudence would take such activities into account in reaching a decision. These Federal and non-Federal activities that must be taken into account in the analysis of cumulative impact include, but are not limited to, activities for which there are existing decisions, funding, or proposals identified by the bureau. Reasonably foreseeable future actions do not include those actions that are highly speculative or indefinite." (73 Fed. Reg. 61292). Reasonably foreseeable future actions are those that are highly probable, based on known opportunities or trends (BLM 2008, 59). We contend that the actions we consider not reasonably foreseeable meet this definition.

(14) Comment: Two commenters indicated we failed to examine cumulative and connected actions in an economic and social context.

Our Response: We have completed an economic analysis that addresses economic and social aspects of the designation of critical habitat.

(15) Comment: One commenter noted we failed to analyze the economic effects of the northern spotted owl listing decision as a cumulative and connected action of critical habitat designation.

Our Response: We agree that the environmental assessment should consider all relevant cumulative effects, which may include the effects of past actions, as necessary to determine whether a finding of no significant impact is warranted. One element of that determination is "[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts." 40 C.F.R. § 1508.27(b)(7). "Human environment" is defined to include the natural and physical environment and the relationship of people with that environment except that economic or social effects are not intended by themselves to require preparation of an environmental impact statement. 50 C.F.R. § 1508.14. In this environmental assessment we have considered the potential effects of the designation added to other past, present, and reasonably foreseeable future actions that would affect the identified resources of concern to determine whether this would result in significant impacts to the human environment as defined for purposes of an environmental assessment. We have added the past action of listing the northern spotted owl to our cumulative effects analysis and considered those effects on the resources of concern identified in the environmental assessment.

(16) Comment: One commenter contended that just because future action will undergo NEPA analysis does not relieve Service of its NEPA duty to analyze the effects of the critical habitat proposal.

Our Response: We can analyze the effects of the critical habitat designation to the degree that we know the actions that may occur within critical habitat. To that end, we have met our NEPA obligation. As individual Federal actions are developed with more information on location, activity type, magnitude, duration and intensity, all things we cannot assess at this scale of analysis and this point in time, those actions will be subject to NEPA and analyzed in further detail.

(17) Comment: One commenter believed it was incorrect for the Service to assume agencies will implement 100% of actions in the recovery plan [Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011)]. Must assume agencies will implement NWFP requirements without further matrix restrictions.

Our Response: We have included as part of our range of possible outcomes the possibility that agencies will implement only the NWFP requirements, without implementing any additional recovery plan actions that may restrict actions in the matrix. However, we believe we should not assume that scenario alone, given that we have examples of agencies implementing discretionary actions from the northern spotted owl recovery actions that are in addition to the standards and guidelines of the NWFP.

Comment: One commenter believed that the Secretary has not met the NEPA standard of full cooperation with State and County agencies in two different ways: (1) by setting a public comment timeframe that limits the agencies' ability to fully and knowingly provide comments; and (2) by denying the County the opportunity to be a cooperating agency under CEQ regulations and DOI policy.

Our Response: We believe the 30-day public comment period is adequate for review and comment on the draft environmental analysis and is consistent with the public comment period on many NEPA documents. In addition, we provided Counties with an extended opportunity to comment, as described in **Previous Federal Actions**, above. With regard to cooperating agencies, neither CEQ nor DOI regulations discuss cooperating agencies in the context of environmental assessments because they are generally concise documents prepared to determine whether the proposed action will significantly affect the quality of the human

environment and whether an environmental impact statement (EIS) is needed. Thus, environmental assessments normally do not warrant use of formally designated cooperating agencies. Because we initiated the NEPA analysis with an environmental assessment, we did not formally appoint any agency as a cooperating agency.

Comment: Several commenters requested the Service complete an environmental impact statement to address the effects of thinning, ecological forestry, and other active management activities on northern spotted owl populations. Commenters believe an EIS needs to be done for the critical habitat rule for a number of reasons, including that effects are significant; critical habitat designation could harm, rather than recover, the northern spotted owl; there is a need to accurately identify relevant environmental concerns and to take a "hard look" at these concerns; and the analysis in the draft environmental assessment is insufficient to prove effects are not significant (i.e., presents no information to justify a finding of no significant impact (FONSI)).

Our Response: This rulemaking is limited to the designation of critical habitat for the northern spotted owl. This final rule does not mandate or prescribe specific management activities, and the implementation of thinning, ecological forestry, or other types of activities is not required by this rulemaking. Should any such activities be proposed by the land management agencies when implementing specific projects on their managed lands, the only effect of this critical habitat rule is that Federal agencies will have to consult with the Service on their activities that may affect designated northern spotted owl critical habitat. Our critical habitat proposal was fully compliant with NEPA, although we note that we elected to develop an environmental assessment pursuant to NEPA in this case entirely at our discretion, and not as a legal requirement. The proposal presented an overview of the state of the science on active management for consideration by land managers. It does not require any specific management actions. Any plans or project-level decisions concerning active forest management are appropriately made by land managers in accordance with their normal planning and project implementation procedures, and are beyond the authority of this rulemaking. Actions proposed on Federal lands must be consistent with the requirements of the NWFP and associated plans, and these plans have already undergone NEPA compliance. Step-down implementation of specific actions such as thinning projects on USFS or BLM lands also requires NEPA compliance on a case-by-case basis.

Comment: One commenter stated that the barred owl EIS should not be a separate analysis document from the NEPA analysis done for the critical habitat rule, but that a single EIS should be prepared to address the entire proposal.

Our Response: The barred owl EIS represents an action entirely separate from the present critical habitat rulemaking, and is an evaluation of an experiment stemming from the recommendations of the Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011). The Federal action requiring NEPA for the barred owl EIS is the issuance of a permit under the Migratory Bird Treaty Act for the scientific collection of barred owls, as well as additional

permits that may be required for the experiment. In contrast, the designation of critical habitat is a statutory requirement under the Act, and is an entirely separate action from the issuance of necessary permits for research, take, or special use. We have addressed the barred owl EIS as an ongoing action in the cumulative effects analysis section of the environmental assessment of this rulemaking.

Comment: Commenters believed that the Draft Environmental Assessment is predecisional because it has committed to completing the NEPA process in a preordained timeline that does not allow sufficient time to meet the NEPA requirements of an EIS.

Our Response: An EIS is required only when an action is determined to have likelihood of significant impact on the human environment. Completion of an environmental assessment is a step in the NEPA process to determine whether or not impacts of the Federal action are significant and thus require an EIS. We have not predetermined the outcome of our environmental assessment. Rather, we have used the environmental assessment to establish whether or not impacts of the designation of critical habitat for the northern spotted owl are significant. Although there is a court-ordered schedule for completion of this critical habitat rule, if our environmental assessment had determined that impacts were significant, we would have sought an extension of time to complete our NEPA analysis. Our environmental analysis was consistent with the spirit and intent of NEPA, and was not predecisional. Further, our experience of evaluating the possible effects of critical habitat under NEPA suggested that an environmental assessment was the appropriate place to start.

Comment: One commenter described errors in public scoping in that we did not disclose our purpose and need during the scoping process.

Our Response: Public scoping is not required for the development of an environmental assessment. As stated in the environmental assessment, we used internal scoping (internal discussions among Service divisions regionally and nationally, and among staff with long-term experience with land-use activities conducted within critical habitat on Federal and non-Federal lands) to identify concerns, potential impacts, relevant effects of past actions, and possible alternative actions (October 15, 2008; FR 73 61292).

Comment: One commenter described several errors and inaccuracies in defining the purpose and need. Specifically: (1) the stated purpose of achieving the greatest conservation and recovery for the northern spotted owl is erroneous and more than required to meet the Act, and is also too narrow, overly restricting the range of reasonable alternatives; (2) the court-ordered due date of November 15 does not drive the need but rather the need is whatever was the Service's motivation in arranging the date with the court; and (3) the purpose of complying with the Act is not a purpose but an agency duty.

Our Response: Regarding item number 1, the commenter only partially described the purpose. The full purpose stated in the draft environmental assessment was to "achieve the greatest

relative conservation and recovery goals for the northern spotted owl but simultaneously minimize effects to other land and resources uses." We disagree that the purpose, as a whole, is more than required to meet the Act. Rather, our intent is to designate lands meeting the definition of critical habitat (i.e., areas occupied at the time of listing that contain the features essential to the species' conservation or unoccupied areas that are themselves essential to the species' conservation), determining what is essential in a way that minimizes effects on resource uses to the extent possible, and then using the exclusion process provided by section 4(b)(2) of the Act to weigh the benefits of inclusion versus the benefits of exclusion. This is what we mean by using the term "relative." This balance does not result in more action than is required to meet the provisions of the Act, and we have clarified this in the environmental assessment. Regarding item number 2, we did not mean to imply that the court deadline drives the need. The need is to revise critical habitat to resolve an ongoing lawsuit (Carpenters' Industrial Council (CIC) v. Salazar, 734 F. Supp. 2d126(D.D.C. 2010). . . .); we have clarified this point in the final environmental assessment, available at *http://www.regulations.gov* and at *http://www.fws.gov/oregonfwo/Species/Data/NorthernSpottedOwl/CriticalHabitat/default.asp* . Regarding item number 3, the purpose of an action proposed by the Service or any other Federal agency, based on common NEPA practice and Federal NEPA guidance includes but is not limited to statutory authority. The Service cannot carry out an action that is inconsistent with our authorities; hence our purpose explicitly included reference to those authorities.

Comment: One commenter believed there was an inadequate range of alternatives. Furthermore, they believed that the alternatives the Service noted in the draft environmental assessment as considered but not fully developed were not fully considered because there was no environmental review of these alternatives.

Our Response: NEPA requires that we must analyze those alternatives necessary to permit a reasoned choice (40 CFR 1502.14). When there are potentially a very large number of alternatives, NEPA requires that we analyze only a reasonable number to cover the full spectrum of alternatives that are consistent with the purpose and need. We did consider but excluded some modeling outcomes from further analysis. NEPA allows the elimination of an action alternative from detailed analysis for a variety of reasons including ineffectiveness, technical or economic infeasibility, inconsistency with management objectives of the area, remote or speculative implementation, and substantial similarity in design and effects of an alternative that has been analyzed. We disagree with the commenter in that NEPA does not require an "environmental review" of alternatives eliminated from detailed study, but rather, a brief discussion of the reasons for their having been eliminated (40 CFR 1502.16(a)). We have further clarified our reasons for eliminating these alternatives from further analysis in the final NEPA document.

Comment: One commenter believed we did not adequately identify the range of issues that could be affected by critical habitat designation. They further pointed out that limiting our analysis to threatened and endangered species and stating in the environmental assessment that it is not possible to analyze effects on the other 1,200 species is wrong because it is

possible and has been done for such actions as the NWFP.

Our Response: Only potentially significant issues must be the focus of the environmental analysis. Issues that are not significant (i.e., related to potentially significant effects) can be eliminated from detailed study, "narrowing the discussion of these issues in the statement to a brief presentation of why they will not have a significant effect on the human environment." (50 CFR 1501.7(a)(2), 50 CFR 1501.7(a)(3)). We have further elaborated in the final environmental assessment (available at *www.regulations.gov* and at *http://www.fws.gov/oregonfwo/Species/Data/NorthernNorthern SpottedOwl/Documents/FinalEnvironmentalAssessment.pdf*) why we found that these issues will not have a significant effect on the human environment. Regarding our statement that it is not possible to analyze effects on 1,200 species given that such an analysis was done in the NWFP, we agree this was in error and will remove that language from the final environmental assessment. However, we do not find that this impels us to analyze effects on all 1,200 late-successional species. In the case of the NWFP, the intent of the revision to USFS and BLM land management plans was to provide comprehensive management of habitat for late-successional and old-growth forest species. Thus, it was prudent to examine those species as part of the NWFP analysis. We do not believe that such a level of analysis is necessary for this purpose and have thus limited our analysis to effects on listed species to ensure critical habitat designation does not reduce their potential for recovery.

Comment: Three commenters believed the analysis failed to disclose that current habitat set-asides have not produced measurable success in northern spotted owl recovery, and that expanding critical habitat will also fail because barred owls are the primary causal factor in the northern spotted owl decline. On a related topic, one commenter felt the environmental assessment failed to describe how the proposed action would lead to recovery and why other alternatives would not.

Our Response: Threats to northern spotted owls are described in the Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011) as habitat loss and competition from the barred owl. We acknowledge in this rule and the final environmental assessment that we need to address both of these threats if we are to recover the northern spotted owl. As to the need to describe how the proposed action would lead to recovery while other alternatives would not, we do not need to show that alternatives not chosen would not lead to recovery; we merely need to disclose the effects of each alternative on the relevant issues, in this case, primarily northern spotted owl populations, to provide information to decision-makers. Recovery of northern spotted owls will require addressing multiple issues, of which habitat loss is only one and will be partly addressed through critical habitat designation.

Comment: One commenter noted we did not analyze the effects of eliminating LSRs as part of the critical habitat designation.

Our Response: This comment is based on a misunderstanding of the critical habitat designation,

which does not eliminate the Late-Successional Reserve Network of the Northwest Forest Plan.

Comment: One commenter believed we failed to fully disclose the existing regulatory structure, and also failed to fully disclose the disincentives to landowners to retain habitat, resulting in the potential elimination of northern spotted owl habitat.

Our Response: We noted in the draft environmental assessment the potential for landowners to prematurely harvest existing habitat, maintain shorter harvest rotations, or change from forest management to development. We received several comments from landowners indicating their intention to deforest their property if designated as critical habitat. We acknowledge that possibility for some landowners in the final environmental assessment (available at *www.regulations.gov* and at *http://www.fws.gov/oregonfwo/Species/Data/NorthernNorthernSpottedOwl/Documents/FinalEnvironmentalAssessment.pdf*) based on these comments, but cannot describe the extent or degree of these effects based on the comments we received.

Comment: One commenter disagreed with what effects we considered speculative and not reasonably foreseeable, and believed we are obligated to display environmental consequences of potential effects even if actual outcomes are unknown.

Our Response: DOI NEPA regulations define reasonably foreseeable future action as, "activities not yet undertaken, but sufficiently likely to occur, that a Responsible Official of ordinary prudence would take such activities into account in reaching a decision. These Federal and non-Federal activities that must be taken into account in the analysis of cumulative impact include, but are not limited to, activities for which there are existing decisions, funding, or proposals identified by the bureau. Reasonably foreseeable future actions do not include those actions that are highly speculative or indefinite." (73 FR 61292, October 15, 2008). Reasonably foreseeable future actions are those that are highly probable, based on known opportunities or trends (BLM 2008, 59). We contend that the actions we consider not reasonably foreseeable meet this definition.

Comment: Two commenters indicated we failed to examine cumulative and connected actions in an economic and social context.

Our Response: We have completed an economic analysis that addresses economic and social aspects of the designation of critical habitat. In addition, the Council on Environmental Quality's implementing regulations indicate that economic and social effects are not by themselves intended to require preparation of an EIS, but should be considered if an EIS is prepared (40 CFR 1508.14). Our purpose in preparing an environmental assessment was to determine whether an EIS should be prepared. Because we determined that the critical habitat revision resulted in a finding of no significant impact (FONSI), it was determined that an EIS was not necessary to evaluate social and economic impacts.

Comment: One commenter noted we failed to analyze the economic effects of the northern

spotted owl listing decision as a cumulative and connected action of critical habitat designation.

Our Response: We agree that the environmental assessment should consider all relevant cumulative effects, which may include the effects of past actions, as necessary to determine whether a finding of no significant impact is warranted. One element of that determination is "[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts." 40 CFR 1508.27(b)(7). As discussed in the previous comment, "human environment" is defined to include the natural and physical environment and the relationship of people with that environment except that economic or social effects are not intended by themselves to require preparation of an environmental impact statement (50 CFR 1508.14). In this environmental assessment we have considered the potential effects of the designation added to other past, present, and reasonably foreseeable future actions that would affect the identified resources of concern to determine whether this would result in significant impacts to the human environment as defined for purposes of an environmental assessment. We have added the past action of listing the northern spotted owl to our cumulative effects analysis and considered those effects on the resources of concern identified in the environmental assessment.

Comment: One commenter contended that just because future action will undergo NEPA analysis does not relieve the Service of its NEPA duty to analyze the effects of the critical habitat proposal.

Our Response: We can analyze the indirect effects of the critical habitat designation only to the degree that we know the actions that may occur within critical habitat. To that end, we have met our NEPA obligation. As individual Federal actions are developed with more information on location, activity type, magnitude, duration, and intensity, all things we cannot assess at this point in time, those actions will be subject to NEPA and analyzed in further detail.

Comment: One commenter believed it was incorrect for the Service to assume agencies will implement 100% of actions in the recovery plan [Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011)] and that we must assume agencies will implement NWFP requirements without further matrix restrictions.

Our Response: We have included as part of our range of possible outcomes the possibility that agencies will implement only the NWFP requirements, without implementing any additional recovery plan actions that may restrict actions in the matrix. However, we believe that is not the only possible scenario, given that we have examples of agencies implementing discretionary actions from the northern spotted owl recovery actions that are in addition to the Standards and Guidelines of the NWFP.