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**DRAFT ECONOMIC ANALYSIS
OF CRITICAL HABITAT DESIGNATION
FOR THE MEXICAN SPOTTED OWL**

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PREFACE

1. This report was prepared for the U.S. Fish and Wildlife Service (the Service) by Industrial Economics, Incorporated (IEc) to assess the economic impacts that may result from designation of critical habitat for the Mexican spotted owl. Under section 4(b)(1) of the 1973 Endangered Species Act (the Act), the decision to list a species as endangered or threatened is made solely on the basis of scientific data and analysis. By contrast, section 4(b)(2) of the Act states that the decision to designate critical habitat must take into account the potential economic impact of specifying a particular area as critical habitat. As such, this report does not address any economic impacts associated with the listing of the species. The analysis only addresses those incremental economic costs and benefits potentially resulting from the designation of critical habitat.
2. IEc worked closely with personnel from the Service and other Federal agencies to ensure that potential Federal nexuses as well as current and future land uses were appropriately identified, and to begin assessing whether or not the designation of critical habitat would have any net economic effect in the regions containing the proposed critical habitat designations. Identification of these land uses and Federal-agency actions provided IEc with a basis for evaluating the incremental economic impacts due to critical habitat designation for the Mexican spotted owl.
3. Section 7 of the Act authorizes the Service to consider, and, where appropriate, make a determination that a Federal-agency action is likely to jeopardize the continued existence of a species or result in the destruction or adverse modification of critical habitat. IEc, therefore, also requested input from the Service officials concerning whether or not any of these projects would likely result in *an adverse modification determination without an accompanying jeopardy opinion*. It is important to note here that it would not have been appropriate for IEc to make such policy determinations.
4. This report represents characterization of possible economic impacts associated with the designation of critical habitat for the Mexican spotted owl. To understand the concerns of stakeholders, IEc solicited opinions from the Service and other Federal agencies regarding the uses of land within the proposed critical habitat, historical consultations with the Service, potential future consultations, and the likely costs associated with future consultations. Using this information, this report characterizes cost and benefits likely to be associated with the designation of critical habitat for the Mexican spotted owl.
5. IEc solicits further information associated with the categories of impact highlighted in this report, or with other economic effects of the critical habitat designation, that can be used to support the economic assessment. Since the focus of this report is an assessment of incremental impacts of proposed critical habitat, we request information on the potential effects of the designation on current and future land uses, rather than on effects associated with the listing of the spotted owl, or of other Federal, state, or local requirements that influence land use.

EXECUTIVE SUMMARY

6. The purpose of this report is to identify and analyze the potential economic impacts that would result from the proposed critical habitat designation for the Mexican spotted owl (*Strix occidentalis lucida*). This report was prepared by Industrial Economics, Incorporated (IEc), under contract to the U.S. Fish and Wildlife Service's Division of Economics.
7. Section 4(b)(2) of the Endangered Species Act (the Act) requires the Service to base critical habitat proposals upon the best scientific and commercial data available, after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. The Service may exclude areas from critical habitat designation when the benefits of exclusion outweigh the benefits of including the areas within critical habitat, provided the exclusion will not result in extinction of the species.

Proposed Critical Habitat

8. The Service has proposed 72 critical habitat areas for the Mexican spotted owl in montane forests and rocky canyons across the southwest U.S. In aggregate, the units total approximately 13.5 million acres in the states of Arizona, Colorado, New Mexico, and Utah. Almost all of the proposed critical habitat is located on Federal land. According to the Service, 90 percent of the area proposed as critical habitat is under Federal ownership, while the remaining ten percent is Tribally owned. While none of the critical habitat area is privately held, the critical habitat units do enclose some in-holdings. These are private properties completely surrounded by publicly held lands. Exhibit ES-1 indicates the current distribution and ownership of the proposed critical habitat areas.

Framework and Economic Impacts Considered

9. This analysis defines an impact of critical habitat designation to include any effect above and beyond the impacts associated with the listing of the spotted owl. Section 7(a)(2) of the Act requires Federal agencies to consult with the Service whenever activities they fund, authorize, or carry out may affect listed species. Section 7 consultation with the Service is designed to ensure that any current or future Federal actions do not jeopardize the continued existence of the species. Federal actions not affecting the species, as well as actions on non-Federal lands that are not Federally funded, authorized, or permitted, will not require section 7 consultation. To evaluate the increment of economic impacts attributable to the critical habitat designation for the spotted owl, above and beyond the listing under the Act, the analysis assumes a "without critical habitat" baseline and compares it to a "with critical habitat" scenario. The difference between the two is a measurement of the net change in economic activity that may result from the designation of critical habitat for the owl.

Exhibit ES-1				
SUMMARY OF CRITICAL HABITAT LAND OWNERSHIP BY STATE				
Acres (Percent of State Total)				
State	Number of Proposed Units	Federal Land	Tribal Land	Total
Arizona	37	4,119,342 (83%)	846,344 (17%)	4,965,686
Colorado	2	569,125 (100%)	0	569,125
New Mexico	31	4,221,733 (91%)	408,548 (9%)	4,630,281
Utah	5	3,221,180 (97%)	101,272 (3%)	3,322,452
Total	72	12,131,380 (90%)	1,356,164 (10%)	13,487,544
Note: Three critical habitat units include land in both Arizona and New Mexico. As a result, the sum of the number of proposed critical habitat units for each state does not equal to 72.				
Source: <i>Proposed Designation of Critical Habitat for the Mexican Spotted Owl</i> , July 21, 2000 (65 FR 45336)				

10. The "without critical habitat" baseline represents current and expected economic activity under all existing regulatory mechanisms protecting the owl prior to critical habitat designation. These include the take restrictions that result from the listing under the Act for the spotted owl, as well as other Federal, state, and local requirements that may limit economic activities in the regions containing the proposed critical habitat units. This analysis focuses on potential costs and benefits of critical habitat for the spotted owl, above and beyond any costs or benefits already in existence due to the listing of the spotted owl.
11. To estimate the incremental costs and benefits that critical habitat designation would have on existing and planned activities and land uses, the analysis applies the following framework:
1. Develop a comprehensive list of possible Federal nexuses on Federal and Tribal lands in and around the proposed critical habitat area.
 2. Review historical patterns and current information describing the section 7 consultations in the proposed critical habitat area to evaluate the likelihood that nexuses would result in consultations with the Service.
 3. Determine whether specific projects and activities within the proposed critical habitat involve a Federal nexus and would likely result in section 7 consultations.
 4. Evaluate whether section 7 consultations with the Service would likely lead

to modifications of projects, activities, or land uses that would not result if critical habitat were not designated.

12. Using the framework outlined above, this analysis evaluates potential costs and benefits associated with the proposed designation of critical habitat. Three primary categories of potential incremental costs are considered in the analysis. These categories include:

Costs associated with conducting reinitiations or extensions of existing section 7 consultations occurring under the listing, or with incremental effort associated with new consultations (e.g., administrative effort).

Costs associated with uncertainty and public perceptions resulting from the designation of critical habitat. Uncertainty and public perceptions about the likely effects of critical habitat may cause effects such as project delays and changes in property values, regardless of whether critical habitat actually generates incremental impacts.

Costs associated with any modifications of projects, activities, or land uses resulting from section 7 consultation with the Service that would not occur without critical habitat designation.

13. Potential economic benefits considered in this analysis include use and non-use value. Non-use benefits associated with designation of critical habitat may include resource preservation or enhancement in the form of biodiversity, ecosystem health, and intrinsic (passive use) values.¹ Use benefits associated with the proposed designation could include enhancement of recreational opportunities such as wildlife viewing. Finally, the public's perception of the potential importance of critical habitat may result in increases to property values, just as the perception of the need for modifications may result in property value reductions, regardless of whether critical habitat generates such impacts.

Preliminary Results

Few substantive new, reinitiated, or extended consultations or project modifications due to proposed critical habitat are expected to occur above and beyond those associated with the listing for the owl. Two factors that explain this are:

¹ Intrinsic values, also referred to as passive use values, include categories of economic benefits such as existence value, i.e., knowledge of continued existence of a resource or species; and bequest value, i.e., preserving the resource or species for future generations.

- a. Federal and Tribal landowners affected by critical habitat designation already implement protective measures for owl habitat as described in the *Recovery Plan for the Mexican Spotted Owl* and consult with the Service on this implementation;⁴ and
- b. Much of the proposed critical habitat for the owl is located in remote canyons and steep forests. These areas support little economic activity beyond timber harvesting. In recent years, however, timber harvesting has decreased significantly due to industry trends. As a result, the proposed critical habitat areas generally do not contribute significantly to local economies.

Any incremental impacts that do occur will likely affect agencies that have currently unoccupied critical habitat and are not currently consulting with the Service under the Recovery Plan. Critical habitat designation could result in new or reinitiated formal or informal consultations and minor project modifications for Grand Canyon National Park, Bureau of Land Management land in Utah and Colorado, Bureau of Reclamation in Utah, Fort Huachuca, the Flagstaff Naval Observatory, National Forests in Arizona, and the Pike and San Isabel and Manti-LaSal National Forests.

All proposed critical habitat is either Federally or Tribally owned, so significant private (non-Tribal) economic activity does not take place on the affected land. As a result, impacts of the proposed critical habitat on non-Tribal communities and small businesses are expected to be minimal. However, critical habitat designation may have some impacts on owners of in-holdings as a result of consultations or project modifications associated with rights-of-way in Federal lands listed above.

Due to the types of activities conducted near owl habitat, the frequency of past consultations, and the willingness of the Tribes to protect owls and their habitat, the critical habitat designation for the owl likely will not significantly affect economic activity on Tribal lands.

Because the Service expects that few incremental consultations and modifications will result from designation of critical habitat for the owl, incremental benefits associated with critical habitat are also expected to be minimal. Nonetheless, to the extent that designation of critical habitat aids the survival and recovery of the owl, benefit categories such as bequest and/or existence values may be enhanced.

⁴ U.S. Fish and Wildlife Service, *Recovery Plan for the Mexican Spotted Owl, Vol. I*, Albuquerque, NM, 1995, 172 pp.

14. Exhibit ES-1 summarizes these preliminary findings.

Exhibit ES-1

**SUMMARY OF POTENTIAL CONSULTATIONS AND IMPACTS WITHIN
PROPOSED CRITICAL HABITAT FOR THE MEXICAN SPOTTED OWL**

Federal Agency or Tribe	Location	Current or Future Activities that May Require Consultation	Potential for Non-Substantive Reinitiated Consultations	Potential for New or Extended Consultations or Substantive Reinitiations	Potential for Modifications to Projects or Activities Due to Consultation
Forest Service	Apache-Sitgreaves, Coconino, Kaibab, Coronado, Tonto, and Prescott, AZ	Grazing, road construction, recreation maintenance, fire management, timber sales, other vegetation management activities	High	Low	Low
	Pike and San Isabel National Forest, CO	Fire management, timber sales, vegetation management, oil and gas leasing	High	Moderate	Low
	Carson, Cibola, Gila, Lincoln, and Santa Fe National Forests, NM	Road work, powerline maintenance, grazing, fire management, timber sales, special activities	High	Low	Low
	Dixie and Manti-LaSal National Forests, UT	Grazing, fire management, mining, oil and gas leasing, recreation, road work, timber harvesting	High	Moderate	Low
San Carlos Apache	Arizona	Timber Harvesting	Moderate	Low	Low
Navajo Nation	Arizona, New Mexico, Utah	Road Construction	High	Low	Low
Mescalero Apache	Arizona	Uncertain	Uncertain	Low	Low

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Federal Agency or Tribe	Location	Current or Future Activities that May Require Consultation	Potential for Non-Substantive Reinitiated Consultations	Potential for New or Extended Consultations or Substantive Reinitiations	Potential for Modifications to Projects or Activities Due to Consultation
Bureau of Land Management	Arizona	Hiking, grazing, restoration	Moderate	Low	Low
	Colorado	Recreation activities and construction, grazing, land sales and exchanges, road construction, pipeline and powerline work	High	Moderate	Moderate
	New Mexico	Grazing, oil and gas leasing, fire management	Moderate	Low	Low
	Utah	Grazing, recreation	High	Moderate	Moderate
Department of Defense	Camp Navajo, AZ	Tree thinning, troop training	High	Low	Low
	Flagstaff Naval Observatory	Tree thinning	High	Moderate	Low
	Fort Huachuca, AZ	Troop training, prescribed burns, tree thinning, recreation	High	Moderate	Low
	Fort Carson, CO	None	Low	Low	Low
	Fort Wingate, NM	None	Low	Low	Low
Bureau of Reclamation	Utah	Dam construction	High	Moderate	Low

Exhibit ES-1

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Federal Agency or Tribe	Location	Current or Future Activities that May Require Consultation	Potential for Non-Substantive Reinitiated Consultations	Potential for New or Extended Consultations or Substantive Reinitiations	Potential for Modifications to Projects or Activities Due to Consultation
National Park Service	Grand Canyon National Park, AZ	Controlled burns, road work, housing development, and rail maintenance	High	Moderate	Low
	Chiricahua, Coronado and Walnut Canyon National Monuments, Saguaro National Park, AZ	Recreation, controlled burns, grazing	Moderate	Low	Low
	Bandelier National Monument, NM	Controlled burns, trail maintenance	High	Moderate	Low
	Canyonlands, Capitol Reef, and Zion National Parks, UT	Recreation, road and trail maintenance	High	Low	Low

* Units are categorized as occupied/unoccupied based on descriptions provided in critical habitat proposal. "Mixed" refers to unit containing both occupied and unoccupied lands.

Sources: Information in table is based on personal communication with personnel at regional and field offices in the Service, USFS, BLM, NPS, Reclamation, U.S. Army, U.S. Navy, Navajo Nation, and San Carlos Apache Tribe. All communication was conducted in August and September 2000.

1 INTRODUCTION

SECTION 1

15. The U.S. Fish and Wildlife Service (the Service) initially designated critical habitat for the Mexican spotted owl (*Strix occidentalis lucida*) on June 6, 1995. Under development from 1993 to 1995, the *Recovery Plan for the Mexican Spotted Owl* was finalized soon after the designation of critical habitat in the fall of 1995. Due to a pair of court rulings, the Service retracted critical habitat designation for the owl on March 25, 1998.⁵ In response to a third court case, the Service re-proposed critical habitat for the Mexican spotted owl on July 21, 2000.⁶ In order to be in compliance with the court order, the Service must make the final determination of critical habitat for the owl by January 15, 2001.
16. Under section 4(b)(2) of the Endangered Species Act (the Act), the Service is required to consider designation of critical habitat for all species listed as endangered or threatened. Critical habitat refers to a geographic area that is essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat designation can help focus conservation activities for a listed species by identifying areas that contain or could develop essential critical habitat features. Critical habitat designation contributes to Federal land management agencies' and the public's awareness of the importance of these areas.
17. In addition to its informational role, the designation of critical habitat may provide protection where significant threats have been identified. This protection derives from section 7 of the Act, which requires Federal agencies to consult with the Service in order to ensure that activities they fund, authorize, or carry out are not likely to result in destruction or adverse modification of critical habitat. Under the listing of a species under the Act, Federal agencies must consult with the Service

⁵ *Catron County Board of Commissioners v. United States Fish and Wildlife Service*, 75 F.3d 1429, 1439 and *Coalition of Arizona-New Mexico Counties for Stable Economic Growth v. U.S. Fish and Wildlife Service*, No. 95-1285-M Civil.

⁶ *Southwest Center for Biological Diversity and Silver v. Babbitt and Clark*, CIV 99-519 LFG/LCS-ACE.

regarding any activities that could jeopardize the continued existence of the species. The regulations pursuant to the Act define jeopardy as any action that would appreciably reduce the likelihood of both the survival and recovery of the species. Similarly, the designation of critical habitat requires Federal agencies to consult with the Service regarding any action that could potentially adversely modify the species' habitat. Adverse modification of critical habitat is defined as any direct or indirect alteration that appreciably diminishes the ability of critical habitat to provide for the survival and recovery of the species.

18. The designation of critical habitat can include areas within and outside of the geographical range occupied by the species. Section 3(5)(A) of the Act addresses two categories of critical habitat. One category consists of specific areas within the geographic 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 (i) essential to the conservation of the species, and (ii) that may require special management considerations or protection. The other category consists of specific areas outside the geographic 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. Federal agencies must consult with the Service regarding any activities they fund, authorize, or carry out on critical habitat designated either within or outside the geographical area occupied by the species.

1.1 CONSULTATION UNDER SECTION 7 OF THE ENDANGERED SPECIES ACT

19. Section 7(a)(2) of the Act requires Federal agencies to consult with the Service whenever activities they fund, authorize, or carry out may affect listed species or designated critical habitat. Section 7 consultation with the Service is designed to ensure that any current or future Federal actions do not appreciably diminish the value of the critical habitat for the survival and recovery of the species. Activities on land owned by individuals, organizations, states, local and Tribal governments only require consultation with the Service if their actions occur on Federal lands; require a Federal permit, license, or other authorization; or involve Federal funding. Federal actions not affecting the species or its critical habitat, as well as actions on non-Federal lands that are not Federally funded, authorized, or permitted, will not require section 7 consultation.
20. For consultations concerning activities on Federal lands, the relevant Federal agency consults with the Service. For consultations where the consultation involves an activity proposed by a state or local government or a private entity (the "applicant"), the Federal agency with the nexus to the activity (the "Action agency") serves as the liaison with the Service. The consultation process may involve both informal and formal consultation with the Service.
21. Informal section 7 consultation is designed to assist the Federal agency and any applicant in identifying and resolving potential conflicts at an early stage in the planning process (50 CFR 402.13). Informal consultation consists of informal discussions between the Service and the agency concerning an action that may affect a listed species or its designated critical habitat. In preparation

for an informal consultation, the applicant must compile all biological, technical, and legal information necessary to analyze the scope of the activity and discuss strategies to avoid, minimize, or otherwise affect impacts to listed species or critical habitat. During the informal consultation, the Service makes advisory recommendations, if appropriate, on ways to minimize or avoid adverse effects. If agreement can be reached, the Service will concur in writing that the action, as revised, is not likely to adversely affect listed species or critical habitat. Informal consultation may be initiated via a phone call or letter from the Action agency, or a meeting between the Action agency and the Service.

22. A formal consultation is required if the proposed action is likely to adversely affect listed species or designated critical habitat in ways that cannot be avoided through informal consultation (50 CFR 402.14). Formal consultations determine whether a proposed agency action is likely to jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat. Determination of whether an activity will result in jeopardy to a species or adverse modification of its critical habitat is dependent on a number of variables, including type of project, size, location, and duration. If the Service finds, in their biological opinion, that a proposed agency action is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify the critical habitat, the Service may identify reasonable and prudent alternatives that are designed to avoid such adverse effects to the listed species or critical habitat.
23. Reasonable and prudent alternatives are defined at 50 CFR 402.02 as alternative actions that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Service believes would avoid jeopardizing the species or destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing reasonable and prudent alternatives vary accordingly.
24. Federal agencies are also required to evaluate their actions with respect to any species that is proposed as endangered or threatened and with respect to its proposed or designated critical habitat. Regulations implementing the interagency cooperation provisions of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act and regulations at 50 CFR 402.10 require Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a proposed species or to result in destruction or adverse modification of proposed critical habitat.

1.2 PURPOSE AND APPROACH OF ECONOMIC ASSESSMENT

25. Under the regulations pursuant to the Act, the Service is required to make its decision on the basis of the best scientific and commercial data available, in addition to considering economic and other relevant impacts of designating a particular area as critical habitat. The Service may exclude areas from critical habitat upon a determination that the benefits of such exclusions outweigh the

benefits of specifying such areas as critical habitat. The purpose of this report is to identify and analyze the potential economic costs and benefits that could result from the proposed critical habitat designation for the Mexican spotted owl.

26. The analysis must distinguish between economic impacts caused by the listing of the spotted owl under the Act and those additional effects that would be caused by the proposed critical habitat designation. *This analysis only evaluates the economic impacts resulting from the proposed critical habitat designation that are above and beyond impacts caused by the listing of the spotted owl under the Act.* In the event that a land use or activity would be limited or prohibited by another existing statute, regulation, or policy, the economic impacts associated with those limitations or prohibitions would not be attributable to critical habitat designation.
27. This analysis assesses how critical habitat designation for the spotted owl may affect current and planned land uses and activities on Federal (including military), Tribal, and private land. For Federally managed land, designation of critical habitat may lead to modification of land uses and activities that threaten to modify habitat adversely. For Tribal land subject to critical habitat designation, modifications to land uses and activities which may result from a section 7 consultation with the Service, can only be required when a “Federal nexus” exists, i.e., the activities or land uses of concern involve Federal permits, Federal funding, or other Federal actions. The Act does not give the Service the authority to require a consultation or suggest project modifications for activities occurring on Tribal land that adversely affect critical habitat but do not involve a Federal nexus. Finally, even though private land has been excluded from critical habitat designation, owners of private in-holdings within proposed critical habitat or private land adjacent to critical habitat could be affected. Specifically, the designation may impact land exchanges or activities taking place on rights-of-way on Federal lands.
28. To be considered in the economic analysis, activities must be “reasonably foreseeable,” including but not limited to activities that are currently authorized, permitted, funded, or for which proposed plans are currently available to the public.⁷ This analysis considers all reasonably foreseeable activities on both occupied and unoccupied lands. Current and future activities that could potentially result in section 7 consultations and modifications are considered.

⁷ 50 CFR 424.19 states the Service shall consider the economic affects on proposed and ongoing activities.

1.3 STRUCTURE OF REPORT

29. The remainder of the report is organized as follows:

Section 2: Species Description and Relevant Baseline Information - Provides general information on the species, a brief description of the proposed critical habitat units, and regulatory and socio-economic information describing the baseline, "without critical habitat" scenario.

Section 3: Analytic Framework and Results - Describes the framework and methodology for the analysis, and provides preliminary findings of potential incremental costs and benefits resulting from the proposed designation.

**2 SPECIES DESCRIPTION AND
RELEVANT BASELINE INFORMATION⁸**

SECTION 2

2.1 DESCRIPTION OF SPECIES

30. The Mexican spotted owl, one of three subspecies of spotted owl found in the western U.S., is among the largest owls in North America. On average, males weigh about 19 ounces while females weigh around 21 ounces. The subspecies has a historical range that encompasses significant portions of northwestern Mexico, Arizona and New Mexico, and smaller areas in Utah and Colorado. The Mexican spotted owl has a mottled appearance with irregular white and brown spots on its abdomen, back, and head. Due to larger and more numerous spots, the Mexican spotted owl has a lighter appearance than the other two subspecies.

31. Because Mexican spotted owls live almost exclusively in canyons and mountainous forests, the subspecies maintains a fragmented population distribution across its range in the southwestern U.S. Nesting habitat can typically be found in complex, old-growth forest structures or rocky canyons. Roosting may occur in numerous tree species, but the owl primarily uses uneven-aged, multi-storied stands with closed canopies in mountainous regions. The owl preys on smaller rodents as well as birds, bats, and reptiles, all of which can be found in a wide variety of geographical ranges. Owls tend to remain in the same territory from year to year.

32. Considering these attributes, habitat requirements, and population biology, the Service has identified several primary constituent elements for the Mexican spotted owl. These primary constituent elements are found in regions of mixed conifer, pine-oak or riparian forests that have, or are capable of having, the following characteristics:

⁸ The information on the Mexican spotted owl and its habitat included in this section was obtained from the *Proposed Determination of Critical Habitat for the Mexican Spotted Owl*, July 21, 2000 (65 FR 45336) and the *Recovery Plan for the Mexican Spotted Owl*, U.S. Fish and Wildlife Service, December 1995.

High basal area of large diameter trees;

Moderate to high canopy closure;

Wide range of tree sizes suggestive of uneven-age stand;

Multi-layered canopy with large overstory trees of various species;

High snag basal area;

High volumes of fallen trees and other woody debris;

High plant species richness, including hardwoods; and

Adequate levels of residual plant cover to maintain fruits, seeds, and regeneration to provide for the needs of Mexican spotted owl prey species.

33. The primary constituent elements for owl canyon habitat are found in areas that exhibit some or all of the following attributes:

Cooler and often more humid conditions in the summer than the surrounding area;

Clumps or stringers of trees and/or canyon wall containing crevices, ledges, or caves;

High percent of ground litter and woody debris; and

Riparian or woody vegetation (although not at all sites).

34. Within the boundaries of the areas that the Service is proposing for designation, only lands that provide the above primary constituent elements are considered critical habitat.

2.2 PROPOSED CRITICAL HABITAT UNITS

35. Approximately 13.5 million acres of land have been proposed for designation by the Service within 72 proposed critical habitat units in the states of Arizona, Colorado, New Mexico, and Utah. Within this proposed area, only land exhibiting the primary constituent elements would be considered actual critical habitat. Any land within the proposed area that is lacking the primary constituent elements would not be considered critical habitat. Depending on the state, the Service personnel estimate that between 10 percent to 50 percent of the land within the proposed units will

have the primary constituent elements to meet the definition of critical habitat.⁹ Therefore, the actual area of critical habitat is considerably less than the proposed 13.5 million acres.

36. Currently, about 1.4 million acres of Tribal land have been proposed for designation, while the remaining 12.1 million acres of proposed critical habitat are Federally owned. However, the Tribes that own the proposed land are working to develop land management plans that protect spotted owl habitat. For any Tribe that submits a management plan prior to final designation, the Service will determine if the plan provides adequate special management or protection for the species, and the Service will consider the benefits of excluding or including these areas under section 4(b)(2). The Service will use this information in determining which, if any, Tribal land should be included in the final designation as critical habitat for the owl.

37. The critical habitat has been proposed for designation based on the recovery needs identified in the *Recovery Plan for the Mexican Spotted Owl*. Because population density and habitat topography for the spotted owl vary across its range, the Recovery Plan divides owl range in the U.S. into six recovery units (RUs) based on common habitat features and population densities. Exhibit 2-1 shows the recovery units. Within each RU, the Service identified critical habitat units with the primary constituent elements necessary for the recovery of the spotted owl. All proposed critical habitat units are located within the RUs. A more detailed discussion of the features of each RU follows:

Upper Gila Mountain RU. Proposed critical habitat in this RU, which covers central Arizona and west-central New Mexico, is home to 56 percent of the known Mexican spotted owl population in the U.S. Owls in this region typically inhabit mature, mixed-conifer and ponderosa pine-Gambel oak forests.

Basin and Range- East RU. This RU, located in areas of central and southern New Mexico, contains 16 percent of the known spotted owl population of the U.S. Habitat is found in mature mixed-conifer forests across mountain ranges separated by alluvial valleys and broad basins.

Basin and Range- West RU. Owls in this region of southern Arizona and western New Mexico live in mountain ranges separated by non-forested habitat. Mixed-conifer forests at middle elevations and Madrean pine-oak forests at lower elevations provide habitat for 14 percent of the known spotted owl population in the U.S.

⁹ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Albuquerque, New Mexico Office, August 2, 2000 and with Wildlife Biologist, U.S. Fish & Wildlife Service, Grand Junction, Colorado Office, August 4, 2000.

Colorado Plateau RU. Critical habitat in this RU spreads across northern Arizona, southern and central Utah, southwestern Colorado, and northwestern New Mexico. This unit supports eight percent of the known spotted owl population in the U.S. in deeply incised canyons and wooded areas of isolated mountain ranges.

Southern Rocky Mountains-New Mexico RU. Mature, mixed-conifer forests in steep canyons provide habitat for five percent of the known spotted owl population in the U.S. in this mountainous region of northern New Mexico.

Southern Rocky Mountains-Colorado RU. The critical habitat in this region in central Colorado is home to two percent of the known spotted owl population in the U.S. The owls tend to dwell in canyons with steep faces and varying amounts of mature coniferous forests.

For the most part, the Federal and Tribal lands proposed for designation contain habitat currently used by known owl populations. In some cases, unoccupied lands possessing primary constituent elements have been included because they are considered to be essential to the conservation of the spotted owl.

2.3 RELEVANT BASELINE INFORMATION

38. In this section, we provide relevant information about existing regulations and requirements that exist in the baseline, i.e., the "without critical habitat" scenario. In addition, we provide relevant information about the socio-economic characteristics of regions that include critical habitat.

2.3.1 Baseline Regulations

39. In March 1993, the Service published a final rule listing the Mexican spotted owl as a threatened species (58 FR 14248). Under the listing, Federal agencies must consult with the Service regarding any actions they fund, authorize, or carry out that could potentially jeopardize the continued existence of the spotted owl. The listing under the Act is the most significant aspect of baseline protection. Because section 4(b) of the Act requires that the decision to list a species be based solely on the best available scientific and commercial data and not include economic considerations, this analysis seeks to recognize only those impacts or potential modifications to activities above and beyond those attributable to the listing of the spotted owl.

2.3.2 Recovery Plan

40. As part of the listing of the Mexican spotted owl, a Recovery Plan was signed by the Service in 1995. The Recovery Plan is intended to facilitate the conservation and recovery of the spotted owl by providing recommendations for land management to be followed by agencies with land containing owls or owl habitat. Some Federal land-management agencies, such as the Southwest Region of the U.S. Forest Service (USFS), have adopted elements of the Recovery Plan into their own land management plans. Consequently, most agencies and Tribes already consult frequently with the Service on activities that may affect the Mexican spotted owl and owl critical habitat. Historically, consultations undertaken as a result of the Recovery Plan have concluded at the informal stage.

2.3.3 Socioeconomic Profile of the Critical Habitat Areas

41. To provide context for the discussion of potential economic impacts due to proposed critical habitat, this section summarizes relevant economic and demographic information for the 50 counties containing proposed critical habitat for the spotted owl. Because critical habitat is only being proposed on Federal and Tribal lands, it was necessary to look at economic activities that may take place on those lands or may somehow be affected by critical habitat designation. However, as proposed critical habitat only covers a small fraction of the land in each county, and the existing habitat supports only certain types of activity within an industry, it is necessary to consider that only a very small portion of the economic activity of an industry within a county is taking place on or near critical habitat.
42. Proposed critical habitat designation for the Mexican spotted owl spans 50 counties within the states of in Arizona, Colorado, New Mexico, and Utah. Exhibit 2-3 summarizes relevant demographic and economic data for the states and counties with proposed critical habitat. Given the geographically broad range of the critical habitat designation, there is a corresponding broad spectrum in the economic profiles of the 50 counties containing critical habitat. Therefore, relevant data will be examined at a more in-depth level on a state-by-state basis.

2.3.4 Socioeconomic Characteristics

Arizona

43. In Arizona, 13 of the 15 counties in the state contain land proposed for critical habitat. Of the four states included in the critical habitat designation, critical habitat in Arizona sustains the largest population. The 13 affected Arizona counties have a median population of 112,404 residents, the highest in the four states. With 2,783,779 residents, Maricopa County has the highest population of any county with proposed critical habitat in Arizona and the other three states as well. Greenlee is the least populous Arizona county with 9,323 residents. The 13 counties within proposed critical habitat in Arizona have a median per capita income of \$18,249. Maricopa County has the highest per capita income of the 13 counties with \$27,254, while Apache has the smallest per capita income at \$11,809.

Exhibit 2-3
Economic and Demographic Data for Counties Containing Mexican Spotted Owl Habitat

State	County	Population (1998)	Per Capita Income (1998)	Totals		Forestry, fishing, hunting, and agriculture support		Mining	
				Employment	Total Payroll (\$ 000)	Employment	Total Payroll (\$ 000)	Employment	Total Payroll (\$ 000)
AZ		4,667,277	\$24,206	1,763,508	\$49,052,246	1,987	42,962	13,920	583,729
	Apache	68,734	\$11,809	7,141	137,709	B	D	B	D
	Cochise	112,404	\$18,249	21,008	444,692	B	D	B	D
	Cocconino	114,087	\$20,020	36,979	780,514	A	D	B	D
	Gila	48,839	\$18,178	13,714	348,405	B	D	1,486	67,051
	Graham	31,711	\$14,115	4,817	79,346	A	D	A	D
	Greenlee	9,323	\$19,305	3,643	123,643	0	0	H	D
	Maricopa	2,783,779	\$27,254	1,246,448	37,009,066	F	D	G	D
	Mohave	130,647	\$19,039	311,142	641,077	B	D	C	D
	Navajo	96,838	\$12,940	15,462	352,637	B	D	F	D
	Pima	790,333	\$22,723	268,142	6,698,735	C	D	2,153	87,223
	Pinal	146,947	\$15,930	27,851	688,286	C	D	H	D
	Santa Cruz	38,155	\$15,725	10,403	213,834	C	D	A	D
	Yavapai	148,748	\$20,643	41,861	852,537	A	D	793	28,261
CO		3,968,967	\$29,994	1,757,628	53,790,978	1,148	26,565	11,810	569,678
	Custer	3,438	\$18,336	512	9,852	A	D	0	0
	Douglas	141,449	\$34,088	29,543	743,278	19	367	53	1,717
	El Paso	490,044	\$26,270	194,751	5,446,985	10	160	106	3,003
	Freemont	44,225	\$16,837	7,920	148,998	A	D	101	3,207
	Huerfano	6,789	\$18,739	1,425	25,406	0	0	0	0
	Jefferson	500,802	\$33,348	167,896	509,037	54	835	679	36,376
	Pueblo	134,919	\$21,379	45,760	1,012,026	A	D	55	2,090
	Teller	20,553	\$24,415	5,364	102,874	A	D	E	D
NM		1,733,535	\$21,164	540,186	13,133,707	447	9,574	15,489	625,572
	Bernalillo	524,686	\$26,434	249,348	6,630,937	B	D	895	31,095
	Cibola	26,506	\$13,521	4,654	95,919	0	0	E	D
	Colfax	13,586	\$18,960	3,963	68,729	A	D	C	D
	Grant	31,628	\$17,409	7,972	200,922	A	D	G	D
	Hidalgo	6,174	\$17,623	1,451	34,651	0	0	A	D
	Lincoln	16,432	\$19,375	4,406	76,416	B	D	A	B
	Los Alamos	18,273	\$38,350	5,830	173,374	0	0	0	0
	McKinley	67,332	\$13,482	13,792	288,761	A	D	E	D

State	County	Population (1998)	Per Capita Income (1998)	Totals		Forestry, fishing, hunting, and agriculture support		Mining	
				Employment	Total Payroll (\$ 000)	Employment	Total Payroll (\$ 000)	Employment	Total Payroll (\$ 000)
	Mora	4,830	\$12,667	412	6,561	A	D	0	0
	Otero	54,315	\$18,310	11,229	202,811	B	D	A	D
	Rio Arriba	37,839	\$14,340	6,248	119,222	19	267	E	D
	Sandoval	88,037	\$20,313	18,750	578,862	A	D	1,064	58,998
	San Juan	106,169	\$18,161	31,938	868,083	B	D	2,748	142,124
	San Miguel	28,714	\$15,291	5,063	100,333	A	D	B	D
	Santa Fe	122,826	\$28,040	44,430	1,059,729	A	D	111	2,507
	Sierra	10,988	\$19,406	1,931	28,584	A	D	B	D
	Socorro	16,343	\$15,368	2,410	40,930	0	0	A	D
	Taos	26,759	\$17,905	8,242	137,914	A	D	368	14,252
	Torrance	16,021	\$15,726	1,842	29,825	A	D	B	D
	Valencia	63,807	\$17,999	8,267	150,154	A	D	12	232
UT		2,100,562	\$22,240	888,146	22,199,933	244	6,497	7,984	342,813
	Carbon	21,021	\$19,930	6,647	163,680	A	D	1,064	58,998
	Emery	11,013	\$16,276	2,651	97,294	0	0	F	D
	Garfield	4,294	\$17,589	950	20,058	A	D	0	0
	Grand	8,070	\$19,505	2,780	42,222	A	D	B	D
	Iron	28,777	\$17,090	8,636	152,520	A	D	0	0
	Kane	6,219	\$20,600	1,509	25,706	0	0	0	0
	San Juan	13,640	\$12,685	2,180	35,891	0	0	185	6041
	Washington	82,276	\$18,428	23,661	464,282	A	D	67	6,087
	Wayne	2,358	\$17,231	F	D	A	D	0	0
Note: (D) — Withheld to avoid disclosing data for individual companies; data are included in broader industry totals.									
Employment-size classes are indicated as follows: A--0 to 19 B--20 C--100 to 249 E--250 to 499 F--500 to 999.									
Sources: 1998 County Business Patterns Economic Profile, http://www.census.gov , August 16, 2000.									

Colorado

44. Colorado has eight counties with land proposed for critical habitat. These eight counties consist of a group of four small counties with populations less than 45,000 and a group of four larger counties with populations over 130,000. Jefferson has 500,802 residents and is the most populous of the eight, while Custer is the least populous with 3,438 residents. Per capita incomes in the eight counties range from a high of \$34,088 in Douglas to a low of \$16,837 in Fremont. The eight counties have a median per capita income of \$22,897.

New Mexico

45. New Mexico has the largest number of counties containing land proposed for critical habitat designation, totaling 20 counties. However, population densities in these counties are fairly low. All but three of these counties have populations less than 90,000, and 11 have populations less than 30,000. Bernalillo is the most heavily populated of the counties, with 524,686 residents. Hidalgo has the smallest population with 6,174. The median population of the 20 counties with proposed critical habitat is 27,737. The median per capita income for the counties is \$17,952. Per capita income ranges from \$38,350 in Los Alamos County to \$12,667 in Mora County.

Utah

46. The nine counties in Utah that are included in the critical habitat designation have a median population of 11,013. Overall these counties are sparsely populated. Washington County has the largest population with 82,276 residents, while Kane County has the smallest population with 6,219 residents. The median income for these counties is \$17,589. Kane has the highest per capita income at \$20,600, while San Juan has the lowest at \$12,685.

2.3.5 Relevant Industries

47. Earnings data indicate that, for the most part, economic activities that rely on resource exploitation in proposed owl habitat areas are not central to the economies of the 50 counties. In 1998, the four states with spotted owl proposed critical habitat had a total of 3,826 employees in the industry category of forestry, fishing, hunting, and agriculture support. This broad category includes, among many other forms of employment, timber harvesting and grazing. These two subcategories support only a small fraction of the total employment in the larger category. Of the 50 counties, 33 had between zero and 19 employees in this category. In no county does this category comprise as much as five percent of total employment. Overall, in the four states, fewer than 0.1 percent of all employees in 1998 were employed in this industry category.

48. Mining plays a larger role than forestry and grazing in the economies of the regions with spotted owl habitat, but is still a relatively small industry. In 1998, a total of 49,203 people were employed in mining activities in the four state region. This number represents 1.0 percent of regional employment. Mining is most important in Utah where it accounted for 9.0 percent of employment in 1998. Exactly half of the counties in the four state region have between zero and 100 people employed in mining. The counties in which mining is most important are Emery and Carbon (16.0 percent) in Utah, Gila (10.8 percent) in Arizona, and San Juan (8.6 percent) and Sandoval (5.7 percent) in New Mexico.¹⁰

¹⁰ Bureau of Economic Analysis, BEARfacts, <http://www.bea.doc.gov/bea/regional/bearfacts/bf10/49/b1049015.htm>, August 18, 2000.

3 ANALYTIC FRAMEWORK AND RESULTS

SECTION 3

49. In this section, we provide an overview of the framework for the analysis, a description of information sources used, and a discussion of potential economic costs and benefits associated with the proposed designation of critical habitat for the Mexican spotted owl.

3.1 FRAMEWORK FOR ANALYSIS

50. This economic analysis examines the impacts of modifications to specific land uses or activities within those areas designated as critical habitat for the owl. The analysis evaluates impacts in a "with critical habitat designation" versus a "without critical habitat designation" framework, measuring the net change in economic activity attributable to the critical habitat proposal. The "without critical habitat designation" scenario, which represents the baseline for analysis, includes all protection already accorded to the owl under state and Federal laws, such as the National Environmental Policy Act and the Migratory Bird Treaty Act. The difference between the two scenarios is a measurement of the net change in economic activity that may result from the designation of critical habitat for the spotted owl. The listing of the owl under the Act is the most significant aspect of baseline protection, as it provides the majority of the protections afforded to the species by the Act.

3.1.1 Categories of Economic Impacts

51. The focus of this economic analysis is to determine the incremental costs and benefits to land uses and activities from the designation of critical habitat that are above and beyond those that result from existing Federal, state, and local laws. This analysis considers any incremental costs and benefits resulting from the proposed critical habitat designation. Exhibit 3-1 outlines the general categories of costs and benefits that would be considered in this analysis, and gives hypothetical examples of such costs and benefits.

Exhibit 3-1	
POTENTIAL ECONOMIC IMPACTS DUE TO CRITICAL HABITAT	
Categories of Costs and Benefits	Examples
Costs	
Costs associated with section 7 consultations: new consultations reinitiated consultations extended consultations	Administrative costs (e.g., phone calls, letter writing, meetings, travel time, biological assessment) required to conduct consultation.
Costs associated with uncertainty and perceptions of critical habitat effects: project delays changes in property values	Transitory decline in value of private in-holdings within critical habitat, based on the public's perception that critical habitat will result in project modifications.
Costs of modifications to projects, activities, and land uses.	Reductions in grazing allotments.
Benefits	
Recreational and other use benefits.	Improvements to wildlife viewing.
Non-use benefits.	Enhancements to existence values and resource preservation such as increased biodiversity, ecosystem health.

52. Potential costs associated with section 7 consultations due to proposed critical habitat could include: (1) the value of time spent in conducting section 7 consultations beyond those associated with the listing of the owl, (2) modifications to land uses and activities as a result of consultations, and (3) property value changes and transactions costs associated with uncertainty about the effects of critical habitat. The Service has recognized that there are approximately three different scenarios associated with the designation of critical habitat that could trigger incremental consultation costs:

Some consultations that have already been “completed” may need to be reinitiated to address critical habitat;

Consultations taking place after critical habitat designation may take longer because critical habitat issues will need to be addressed;
and

The need for new consultations that would not have taken place without designation of critical habitat.

53. Critical habitat could potentially also result in economic costs to owners of in-holdings. In-holdings are private lands located within and entirely surrounded by Federally owned land. As a result of their location, use of such properties can require the need for rights-of-way access across Federal land, e.g., building roads to in-holdings through Federal land. Specifically, public perception that critical habitat results in the need for modifications to right-of-way projects could lead to real reductions in property values of in-holdings and increased costs to landowners. Such property impacts may occur even in cases in which additional project modifications on land uses within critical habitat are unlikely to be imposed.
54. Uncertainty about the impacts of critical habitat also could result in costs to Federal agencies. For example, uncertainty surrounding the location of critical habitat could prompt some agencies to undertake steps to reduce that uncertainty, thereby incurring transaction costs. Specifically, Federal agencies could elect to retain surveyors and other specialists to determine if specific parcels lie within critical habitat boundaries and the primary constituent elements are present. Thus, uncertainty over the critical habitat status of lands has the potential to result in costs to Federal agencies to reduce or mitigate the effects of this uncertainty.
55. In addition to considering potential economic impacts attributable to the proposed critical habitat, this analysis also considers economic benefits that could result from designation of critical habitat. Resource preservation or enhancement, which is aided by designation of critical habitat, may constitute an increase in non-recreational values provided directly by the species and indirectly by its habitat. Categories of potential benefits for the spotted owl include enhancement of wildlife viewing, increased biodiversity and ecosystem health, and intrinsic (passive use) values. Furthermore, designation of critical habitat could potentially lead to earlier recovery of the species, thus decreasing regulatory costs associated with listing. Finally, the public's perception of the potential importance of critical habitat may result in increases in property values of in-holdings, just as the perception of modifications may result in property value reductions, regardless of whether critical habitat generates such impacts.

3.1.2 General Methodological Approach

56. As discussed in Section 1, critical habitat can only affect current or planned land uses where a Federal nexus is involved. For activities on Federally owned lands, the nexus is the Federal ownership itself. When current or future activities on non-Federal lands involve Federal funding, Federal permitting, or other Federal involvement, section 7 consultation with the Service is required. Activities on non-Federal lands that do not involve a Federal nexus are not affected by the designation of critical habitat. As a result, this report assesses potential economic impacts from critical habitat by first identifying those activities that will likely involve a Federal nexus. Once probable Federal nexuses are identified, specific examples of these nexuses within the proposed critical habitat are identified and evaluated to determine the likelihood of incremental consultations

and the probability of resultant project modifications or other costs or benefits. The discussion below describes the specific steps used in this methodology.

First, identify potential Federal nexuses in the area of concern. Develop comprehensive list of possible nexuses on Federal and Tribal lands in and around proposed critical habitat for the owl.

- i. For Federally owned lands, review current and future activities that may impact the proposed critical habitat. Since all activities on Federal lands are subject to the Service consultation, identify major activities that could result in adverse modification
- ii. For Tribal lands, review whether proposed activities potentially involve Federal permits, Federal funding, or other Federal involvement.

Second, review historical patterns for section 7 consultations in the proposed critical habitat area to determine the likelihood that nexuses are likely to result in consultations with the Service. However, as historical patterns are not totally accurate predictors of future events, also use current information and professional judgement of the Service and other Federal agency staff, regarding the likelihood of new, reinitiated, or extended incremental consultations.

Third, identify specific projects and activities that involve a Federal nexus in proposed critical habitat area and will likely result in section 7 consultations with the Service, based on current and historical information.

Fourth, evaluate the probable impacts of any modifications resulting from consultation outcomes, as well as other incremental costs and benefits that may originate from the proposed designation (e.g., project delays, change in property values, enhanced recreational opportunities).

3.1.3 Information Sources

57. The methodology outlined above requires input and information from the Service staff and staff of potentially affected Federal agencies and Tribes. This analysis relies primarily on meetings and telephone conversations with staff at the Service, other Federal agencies, and Tribal governments rather than on written comments or public hearing testimony. Written comments and public hearing testimony will be considered in the final analysis.

3.2 POTENTIAL FEDERAL NEXUSES WITHIN CRITICAL HABITAT

58. As outlined above, the first step in assessing potential impacts due to critical habitat for the Mexican spotted owl involves identification of the potential Federal nexuses. Potential Federal nexuses within the proposed critical habitat are identified based on guidance from field and regional staff of the Service and the potentially affected Federal agencies in Arizona, Colorado, New Mexico, and Utah. Both current and future nexuses potentially occurring within critical habitat for the owl are identified, in order to develop a comprehensive list of all relevant activities.
59. As the second step in assessing potential impacts, land ownership within the proposed critical habitat is reviewed to identify potential nexuses for each given land owner. Proposed critical habitat for the owl, which includes areas in Arizona, Colorado, New Mexico, and Utah, is composed almost exclusively of Federal land. According to the Service, 90 percent of the proposed critical habitat for the owl is Federally owned. The remaining ten percent is owned by Tribes. Tribes are working with the Service on developing management plans that protect the spotted owl without critical habitat designation.
60. In addition to identifying all potential Federal nexuses on the lands proposed as critical habitat for the spotted owl, this analysis assesses the likelihood that section 7 consultations for different categories of Federal nexuses will occur. The information for this assessment is based on input and guidance from field and regional Service staff, as well as historical patterns in consultations between the Service and Federal agencies in the proposed areas of Arizona, Colorado, New Mexico, and Utah. Exhibit 3-2 identifies Federal agencies with nexuses in the proposed critical habitat, presents the individual nexuses, and indicates the historical likelihood of the nexus resulting in a consultation. This analysis focuses on identifying specific land uses in the affected areas that are most likely to result in section 7 consultation.

Exhibit 3-2		
POTENTIAL FEDERAL ACTIVITIES WITHIN CRITICAL HABITAT FOR THE MEXICAN SPOTTED OWL		
Federal Agency	Potential Federal Activities	Have Activities Historically Resulted in Consultation?
Forest Service	Timber harvesting, recreation activities, road work, construction and maintenance, fire management, restoration projects, grazing, vegetation management, oil and gas leasing	Yes
Bureau of Land Management	Mining, grazing, pipeline construction, recreation activities, road construction, land sales, fire management	Usually
National Park Service	Fire management, recreation activities, trail and site maintenance, grazing, construction, rail maintenance	Sometimes
Department of Defense	Troop training, timber thinning, fire management, munitions exercises	Usually
Bureau of Reclamation	Pipeline construction and maintenance, dam releases	No
Sources: Personal communication with Service personnel at Albuquerque, NM, Grand Junction, CO, Flagstaff, AZ, Salt Lake City, UT Offices and with personnel from USFS, BLM, NPS, Reclamation, U.S. Army, and U.S. Navy.		

61. Having identified all potential nexuses within the proposed critical habitat, the analysis then focuses on identifying potential consultations and modifications to land use activities. Specific examples of activities involving a Federal nexus and requiring consultation with the Service are discussed.

3.3 POTENTIAL COSTS DUE TO CRITICAL HABITAT

62. This section focuses on identifying specific costs associated with proposed designation of critical habitat for the spotted owl. The discussion of potential impacts identifies specific land uses and activities within proposed critical habitat for the owl that involve a Federal nexus and may result in a new, extended, or reinitiated section 7 consultation incremental to those already required under the listing. The discussion also evaluates the likelihood that these section 7 consultations could result in modifications to current and proposed activities. The analysis then attributes costs to substantive consultations likely to result from critical habitat designation. This analysis assumes compliance of Tribes and Federal agencies with respect to responsibilities required by section 7 of the Act.

63. In analyzing the potential for incremental impacts associated with the critical habitat designation for the spotted owl, this analysis has identified two criteria that suggest the likelihood of such effects. Specifically, in cases where an activity that may affect the owl is taking place and a Federal nexus exists, the analysis anticipates the following:

To comply with the Recovery Plan for the owl, most land managing Federal agencies and Tribes consult with the Service on activities taking place on all proposed critical habitat areas, both known to be occupied by the owl and not known to be so occupied. In these cases, reinitiations of previous consultations are the only likely outcome of critical habitat designation.

For those agencies not currently consulting with the Service under the Recovery Plan, the Service expects that potential economic costs and benefits attributable to critical habitat designation will primarily be associated with activities on lands currently not known to be occupied by the owl.

3.3.1 U.S. Forest Service

64. The majority of proposed critical habitat for the Mexican spotted owl exists on U.S. Forest Service (USFS) land. USFS has jurisdiction over 8.1 million acres of the 13.5 million acres of proposed critical habitat. Most of this USFS land is in Arizona and New Mexico. From 1990 to 1993, 91 percent of the known owl population in the U.S. was found on USFS land.

65. Land uses, potential impacts, and implementation of the Recovery Plan vary somewhat from state to state. However, USFS generally attempts to adhere to the guidelines put forth in the Recovery Plan by minimizing the amount of activity that occurs in owl habitat. Also, as a result of industry trends, timber harvesting, once a principal activity on USFS land, has declined significantly from the peak levels in the 1980s and early 1990s. Together, the Recovery Plan and the decline in timber harvesting have reduced threats to the owl on USFS land.

Arizona

66. The proposed critical habitat designation includes land in all six National Forests in Arizona: Apache-Sitgreaves, Coconino, Coronado, Kaibab, Prescott, and Tonto. Critical habitat units in these forests cover an aggregate area of 3,287,339 acres. Activities vary among the different forests. For example, in the Apache-Sitgreaves National Forest, land uses include recreation, grazing, roadwork,

and small scale timber harvesting.¹¹ Grazing, recreation activities, a ski area, and radio towers all occur in the Coronado. In addition, major highway construction has recently begun on Mt. Lemmon in the Coronado.¹²

67. The USFS in Arizona has adopted the Recovery Plan into its forest management plan and, as a result, consults on any project that has the possibility of being detrimental to the owl or its habitat. In the past, the USFS has consulted with the Service, both informally and formally, on grazing, timber harvesting and thinning, recreation facilities such as hiking trails and parking lots, road work, ski area construction, and fire management (including prescribed burning). USFS staff managing these forests expressed the opinion that previous consultations under the Recovery Plan have addressed the effects of these activities on owl habitat. Therefore, designation of critical habitat should not have any additional impact on these activities. Non-substantive reinitiations of existing consultations are generally expected to be the only result of critical habitat designation. USFS personnel anticipate that no formal consultations or modifications to projects, including the construction on Mount Lemmon, should result from the reinitiation process.

68. The Service holds views consistent with those of USFS staff.¹³ Overall, Service staff indicate that, aside from reinitiations, critical habitat designation should not significantly affect USFS land in Arizona. The Service believes that no new or extended consultations will result from designation, because any potential issues are already being addressed under the consultations related to the Recovery Plan.

Colorado

69. Critical habitat on USFS land in Colorado has been proposed in the Pike and San Isabel National Forests and covers an area of 375,837 acres. Conversations with USFS personnel reveal that, for the most part, little activity takes place near this proposed owl habitat, as the owls are typically found in canyons that are too steep to accommodate significant projects.¹⁴ However, fire

¹¹ Personal communication with Forest Biologist, U.S. Forest Service, Apache-Sitgreaves National Forest, August 10, 2000.

¹² Personal communication with Forest Biologist, U.S. Forest Service, Coronado National Forest, August 10, 2000.

¹³ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Flagstaff, Arizona Office, August 4, 2000.

¹⁴ Personal communication with Forest Biologist, U.S. Forest Service, Pike and San Isabel National Forest, August 8, 2000.

management and an on-going vegetation management program for ponderosa pine and douglas fir both occur in the northern portion of this area. There is also the potential for a timber sale and, to a lesser extent, oil and gas leasing in the northern portion of the proposed designation.

70. USFS has conducted surveys for owl in the proposed critical habitat area, but has not found any birds. Generally, USFS would not initiate consultations with the Service under the listing in light of such a finding. However, the Colorado office has integrated the Recovery Plan as much as possible into its forest management practices. As a result, USFS in Colorado has initiated some consultations in the past on the activities noted above that occur in or near the proposed owl habitat. Consultations have also arisen in conjunction with timber sales and controlled burns. USFS feels that critical habitat designation might lead to more formal consultations and project modifications, as not all activities in proposed unoccupied critical habitat areas have been subject to consultation in the past.
71. Conversations with the Service in Colorado indicate that critical habitat designation on USFS land should not produce any significant modifications to activities on USFS land in Colorado.¹⁵ The use of the Recovery Plan by USFS, the location of the owl in steep canyons, and the history of informal consultations to address existing activities provide the basis for this view.

New Mexico

72. With a total area of 4,171,869 acres, the proposed units in New Mexico comprise the largest portion of critical habitat on USFS land. The Service has proposed critical habitat in all five National Forests in New Mexico: Carson National Forest, Cibola National Forest, Gila National Forest, Lincoln National Forest, and Santa Fe National Forest. These forests support a wide range of activities, including timber thinning and sales, road work, land exchanges, powerline construction, grazing, medieval re-enactments, and prescribed burns.¹⁶
73. USFS in New Mexico follows the Recovery Plan as closely as possible, and consults with the Service whenever seeking to pursue an activity which is outside the Recovery Plan. All of the above activities have been addressed by past consultations, typically informally. For certain projects, such as land exchanges, road construction and powerline construction, consultations have gone to the formal stage. These formal consultations have not led to project modifications, as USFS seeks

¹⁵ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Grand Junction, Colorado Office, August 4, 2000.

¹⁶ Personal communications with Forest Biologist, U.S. Forest Service, Lincoln National Forest, August 11, 2000 and with Forest Biologist, U.S. Forest Service, Gila National Forest, August 11, 2000.

to make adjustments to project plans before entering consultation. Personnel interviewed asserted that the designation of critical habitat on USFS lands in New Mexico will most likely cause some non-substantive reinitiations, but should have no impact beyond that.

74. Overall, Service personnel agree with USFS that the designation of critical habitat on USFS land in New Mexico should have few, if any, additional effects on land usage beyond those effects due to the listing.¹⁷ This belief is due to the fact that USFS consistently follows the Recovery Plan and consults on most actions that may impact owl habitat.

Utah

75. USFS in Utah maintains 274,616 acres of land proposed for critical habitat designation for the spotted owl. This land is located on the Dixie National Forest and the Manti-LaSal National Forest, both of which are surrounded by National Parks. These National Forests support many land uses, including grazing, controlled burns, mining, gas and oil leasing, recreation activities such as hiking and horse packing, timber harvesting, and road work.¹⁸ However, most of these activities do not occur near the steep canyons inhabited by owls. USFS does not have plans for projects or activities in or near owl habitat.
76. Because USFS in Utah follows the Recovery Plan, the agency initiates a consultation with the Service for any activity that may affect owl habitat. In the past, these consultations have always ended at the informal stage. However, USFS personnel expressed concern that, with the designation of critical habitat, some consultations would be required to enter the formal stage, which could lead to increased delays and administrative costs. Specifically, USFS indicates that critical habitat designation could likely result in formal consultations with the Service to address recreational activities offered through guides and outfitters. These operations take groups through areas of proposed critical habitat, and USFS believes that designation of critical habitat will necessitate changes in their activities.

¹⁷ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Albuquerque, New Mexico Office, August 2, 2000.

¹⁸ Personal communications with Forest Biologist, U.S. Forest Service, Dixie National Forest, August 9, 2000 and with Forest Biologist, U.S. Forest Service, Manti-LaSal National Forest, August 14, 2000.

77. The Service in Utah believes that, on account of the remote canyon habitat of the spotted owl and the nature of activities on USFS lands, critical habitat designation will not likely result in new consultations.¹⁹

3.3.2 Bureau of Land Management

78. The Bureau of Land Management (BLM) manages 1,821,925 acres of the proposed spotted owl habitat. The vast majority is found in Utah, with smaller amounts in Arizona, Colorado, and New Mexico. In general, BLM attempts to follow the Recovery Plan as closely as possible and manage its land in a manner that protects both the owl and its habitat. Consequently, critical habitat designation should not generate significant impacts on activities taking place on BLM land.

Arizona

79. A relatively small acreage (12,115 acres) is proposed for critical habitat on BLM land in Arizona. According to BLM staff, approximately 9,000 acres of this land are located within the Kanab Creek Wilderness Protection Area next to the Grand Canyon.²⁰ Owls on this land only nest in canyon walls. The only activities allowed in this Wilderness Area are hiking and low density grazing. The remainder of the proposed critical habitat is located on land that supports some timber harvesting.
80. BLM in Arizona endeavors to follow the guidelines of the Recovery Plan, and as a result has consulted with the Service on timber harvesting, grazing, and a restoration project on Mount Trombull. Since previous consultations have addressed habitat use, BLM staff foresee few possible effects that could result from designation of critical habitat for the spotted owl on BLM land in Arizona.
81. Likewise, the Service feels that critical habitat designation on these lands should not result in new consultations or modifications for current projects and land uses.²¹

¹⁹ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Salt Lake City, Utah Office, August 8, 2000.

²⁰ Personal communication with Wildlife Biologist, Bureau of Land Management, Arizona Strip Field Office, August 9, 2000.

²¹ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Flagstaff, Arizona Office, August 3, 2000.

Colorado

82. Critical habitat designation covers 148,894 acres of BLM land in the state of Colorado. BLM personnel indicate that a low level of activity takes place around the occupied canyon habitat of spotted owls.²² All of this occupied owl habitat exists in the Beaver Creek Wilderness Study Area where BLM only allows low-impact land uses. On the other hand, significant activity takes place on the unoccupied critical habitat, located in the areas between nesting sites. Land uses include grazing, land sales, construction and maintenance of powerlines and pipelines, other work on rights-of-way, and potentially, mining.
83. Because BLM endeavors to follow the Recovery Plan as much as possible, informal consultations have occurred in the past for various activities taking place on occupied land. However, BLM personnel in Colorado expressed concern that designation of critical habitat in certain areas would lead to more numerous formal consultations, which could lead to increased cost, project delays, and potentially modifications. Specifically, BLM personnel indicate that the designation could significantly affect land uses such as grazing and construction of recreation sites in unoccupied critical habitat that has not been subject to consultations in the past.
84. Conversations with Service staff indicate that the designation ought to have little affect on BLM activities.²³ The Service maintains that hunting, hiking, and grazing activities in the unoccupied areas will not likely pose a significant threat to owl habitat.

New Mexico

85. The Service has proposed critical habitat designation for 14,528 acres of currently unoccupied BLM land in New Mexico. Grazing and oil and gas activities constitute the main uses of this land. BLM also conducts fire management activities in these areas.²⁴
86. BLM in New Mexico follows the Recovery Plan and has already identified all owl habitat on its holdings in New Mexico. BLM staff suggest that prevalent land uses do not impact owl habitat, and will therefore be largely unaffected by critical habitat designation. Even though none

²² Personal communication with Wildlife Biologist, Bureau of Land Management, Royal Gorge Field Office, August 9, 2000.

²³ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Grand Junction, Colorado Office, August 4, 2000.

²⁴ Personal communication with personnel, Bureau of Land Management, Farmington Field Office, August 14, 2000.

of the land BLM manages in New Mexico is occupied by owls, consultations have occurred in the past on mining activities and BLM's resource management plan for these areas. In addition, BLM staff suggest that, while the designation may impose restrictions on grazing in critical habitat areas, these restrictions will not likely create significant impacts. Currently, BLM does not allow oil and gas wells or roads in owl habitat. Finally, a non-substantive reinitiation of consultation is likely to occur for a regional fire management plan but, again, should cause no major impacts.

87. The Service expressed views similar to those of BLM regarding land uses in New Mexico.²⁵ The Service feels that mining should not affect proposed critical habitat at all and that other activities should not generate any formal consultations or project modifications.

Utah

88. The Service has proposed critical habitat designation for 1,646,388 acres of BLM land in Utah. Owls on this land dwell in narrow and steep slot canyons, where only a low level of activity occurs.²⁶ BLM staff report that small amounts of grazing and recreation are the only activities taking place around owl habitat. Timber harvesting, fire management, and mining currently occur on BLM managed land in Utah, but not near owl habitat.
89. BLM in Utah attempts to implement the Recovery Plan as much as possible and informally consults with the Service on a regular basis for any activity that may affect the owl or its habitat. Nonetheless, BLM is concerned that critical habitat designation in Utah will lead to costs associated with reinitiations, more frequent formal consultations, and minor modifications to grazing practices and recreational opportunities. In addition, BLM staff indicate that a proposed land exchange has been delayed due to the proposal for critical habitat and may be canceled entirely after final designation. BLM is planning to exchange land with an adjacent dude ranch seeking to expand its operations. This exchange would involve proposed critical habitat lands.
90. As owl habitat is located in remote canyons, Service personnel foresee no significant impact on BLM activities as a result of critical habitat designation.²⁷ At the time of the release of this report, the Service has not determined the types of modifications, if any, that would be necessary if critical

²⁵ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Albuquerque, New Mexico Office, August 2, 2000.

²⁶ Personal communication with Biologist, Bureau of Land Management, Kanab Field Office, August 14, 2000.

²⁷ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Salt Lake City, Utah Office, August 8, 2000.

habitat designation were to affect the land exchange. Delays or modifications to the exchange may occur as the Service determines how to ensure that critical habitat is not lost. Analyses of this land exchanges proposal are ongoing.

3.3.3 National Park Service

91. The proposed designation includes 1,470,357 acres of National Park Service (NPS) land in National Parks and Monuments in Arizona, New Mexico, and Utah. Land uses and histories of consultation are not uniform throughout NPS facilities, but NPS personnel indicate a strong commitment to following the Recovery Plan and working with the Service to protect the Mexican spotted owl and its habitat.²⁸ NPS has traditionally consulted on actions that might affect owls or owl habitat. In general, across the NPS system, fire management, natural restoration, and vegetation management are the activities most likely to result in consultations.

Arizona

92. The majority of NPS land proposed for critical habitat is in Arizona. The proposed designation covers 795,850 acres in Chiricahua National Monument, Coronado National Monument, Grand Canyon National Park, Saguaro National Park, and Walnut Canyon National Monument. Activities on NPS lands in Arizona vary by facility. Recreation and fire management take place at all facilities. In addition, some grazing takes places at Coronado near owl habitat.
93. All NPS facilities in Arizona work to follow the guidelines of the Recovery Plan. Saguaro and Walnut Canyon have both consistently consulted on controlled burns in the past, and Walnut Canyon is consulting on its management plan. Coronado is engaged in consultations for grazing activities, while Chiricahua consults with the Service on controlled burns and trail maintenance. In most cases, NPS staff anticipate that critical habitat designation will not create significant impacts beyond non-substantive reinitiations. The one facility likely to be substantially affected by the designation is Grand Canyon. Staff at Grand Canyon indicate that, although the park has tried to follow the Recovery Plan, there have been no consultations in the past.²⁹ Critical habitat designation will necessitate consultations for controlled burns and general management plan activities, including road work, new developments, housing construction, and trail maintenance. Park staff believe that

²⁸ Personal communication with Endangered Species Coordinator, National Park Service, Lakewood Colorado Regional Office, August 15, 2000.

²⁹ Personal communication with Biologist, National Park Service, Grand Canyon National Park, August 17, 2000.

both formal consultations and project modifications will likely result from critical habitat designation.

94. The Service expressed the view that there could be some impact on NPS facilities, such as the Grand Canyon, that do not frequently consult on activities but will likely consult with the Service more frequently after critical habitat designation.³⁰ It is expected that controlled burns in unoccupied habitat at Grand Canyon, currently not addressed in consultations, will lead to consultations in the future. According to the Service, however, these burns should have been addressed in consultations under the listing of the owl. Therefore, while some new consultations may be attributable to critical habitat, the Service believes that most new consultations after critical habitat designation should be attributable to the listing of the owl. The Service maintains that there should be no impact on other NPS facilities that consult on a regular basis with the Service about their activities.

New Mexico

95. The 31,179 acres of proposed critical habitat in Bandelier National Monument constitute the only NPS managed critical habitat in New Mexico. The main land use on proposed critical habitat in Bandelier is recreation.³¹ In addition, fire management activities take place in owl habitat.
96. NPS staff at Bandelier indicate that management of the Monument follows the Recovery Plan. In the past, NPS has consulted with the Service on controlled burns in Bandelier at both the informal and formal levels. Some hiking trails pass through owl habitat, but NPS staff report that the Service does not believe that these trails present any issues for the owl's habitat. Visitation levels at the Monument are relatively low, and Monument staff already consult on any activity that could adversely modify owl habitat. Therefore, staff at Bandelier conclude that critical habitat designation should have no effect on its land uses.
97. The Service suggests that critical habitat designation in Bandelier could lead to a reinitiation of a formal consultation on the Monument's fire management program.³² The Service does not foresee any additional consultations that would arise as a result of critical habitat designation.

³⁰ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Flagstaff, Arizona Office, August 3, 2000.

³¹ Personal communication with Biologist, National Park Service, Bandelier National Monument, August 16, 2000.

³² Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Albuquerque, New Mexico Office, August 2, 2000.

Recreation activities and associated construction have been addressed in past consultations and should not be affected by critical habitat for the spotted owl.

Utah

98. Canyonlands National Park, Capitol Reef National Park, and Zion National Park all contain portions of the 643,328 acres of proposed critical habitat within NPS managed lands in Utah. Recreation is the principal land use in these three parks. Both Capital Reef and Zion have Protected Activity Centers (PACs) for the spotted owl that overlap with a portion of the proposed critical habitat. PACs provide the highest level of protection for the owl and its habitat under the Recovery Plan. Personnel from Capitol Reef indicate that activities in the PACs include hiking and camping as well as associated maintenance work on trails and roads. No new projects or developments have been proposed in critical habitat areas in any of the parks.
99. NPS personnel report that all three parks follow the Recovery Plan and consult with the Service on activities that have the potential to affect owls or their habitat.³³ Canyonlands has had routine informal consultations, including one for the resurfacing of a parking lot within the proposed critical habitat. Capitol Reef has consulted formally on its general management plan. Zion has consulted on plans to implement a shuttle system and on noise from helicopters.
100. In general, NPS believes that critical habitat designation should not result in significant costs for the three Utah National Parks. Staff in Canyonlands indicate that, while critical habitat may affect some recreation usages, any significant consultations or modifications in this park are unlikely. As the level of recreation usage is generally too low to affect the owl or its habitat, Capitol Reef personnel have not previously consulted on road and trail maintenance associated with park recreation. Capitol Reef personnel indicate that critical habitat designation could necessitate consultations on maintenance activities, though the likelihood that such consultations would arise in the future is not great. Finally, Zion staff indicate that the history of the park for frequent and prompt consultation on activities likely to affect the owl, as well as the general lack of activity near owl habitat, suggests that critical habitat designation should have no real impact on activities in Zion above those associated with the listing.

³³ Personal communications with Biologist, National Park Service, Zion National Park, August 14, 2000; Biologist, National Park Service, Capitol Reef National Park, August 15, 2000; Biologist, National Park Service, Canyonlands National Park, August 15, 2000.

101. Similarly, the Service in Utah maintains that the location of owls in canyons and the primary usage of NPS land for low impact recreation will prevent any major impacts from occurring in the National Parks in Utah.³⁴

3.3.4 Department of Defense

102. The Service has proposed only a small amount of land (72,589 acres) for critical habitat designation on Department of Defense (DoD) lands in Arizona, Colorado, and New Mexico. Specific land uses, past consultations, and potential impacts on owls and owl habitat depend on the particular site involved. For the most part, though, DoD attempts to follow the Recovery Plan, and has initiated consultations in the past on activities affecting owl habitat.

Arizona

103. Camp Navajo, Fort Huachuca, and the Flagstaff Naval Observatory comprise the 24,038 acres of DoD land in Arizona. The first two of these are Army facilities, while the last is a Navy facility.
104. Camp Navajo is an Army National Guard facility that supports 100 year round staff and up to 4,000 troops during training periods.³⁵ In accordance with the Recovery Plan, the Army conducts activities at Camp Navajo in a manner that minimizes adverse effects on owls or their habitat. DoD has initiated previous consultations for activities at the Camp, including a formal consultation on tree thinning. Critical habitat designation may impact troop training, most likely by necessitating informal consultation. Other activities on the camp, such as hunting and fire control, should not be affected by critical habitat designation as they occur outside of critical habitat areas or will not likely adversely modify habitat. Army personnel indicate that, on the whole, the critical habitat should have no significant impact on activities at Camp Navajo. The Service agrees with the Army's assessment that critical habitat designation may prompt some informal consultations but no other significant effects at Camp Navajo.

³⁴ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Salt Lake City, Utah Office, August 8, 2000.

³⁵ Personal communication with Sargent, U.S. Army, Camp Navajo, Arizona, August 7, 2000.

105. At Fort Huachuca, fire prevention and fires resulting from troop training and human activities, e.g., recreation, are the major causes of past consultations.³⁶ Modifications to activities on the Fort have already been implemented to protect owls and habitat. Personnel at Fort Huachuca anticipate that reinitiations will occur for these activities as a result of critical habitat designation. Formal consultations may arise in some cases to address affects on owl habitat. According to Army personnel, a major point of discussion in future reinitiations will be increased thinning for fire prevention near owl habitat. Construction activities at the Fort do not encroach on proposed owl habitat, and will therefore be unaffected by designation. Because the Army is already managing spotted owl habitat at Fort Huachuca in a manner protective of the owl, the Army believes that modifications to projects will not likely result from reinitiations. The Service concurs with the view that critical habitat will require reinitiations of consultations at Fort Huachuca for prescribed burns and possibly troop exercises, but believes that recreation activities could also lead to consultations, especially in the Scheelite Cyn area.
106. Naval personnel at the Flagstaff Observatory indicate that most of the Observatory is contained on land that has already been declared a protected activity center, which provides the highest level of protection possible under the Recovery Plan.³⁷ As a result, Naval personnel do not foresee that critical habitat would create any additional impact. However, the Service believes that a reinitiation may be required at the Flagstaff Naval Observatory for the thinning of timber. While this reinitiation may result in a formal consultation, no further modifications are anticipated.

Colorado

107. Fort Carson contains all of the 44,394 acres proposed as critical habitat on DoD land in Colorado. The Army conducts numerous military exercises at this Army Air National Guard installation, including activities involving jets and tanks.³⁸ In addition, the Fort allows hunting and bird watching near owl habitat.
108. Even though the Fort Carson habitat is believed to be currently unoccupied by the owl, Fort Carson follows the Recovery Plan and has historically taken measures to protect owl habitat. These measures include the exclusion of bird watching near known owl sites and the initiation of

³⁶ Personal communication with Wildlife Biologist, U.S. Army, Fort Huacuhca, Arizona, August 10, 2000.

³⁷ Personal communication with Director, U.S. Navy, Flagstaff Naval Observatory, Arizona, August 7, 2000.

³⁸ Personal communication with Biologist, U.S. Army, Fort Carson, Colorado, August 10, 2000.

consultations with the Service to address noise from jets and tanks. Because jet and tank noise is not a land altering event, reinitiations will not be required under critical habitat designation. Fort Carson is currently developing a land management plan, so that section 7 consultations will be unnecessary in the future.

109. The Service in Colorado reports that, because the Army is cooperating with the Recovery Plan, no additional impacts to activities at Fort Carson are likely to result from critical habitat designation.³⁹

New Mexico

110. Fort Wingate is the sole DoD site in New Mexico that contains land proposed as critical habitat for the spotted owl. This Army Military Command facility has only 4,157 acres of proposed critical habitat. Fort Wingate is in the process of closing. The Service staff report that because the facility follows the Recovery Plan and has initiated consultation to address habitat uses in the past, no impacts should occur due to critical habitat.⁴⁰ The Service foresees no land use that would adversely modify critical habitat on Fort Wingate in the future.

3.3.5 Bureau of Reclamation

111. The only Bureau of Reclamation (Reclamation) land that has been proposed for critical habitat for the spotted owl is in Utah. The units on Reclamation land consist of 270,853 acres of rugged and remote canyon habitat. Reclamation currently manages dams, dam releases, and pipelines in and around spotted owl habitat.⁴¹
112. Although Reclamation has been taking steps to protect the spotted owl, such as voluntarily conducting surveys for owls and habitat, the agency has not consulted with the Service in the past on activities taking place on Reclamation land. Due to the low level of activity near spotted owl habitat, Reclamation staff do not see a likelihood of significant direct or indirect impacts resulting from critical habitat designation. In the future, Reclamation suggests that its operating projects will

³⁹ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Grand Junction, Colorado Office, August 4, 2000.

⁴⁰ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Albuquerque, New Mexico Office, August 2, 2000.

⁴¹ Personal communication with personnel, Bureau of Reclamation, Salt Lake City Utah Office, August 8, 2000.

take the spotted owl and its habitat into account. One proposed activity which may lead to a consultation in the future is construction of a dam near critical habitat. This construction is not on Reclamation land, but it is being funded by a loan from Reclamation and outflows from the dam could modify owl critical habitat. Reclamation staff do not expect that a consultation will result in modifications to the project, as the project should not adversely modify owl habitat.

113. Due to the remote location of the habitat and the low level of activity that takes place on the lands involved, the Service concurs with Reclamation that critical habitat designation should not have any affect on Reclamation land.⁴² The Service also believes that the existing dams should not create any impacts, but will need to consult with Reclamation to evaluate the impact of the future dam.

3.3.6 Summary of Economic Impacts

114. Exhibit 3-3 below summarizes potential economic impacts of the proposed designation. The exhibit presents Federal land uses that occur or could occur in the future in proposed critical habitat for spotted owl. In addition, the exhibit indicates the likelihood that section 7 consultations with the Service would occur as a result of the proposed designation for the owl and the likelihood that formal consultations will occur. Finally, Exhibit 3-3 notes the likelihood that modifications or other impacts (e.g., project delays) would occur as a result of consultation with the Service.
115. Categorizations of low, medium, or high are based on information from both Service and Federal Agency staff, and reflect IEc analysis. Classifications do not reflect the number or cost of potential consultations and project modifications; rather they indicate the likelihood that *any* consultation or project modification could result. For example, if critical habitat designation in a certain area would most likely result in one new consultation, the likelihood for a new consultation in this area would be classified as high. If, on the other hand, critical habitat designation in another area could possibly lead to multiple new consultations, but it is less likely that these consultations will occur or will be due to critical habitat designation, then the likelihood of new consultations in this area would be classified as moderate.

⁴² Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Salt Lake City, Utah Office, August 8, 2000.

Exhibit 3-3					
SUMMARY OF POTENTIAL CONSULTATIONS AND IMPACTS WITHIN PROPOSED CRITICAL HABITAT FOR THE MEXICAN SPOTTED OWL					
Federal Agency or Tribe	Location	Current or Future Activities that May Require Consultation	Potential for Non-Substantive Reinitiated Consultations	Potential for New or Extended Consultations or Substantive Reinitiations	Potential for Modifications to Projects or Activities Due to Consultation
Forest Service	Apache-Sitgreaves, Coconino, Kaibab Coronado, Tonto, and Prescott, AZ	Grazing, road construction, recreation maintenance, fire management, timber sales, other vegetation management activities	High	Low	Low
	Pike and San Isabel National Forest, CO	Fire management, timber sales, vegetation management, oil and gas leasing	High	Moderate	Low
	Carson, Cibola, Gila, Lincoln, and Santa Fe National Forests, NM	Road work, powerline maintenance, grazing, fire management, timber sales, special activities	High	Low	Low
	Dixie and Manti-LaSal National Forests, UT	Grazing, fire management, mining, oil and gas leasing, recreation, road work, timber harvesting	High	Moderate	Low
San Carlos Apache	Arizona	Timber Harvesting	Moderate	Low	Low
Navajo Nation	Arizona, New Mexico, Utah	Road Construction	High	Low	Low
Mescalero Apache	Arizona	Uncertain	Uncertain	Low	Low

Exhibit 3-3					
SUMMARY OF POTENTIAL CONSULTATIONS AND IMPACTS WITHIN PROPOSED CRITICAL HABITAT FOR THE MEXICAN SPOTTED OWL					
Federal Agency or Tribe	Location	Current or Future Activities that May Require Consultation	Potential for Non-Substantive Reinitiated Consultations	Potential for New or Extended Consultations or Substantive Reinitiations	Potential for Modifications to Projects or Activities Due to Consultation
Bureau of Land Management	Arizona	Hiking, grazing, restoration	Moderate	Low	Low
	Colorado	Recreation activities and construction, grazing, land sales and exchanges, road construction, pipeline and powerline work	High	Moderate	Moderate
	New Mexico	Grazing, oil and gas leasing, fire management	Moderate	Low	Low
	Utah	Grazing, recreation, land exchange	High	Moderate	Moderate
Department of Defense	Camp Navajo, AZ	Tree thinning, troop training	High	Low	Low
	Flagstaff Naval Observatory	Tree thinning	High	Moderate	Low
	Fort Huachuca, AZ	Troop training, prescribed burns, tree thinning, recreation	High	Moderate	Low
	Fort Carson, CO	None	Low	Low	Low
	Fort Wingate, NM	None	Low	Low	Low

Exhibit 3-3

**SUMMARY OF POTENTIAL CONSULTATIONS AND IMPACTS WITHIN
PROPOSED CRITICAL HABITAT FOR THE MEXICAN SPOTTED OWL**

Federal Agency or Tribe	Location	Current or Future Activities that May Require Consultation	Potential for Non-Substantive Reinitiated Consultations	Potential for New or Extended Consultations or Substantive Reinitiations	Potential for Modifications to Projects or Activities Due to Consultation
National Park Service	Grand Canyon National Park, Az	Controlled burns	High	Moderate	Low
	Chiricahua, Coronado and Walnut Canyon National Monuments, Saguaro National Park, AZ	Recreation, controlled burns, grazing	Moderate	Low	Low
	Bandelier National Monument, NM	Controlled burns, trail maintenance	High	Moderate	Low
	Canyonlands, Capitol Reef, and Zion National Parks, UT	Recreation, road and trail maintenance	High	Low	Low
Bureau of Reclamation	Utah	Dam construction	High	Moderate	Low

* Units are categorized as occupied/unoccupied based on descriptions provided in critical habitat proposal. "Mixed" refers to unit containing both occupied and unoccupied lands.

Sources: Information in table is based on personal communication with personnel at regional and field offices in the Service, USFS, BLM, NPS, Bureau of Reclamation, U.S. Army, U.S. Navy, Navajo Nation, and San Carlos Apache Tribe. All communication was conducted in August and September, 2000.

3.3.7 Costs Associated with Impacts

116. As indicated in the discussion above, critical habitat designation may result in new or reinitiated consultations associated with some activities on Federal lands. The analysis below presents the estimated costs of these consultations for the Service and the other affected Federal agencies. Costs are estimated in terms of two ranges, one based on Service estimates and the other based on Federal agency estimates. Low and high values for a given range represent extreme values, and are therefore unlikely to be indicative of actual costs. Instead, actual costs will likely fall somewhere between extreme values.
117. The differences in estimates of costs between the Service and the affected Federal agency reflect differences in perceptions of the effect of critical habitat designation on land uses and activities, differences in understanding of policy regarding and applicability of critical habitat, and differences in knowledge about current and planned land uses and activities. It should be noted that, while a given Federal agency makes the determination to initiate the section 7 consultation process for a project or activity, the Service makes the final determination as to the necessity and level (formal or informal) of the consultation process.

U.S. Fish and Wildlife Service

118. For the four states, conversations with Service personnel indicate that approximately five to ten formal consultations and five to 40 informal consultations could potentially be attributable to critical habitat designation. Service staff indicate that an average formal consultation typically requires 160 hours of work.⁴³ An average informal consultation typically requires 32 hours of work. Based on a standard cost per hour for time of government employees, the combined cost to the Service of critical habitat designation for the spotted owl in Arizona, Colorado, New Mexico, and Utah would be in the range of \$30,000 to \$200,000 over ten years.

⁴³ Personal communication with Wildlife Biologists, U.S. Fish & Wildlife Service, Albuquerque, New Mexico, October 6, 2000.

U.S. Forest Service

119. USFS in Colorado believes that critical habitat designation could result in zero to four new formal consultations and between 200 and 300 new informal consultations over ten years.⁴⁴ USFS personnel estimate that formal consultations require four to five people for five to ten days to complete. Informal consultations involve two or three people for between one and ten days. By this estimate, the cost to USFS in Colorado would be in the range of \$100,000 to \$2,200,000. Because details were not available for specific projects likely to be affected by critical habitat designation, it is unclear whether these estimated costs would be attributable solely to critical habitat designation. The Service indicates that critical habitat designation on USFS land in Colorado could result in one or two new formal consultations and up to 20 new informal consultations over ten years.⁴⁵ Service personnel suggest that not all of these consultations will be attributable only to critical habitat designation; in fact, it is possible no new consultations will be attributable to critical habitat alone. Therefore, according to Service personnel, critical habitat designation in Colorado could cost nothing, or up to \$170,000 in USFS personnel time over ten years.
120. Conversations with USFS staff in Utah reveal that, on average, formal consultations require a day of time for three or four people each, depending on the specific project.⁴⁶ USFS personnel believe that between three and five new formal consultations a year will result from critical habitat designation.⁴⁷ Consequently, over a ten year period, critical habitat designation would lead to costs in the range of \$22,000 to \$48,000. The Service in Utah maintains that none of the formal consultations after designation will be attributable to critical habitat alone.⁴⁸ In this case, USFS would incur no costs associated with critical habitat designation.

⁴⁴ Personal communication with Forest Biologist, U.S. Forest Service, Pike and San Isabel National Forest, September 20, 2000.

⁴⁵ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Grand Junction, Colorado Office, September 15, 2000.

⁴⁶ Personal communications with Forest Biologist, U.S. Forest Service, Manti-LaSal National Forest, September 11, 2000.

⁴⁷ Personal communication with Ranger, U.S. Forest Service, Monticello National Forest, September 18, 2000.

⁴⁸ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Salt Lake City, Utah Office, September 15.

121. The Service indicates that critical habitat designation for the spotted owl could lead to two new informal consultations with USFS in Arizona over the next ten years.⁴⁹ According to estimates for USFS consultations in Utah and Colorado, these two consultations could cost between \$1,000 and \$14,000. It is possible, however, that no consultations with USFS will be attributable to critical habitat designation alone.

Bureau of Land Management

122. BLM personnel in Colorado indicate that critical habitat designation could result in five formal consultations and 10 informal consultations over a ten year period.⁵⁰ The estimated costs for these consultations are \$100 for informal consultations, and \$1,000 for formal consultations. By this estimate, the total cost to BLM in Colorado will be approximately \$6,000. The Service in Colorado believes that it is more likely that two or three formal consultations will be attributable to critical habitat. It is not clear, however, if these consultations will be attributable only to critical habitat designation. Therefore, Service personnel suggest that it is possible no new consultations will be attributable to critical habitat alone. In this case the cost to BLM over ten years could be nothing, or up to \$4,000, assuming that a maximum of 15 total consultations could take place.
123. BLM in Utah believes that two new formal consultations a year to address grazing allotments will be attributable to critical habitat designation.⁵¹ A formal consultation typically involves four or five people for five days. The cost to BLM in Utah will likely be between \$100,000 and \$120,000 over ten years. The Service in Utah maintains that no formal consultations would be attributable to critical habitat designation alone. In this case, BLM would not incur costs as a result of critical habitat designation.

⁴⁹ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Flagstaff, Arizona Office, October 4, 2000.

⁵⁰ Personal communication with Wildlife Biologist, Bureau of Land Management, Royal Gorge Field Office, September 12, 2000.

⁵¹ Personal communication with Biologist, Bureau of Land Management, Kanab Field Office, September 12, 2000.

National Park Service

124. Personnel at Grand Canyon report that a formal consultation takes an average of ten person-days to complete, while informal consultations require five person-days.⁵² NPS estimates that critical habitat designation will lead to two informal consultations a year for ten years and three formal consultations per year for the first five years, then one formal consultation per year thereafter. In total, the estimated costs to NPS over ten years are in the range of \$72,000. The Service believes that, over the next ten years, at most one informal consultation at the Grand Canyon could be attributable to critical habitat designation for the spotted owl alone.⁵³ By this estimate, the cost of consultation would be approximately \$1,000. The Service indicates that it is possible that no new consultations will be attributable to critical habitat designation.
125. For Bandelier National Monument, the Service believes that critical habitat designation will likely lead to a formal reinitiation of a programmatic consultation with NPS, and possibly five additional consultations, of which two or three could be formal.⁵⁴ NPS indicates that informal and formal consultations typically require five person-days and ten person-days respectively.⁵⁵ Therefore, the critical habitat designation will create an estimated cost of \$12,000 over the next ten years.

Department of Defense

126. Personnel at Fort Huachuca in Arizona believe that critical habitat designation will lead to two or three new formal consultations over ten years.⁵⁶ These consultations will probably require a total of 15 person-days. Informal consultations over ten years will probably require a total of eight person-days. Over ten years the total cost to Fort Huachuca as a result of critical habitat designation

⁵² Personal communication with Wildlife Biologist, National Park Service, Grand Canyon National Park, September 18, 2000.

⁵³ Personnel communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Flagstaff, Arizona Office, September 14, 2000.

⁵⁴ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Albuquerque, New Mexico Office, September 15, 2000.

⁵⁵ Personal communication with Wildlife Biologist, National Park Service, Saguaro National Park, September 18, 2000 and with Wildlife Biologist, National Park Service, Grand Canyon National Park, September 18, 2000.

⁵⁶ Personal communication with Wildlife Biologist, U.S. Army, Fort Huachuca, Arizona, September 14, 2000.

will likely be in the range of \$6,000. The Service indicates that critical habitat will necessitate a reinitiation of a programmatic consultation and potentially a few other reinitiations.⁵⁷ According to this information, costs from Fort Huachuca from critical habitat designation would total approximately \$2,000 to \$3,000.

127. While personnel at the Flagstaff Naval observatory do not believe that critical habitat designation will lead to any additional consultations, the Service maintains that the designation will necessitate a formal reinitiation of a consultation for timber thinning project. Based on cost estimates for formal consultations at Fort Huachuca, the cost of the reinitiation at the Naval Observatory would be between \$1,000 and \$2,000.

Bureau of Reclamation

128. The Service indicates that critical habitat designation in Utah could lead to one consultation with the Bureau attributable to critical habitat. Based on estimates for costs of consultations to BLM in Utah, the costs to the Bureau could be between \$5,000 and \$6,000.

Summary of Estimated Costs

129. Exhibit 3-4 summarizes the estimated costs expected to result from critical habitat designation. The Service estimate of expected costs represents estimates made using information from the Service on the likely number of consultations attributable to critical habitat designation for the spotted owl over the next ten years. The agency estimate of expected costs represents estimates made using information from affected Federal agencies on the likely number of consultations over the next ten years. Both Service and agency estimates use information from affected Federal agencies on the amount of time involved in consultations, and the value of that time. For Bandelier National Monument, the Bureau of Reclamation in Utah, and National Forests in Arizona, information on consultations could not be obtained from the agencies themselves. For costs to the Service, only one estimate is given.

Exhibit 3-4 Summary of Estimated Costs Associated with Consultations over Ten Years		
Federal Agency	Location	Expected Costs

⁵⁷ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Phoenix, Arizona Office, September 18, 2000.

Exhibit 3-4 Summary of Estimated Costs Associated with Consultations over Ten Years			
		Service Estimate	Agency Estimate
Fish and Wildlife Service	Arizona, Colorado, New Mexico, and Utah	\$30,000 to \$200,000	Not Applicable
Forest Service	Colorado (Pike and San Isabel National Forest)	None to \$170,000	\$100,000 to \$2,200,000
	Utah (Manti-LaSal National Forest)	None	\$22,000 to \$48,000
	Arizona	\$1,000 to \$14,000	Not Provided
Bureau of Land Management	Colorado	None to \$4,000	\$6,000
	Utah	None	\$100,000 to \$120,000
National Park Service	Arizona (Grand Canyon National Park)	None to \$1,000	\$72,000
	New Mexico (Bandelier National Monument)	\$12,000	Not Provided
Department of Defense	Arizona (Fort Huachuca)	\$2,000 to \$3,000	\$6,000
	Arizona (Flagstaff Naval Observatory)	\$1,000 to \$2,000	None
Bureau of Reclamation	Utah	\$5,000 to \$6,000	Not Provided

3.4 ADDITIONAL IMPACTS DUE TO PROPOSED CRITICAL HABITAT

130. This section considers additional economic and socioeconomic impacts of designating critical habitat for the Mexican spotted owl. Specifically, this section addresses:

Potential impacts to small businesses;

Potential social and community impacts for Native American communities;

Potential impacts associated with project delays; and

Potential impacts on property values attributable to public perception or uncertainty about proposed critical habitat or both.

3.4.1 **Potential Impacts to Small Businesses**

131. Under the Regulatory Flexibility Act (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996) whenever a Federal agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions).⁵⁸ However, no regulatory flexibility analysis is required if the head of an agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant additional economic impact on a substantial number of small entities.
132. Because proposed critical habitat for the owl consists of mountainous forests, steep walled canyons, and riparian areas, the small businesses likely to be affected by the proposed designation are those involved in livestock grazing, timber harvesting, mining, and road construction. The designation could affect small business activities by causing delays associated with consultations and modifications to projects. For example, in order to propose a timber sale, USFS would be required to consult with the Service. This consultation could delay commencement of timber harvesting and could result in project modifications, such as harvest reductions or requirements for the use of alternative, less damaging harvesting methods, which may also change the economics of the project. Another possible scenario is that the designation could reduce the amount of grazing allowed in a certain area. This could force grazing operations to shift to other, less desirable grazing areas. A required shift to new grazing land could also lead to increased transportation costs.
133. The affected Federal agencies indicate that most private economic activities taking place on proposed critical habitat would already be subject to consultation as the result of Recovery Plan implementation on the lands. In addition, the scale of most of these activities is generally not large enough to warrant project modification. In sum, the designation of critical habitat should not have a significant economic impact on small businesses.

⁵⁸ 5 U.S.C. 601 et seq.

3.4.2 Potential Impacts to Native American Tribes

134. Critical habitat designation is currently proposed for 1,356,164 acres of land belonging to the Mescalero Apache Tribe, the Navajo Nation, and the San Carlos Apache Tribe. As previously mentioned, all three of these Tribes are currently working with the Service to develop land management plans that provide protection for the spotted owl. In the event that management plans are developed, Tribal lands would be excluded from the final critical habitat designation.
135. Personnel with the Navajo Nation indicate that not much land use occurs within the boundaries of the proposed critical habitat.⁵⁹ Two road construction projects are underway near owl habitat and a large scale surface coal mine operates on land adjacent to proposed critical habitat. The Navajo Nation makes a considerable effort to follow the guidelines of the Recovery Plan and to consult with the Service when necessary. The road construction projects have already been addressed in consultations. For the most part, the primary impact expected to result from critical habitat designation is non-substantive reinitiation of consultations.
136. Discussions with the Service liaison to the San Carlos Apache Tribe indicate that timber harvesting may occur in and near owl habitat.⁶⁰ Informal consultations under the Recovery Plan have occurred for timber sales in the past. The Federal nexus for these consultations arose because the Bureau of Indian Affairs provides funding for timber sales. Personnel within the San Carlos Apache Tribe feel that critical habitat designation is not likely to impact timber activities.⁶¹ Tribal personnel indicate that owl habitat on San Carlos Apache land is found in steep terrain which is not suitable for commercial harvesting. Tribal personnel also indicated that the previous designation of spotted owl critical habitat led to changes in timber practices that are still in place today.
137. Regional Service personnel report that all three Tribes have made considerable efforts to protect the Mexican spotted owl and its habitat, by initiating consultations on activities that may affect the owl or its habitat.⁶² In the past, the Service has consulted with Tribes on timber harvesting, road construction, community development, and public works projects. Consultations are conducted

⁵⁹ Personal communications with Navajo Nation Fish & Wildlife Service Personnel, Arizona, August 7, 2000.

⁶⁰ Personal communication with Tribal Liaison, U.S. Fish & Wildlife Service, Pinetop Arizona Fisheries Resource Office, August 16, 2000.

⁶¹ Personal communication with Forest Manager, Forest Manager, San Carlos Apache Tribe, August 16, 2000.

⁶² Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Albuquerque, New Mexico Office, August 2, 2000.

in conjunction with the Bureau of Indian Affairs and occur only if there is a Federal nexus to a proposed activity on Tribal lands. Regional Service personnel maintain that critical habitat designation would not significantly impact economic activity on Tribal lands. The types of activities conducted near owl habitat, the frequency of past consultations, and the willingness of the Tribes to work to protect spotted owls and their habitat all factor into this assessment.

3.4.3 Potential Impacts Associated with Project Delays and Property Values

138. A number of private in-holdings exist within Federal lands proposed for critical habitat designation. An in-holding is a non-Federally owned parcel of land which is located within and completely surrounded by Federal land. Both BLM and USFS indicate that extensive in-holdings exist within their land. Any in-holding within a designated critical habitat is excluded from critical habitat by definition, as only Federal and Tribal lands are being considered. Nonetheless, such in-holdings could still be impacted by critical habitat designation. For example, BLM and USFS often allow owners of in-holdings to build roads through Federally owned property. Construction of a proposed road through critical habitat could result in a section 7 consultation which could lead to delays and modifications to the project. These delays and modifications could in turn result in increased costs to land owners.
139. USFS personnel suggest that critical habitat designation could increase costs for owners of in-holdings by creating delays associated with attaining easements to build roads.⁶³ The Service, however, feels that critical habitat designation could generate delays or costs to owners of in-holdings only in those areas not currently the subject of consultations under the Recovery plan and not currently inhabited by the owl currently.⁶⁴
140. The property value of in-holdings could decrease if people perceive that right-of-way projects may be subject to additional costs due to consultations and project modifications. At the same time, USFS personnel indicate that the designation of critical habitat could cause an increase in the property value of in-holdings by preserving the natural state of adjacent lands.⁶⁵ On the whole, while the potential exists that uncertainty and perception effects due to critical habitat designation on the

⁶³ Personal communications with Forest Biologist, U.S. Forest Service, Lincoln National Forest, August 11, 2000.

⁶⁴ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Albuquerque, New Mexico Office, September 15, 2000.

⁶⁵ Personal communications with Forest Biologist, U.S. Forest Service, Gila National Forest, August 11, 2000.

Federally owned land could impact the property value of an in-holding, the nature of the effect is unclear.

141. As stated above, a proposed land exchange in Utah may be affected by critical habitat designation.⁶⁶ A dude ranch adjacent to BLM land had proposed to exchange land with BLM in order to expand its operations. The land that was to be transferred from the BLM to the dude ranch has been included in the proposed critical habitat designation. As a result, the land exchange has been delayed, and may be halted all together.

142. As previously mentioned, critical habitat designation may affect the operations of outfitters and guides working Mani-LaSal National Forest in Utah by causing them to alter the courses of their trips. However, the Service in Utah indicates that any impacts to these operations would likely be attributable to factors other than critical habitat, such as the listing of the species.⁶⁷

3.5 BENEFITS OF PROPOSED CRITICAL HABITAT

143. To determine the incremental benefits of the critical habitat designation, this report considers those categories of benefit that will be enhanced as a result of the proposed critical habitat designation. These benefits represent incremental benefits of the designation of critical habitat, above and beyond those provided by the listing.

144. The primary goal of listing a species as endangered is to preserve the species from extinction. However, various economic benefits, measured in terms of regional economic performance and enhanced national social welfare, result from species preservation as well. Regional economic benefits can be expressed in terms of jobs created, regional sector revenues, and overall economic activity. For example, the presence of a species may result in a successful local eco-tourism operation. National social welfare values reflect both use and non-use (i.e., existence) values, and can reflect various categories of value. For example, use values might include the opportunity to see an owl while on a hike, or the recreational use of habitat area preserved as a result of the owl. Existence values are not derived from direct use of the species, but instead reflect the satisfaction and utility people derive from the knowledge that a species exists.

145. The following examples represent potential benefits derived from the listing of the spotted owl and, potentially, critical habitat:

⁶⁶ Personal communication with Biologist, Bureau of Land Management, Kanab Field Office, August 14, 2000.

⁶⁷ Personal communication with Wildlife Biologist, U.S. Fish & Wildlife Service, Salt Lake City, Utah Office, September 15, 2000.

Non-Resident wildlife viewing. People derive satisfaction and utility from seeing spotted owls in their natural environment. Such benefits can be expressed in terms of gains in social welfare, or improvements in regional economic performance. The magnitude of these benefits can be judged by the amount of time and money people spend to travel to see spotted owl (for example, an individual might choose to drive an hour or more out of their way to take in the opportunity to see a owl).

Ecosystem health. Spotted owls are part of a natural functioning ecosystem. Without their presence in the ecosystem, other natural organisms may suffer. Actions to protect the owl may benefit other organisms. Each one of these organisms may provide some level of direct or indirect benefits to people.

Real estate value effects. Real estate values may be enhanced by critical habitat designation. For example, such enhancement may occur if open space is preserved or if allowable densities are reduced or kept at current levels as a result of critical habitat designation.

146. Designation of critical habitat may provide all of these benefits. However, it is difficult at this time to estimate the total benefit afforded by critical habitat, since not enough is known about (1) the likely benefits of each consultation and modification, and (2) the extent to which such modifications would result from critical habitat.

3.5.1 Critical Habitat Benefits

147. The benefits identified above arise primarily from the protection afforded to the spotted owl under the Federal listing. Critical habitat designation may provide some incremental benefits beyond the listing benefits. Critical habitat designation provides some educational benefit by increasing awareness of the extent of spotted owl habitat. Incremental surveys, consultations, and project modifications conducted as a result of the designation of critical habitat are likely to increase the probability that the spotted owl will recover. Critical habitat also provides a legal definition of the extent of spotted owl habitat. This reduces the amount of uncertainty Federal agencies face when determining if a section 7 consultation is necessary for an activity with a Federal nexus.

148. The quantification of total economic benefits attributable to the designation of critical habitat is, at best, difficult. Without knowing the exact nature of future consultations and associated project modifications, it is difficult to predict the incremental increase in the probability that the spotted owl will recover. Even one project modification associated with the designation of critical habitat has the potential to save the spotted owl. While unlikely, this hypothetical project modification would

have the entire economic value of the listing of the species mentioned above. Alternatively, the additional consultations may have no impacts on the probability of recovery for the species. In this scenario, the incremental benefits of the owl critical habitat would be limited to the educational benefits, increased support for existing conservation efforts, and the reduced uncertainty regarding the extent of spotted owl habitat.

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