



ECONOMIC ANALYSIS OF
CRITICAL HABITAT
DESIGNATION FOR THE VAIL
LAKE CEANOOTHUS AND THE
MEXICAN FLANNELBUSH

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EXECUTIVE SUMMARY¹

1. The purpose of this report is to identify and analyze the potential economic impacts associated with the proposed critical habitat designation for the Vail Lake ceanothus (*Ceanothus ophiochilus*) and the Mexican flannelbush (*Fremontodendron mexicanum*). This report was prepared by Industrial Economics, Incorporated (IEc), under contract to the U.S. Fish and Wildlife Service's (Service) Division of Economics.
2. The Service identified 644 acres in Riverside and San Diego counties as potential critical habitat for the Vail Lake ceanothus and the Mexican flannelbush.² Of this amount, the Service proposes to exclude from critical habitat designation approximately 80 acres currently covered by the Western Riverside Multiple Species Habitat Conservation Plan (WRMSHCP). In the remainder of this report, the entire 644 acres are referred to as potential critical habitat.
3. Potential critical habitat areas are divided into two units (one for each species), each of which is further subdivided into two subunits. Much of the landscape is remote and mountainous. Exhibits ES-1 and ES-2 provide maps of the areas and land ownership information. As shown, both units are comprised of a mix of public (e.g., U.S. Forest Service (USFS) and U.S. Bureau of Land Management (BLM)) and private lands, which account for 67 percent and 33 percent of the total area, respectively.
4. This analysis quantifies economic impacts of Vail Lake ceanothus and Mexican flannelbush conservation efforts associated with the following activities: (1) fire management, (2) alien plant species management, (3) survey and monitoring, and (4) administrative costs associated with section 7 consultation. Additionally, this analysis discusses the potential for development of approximately 213 acres of private land in Riverside and San Diego Counties and fire concerns for private lands surrounding the habitat.
5. The consultation history for both plant species is limited to two biological opinions issued by the Service for the implementation of the USFS Southern California Forest Plan and the Western Riverside Multiple Species Habitat Conservation Plan (WRMSHCP). As a result, the majority of the information in this analysis is based on conversations with local land managers and the Service.
6. The Key Findings highlighted below, and Exhibit ES-3 summarizes the quantitative results of this analysis. The relative magnitude of impacts to each type of affected activity are shown in Exhibit ES-4.

¹ This report (including all analysis and results) is identical to the DEA dated September 15, 2006 with the following exception: this version of the DEA includes revised maps in Exhibits ES-1 and ES-2.

² For a description of the species and the primary constituent elements of its habitat, see the proposed rule.

EXHIBIT ES-1 PROPOSED CRITICAL HABITAT DESIGNATION FOR THE VAIL LAKE CEANOOTHUS

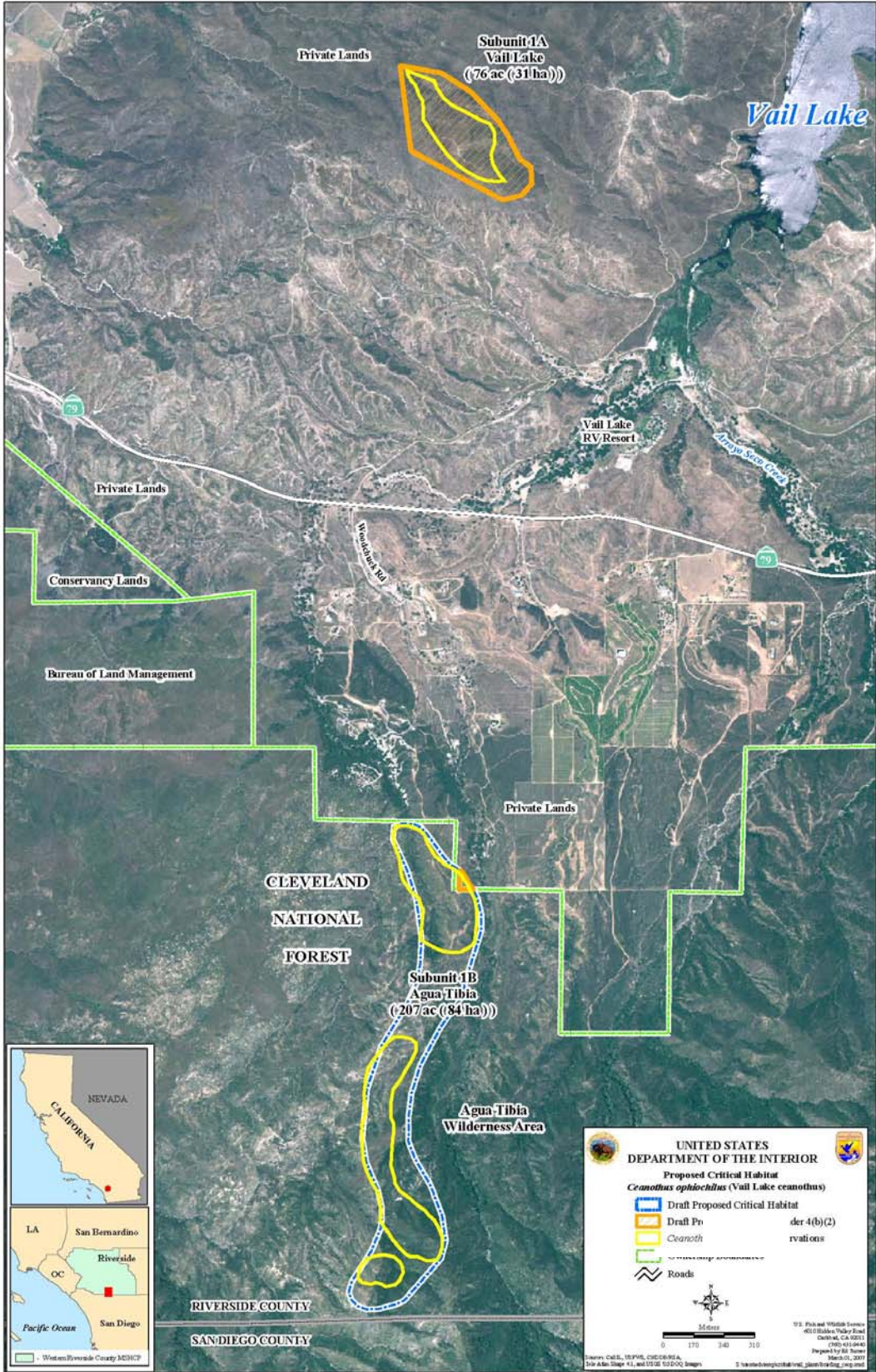
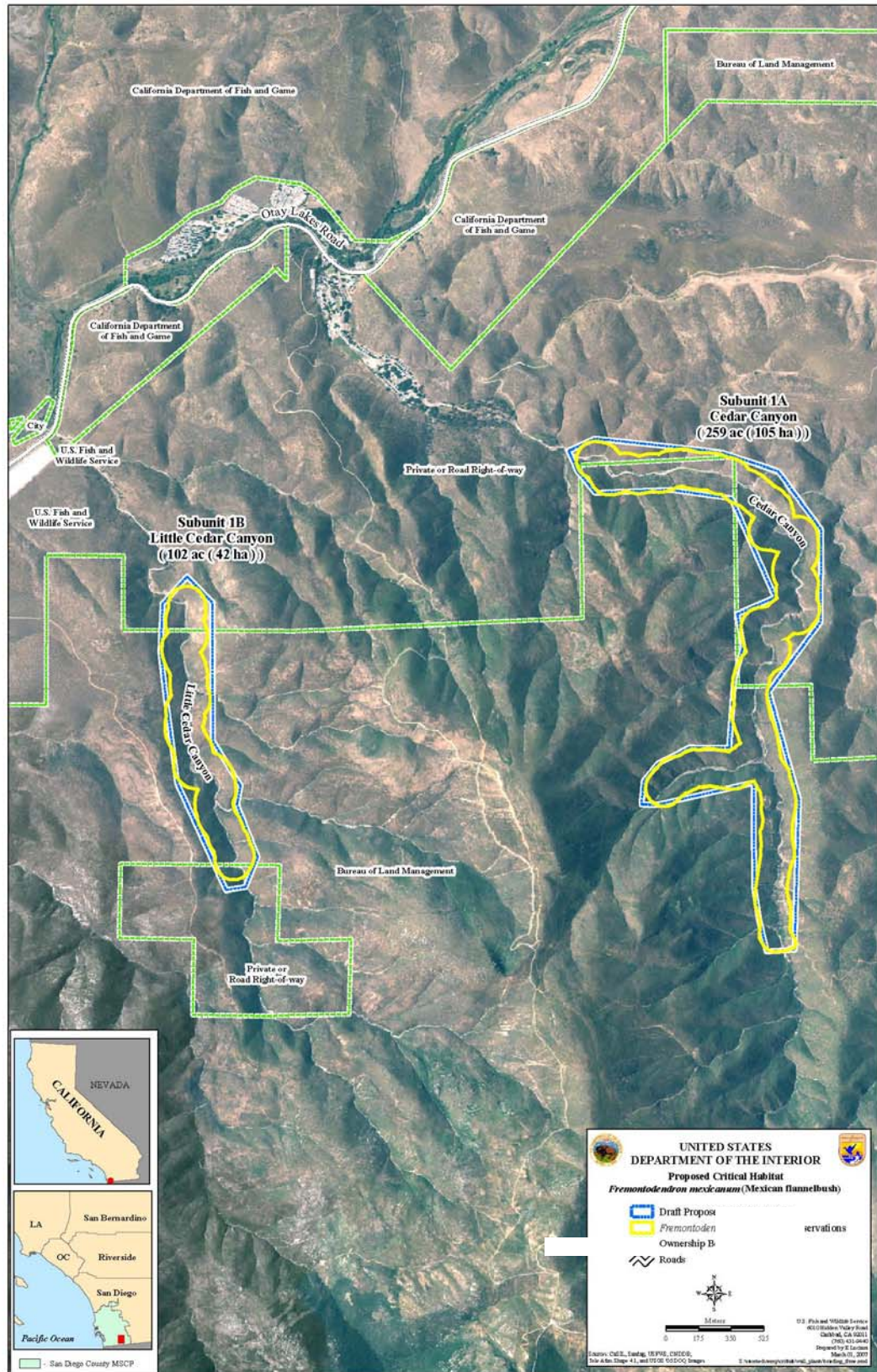


EXHIBIT ES-2 PROPOSED CRITICAL HABITAT DESIGNATION FOR THE MEXICAN FLANNELBUSH



KEY FINDINGS

Total future impacts: The draft economic analysis forecasts future costs associated with conservation efforts for the Vail Lake ceanothus and the Mexican flannelbush in areas proposed for designation ranging from \$385,000 to \$659,000 (undiscounted) over the next 20 years. The present value of these impacts, applying a three percent discount rate, is \$325,000 to \$559,000 (\$22,000 to \$38,000 annualized); or \$272,000 to \$471,000, using a discount rate of seven percent (\$26,000 to \$44,000 annualized).³

Quantified Impacts: Costs associated with fire management comprise the majority, 59 percent at the high end (undiscounted dollars), of the total quantified impacts in the areas proposed for designation. Costs associated with alien plant species management comprise another 21 percent. In summary:

- **Fire Management:** Costs associated with fire management on BLM lands depend on the type of treatment implemented. BLM prefers to use weed-wackers to create a fuel break around Mexican flannelbush populations, but because the area is designated wilderness (i.e., motorized equipment is not allowed), treatment may be restricted to more expensive herbicide hand application treatments. On private lands, this analysis assumes that fire management activities will be similar to those on public lands. As a result, total costs related to fire management activities on Federal and private lands are estimated to range from \$221,000 to \$395,000 (undiscounted) over 20 years.
- **Alien Plant Species Management:** The same treatment methodologies used for fire management would also be used for alien species management. Like fire management, this analysis assumes that alien plant species management on private lands will be similar to those on public lands. Accordingly, total costs to implement conservation efforts on Federal and private lands to control the adverse impacts of alien plant species are estimated to range from \$71,000 to \$139,000 (undiscounted) over 20 years.
- **Administrative Costs:** Total administrative costs associated with section 7 consultation range from \$56,000 to \$89,000 (undiscounted) over 20 years.
- **Survey and Monitoring:** Total costs associated with species survey and monitoring are forecast to be \$37,000 (undiscounted) over 20 years.
- **Development and Fire Concerns:** The species are found in remote, mountainous areas with steep terrain. Impacts to development are unlikely because development is not anticipated within the boundaries of potential critical habitat in the next 20 years. Although the proposed rule states that urban development near the species may increase the frequency of fire, thereby threatening their habitat, the areas surrounding the habitat are zoned for rural agricultural and residential uses (e.g., 5 to 20 acres per home). Whether rural projects proposed near designated critical habitat will pose a threat to the habitat is unknown. A large development project is planned near Vail Lake subunit 1A, which is proposed for exclusion from critical habitat designation.

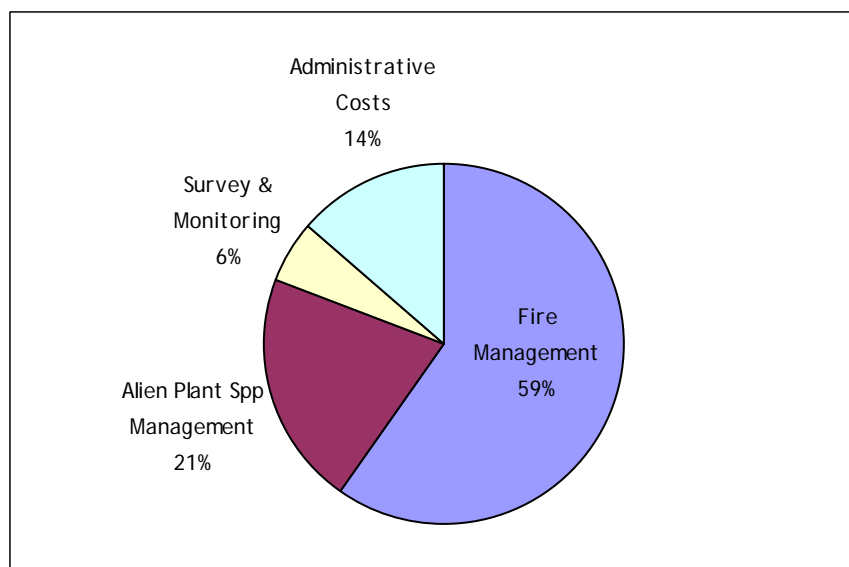
Critical Habitat Subunit with Highest Impacts: The subunit with the largest projected impacts (high end estimate in undiscounted dollars) is Mexican flannelbush subunit 1A, Cedar Canyon. Impacts in this subunit constitute 46 percent of the total estimated impacts in the four subunits proposed for designation. Of the forecast impacts in this subunit, 61 percent are associated with costs from fire management activities.

³ Past impacts for all activities, by subunit, are provided in Appendix B.

EXHIBIT ES-3 SUMMARY OF IMPACTS

CATEGORY	UNDISCOUNTED		3% DISCOUNT RATE		7% DISCOUNT RATE	
	LOW	HIGH	LOW	HIGH	LOW	HIGH
Areas Proposed for Designation						
Total Economic Impacts	\$385,000	\$659,000	\$325,000	\$559,000	\$272,000	\$471,000
Annualized Impacts	\$19,000	\$33,000	\$22,000	\$38,000	\$26,000	\$44,000
Areas Proposed for Exclusion						
Total Economic Impacts	\$42,000	\$52,000	\$34,000	\$44,000	\$28,000	\$38,000
Annualized Impacts	\$2,000	\$2,000	\$3,000	\$4,000	\$3,000	\$5,000

EXHIBIT ES-4 POST-DESIGNATION IMPACT BY ACTIVITY (HIGH END, UNDISCOUNTED)



Source: IEc analysis.

- Exhibit ES-5 ranks the subunits proposed for critical habitat designation in order of magnitude of expected impact using undiscounted dollars. For more detailed information regarding present value and annualized impacts in each subunit, see Exhibit ES-6. Estimated impacts by subunit and activity are provided in Appendix C.

EXHIBIT ES-5 SUBUNITS RANKED BY LEVEL OF IMPACT (UNDISCOUNTED)

SUBUNIT	LOW END		HIGH END	
	IMPACTS	PERCENT OF TOTAL	IMPACTS	PERCENT OF TOTAL
Mexican flannelbush				
1A: Cedar Canyon	\$179,000	46%	\$302,000	46%
1B: Little Cedar Canyon	\$115,000	30%	\$235,000	36%
Vail Lake ceanothus				
1B: Agua Tibia Mountains	\$56,000	15%	\$82,000	12%
1A: Vail Lake	\$35,000	9%	\$40,000	6%
Total:	\$385,000	100%	\$659,000	100%

EXHIBIT ES-6 DETAILED FUTURE IMPACTS BY SUBUNIT (2007 - 2026)

SUBUNIT	UNDISCOUNTED		PRESENT VALUE, 3%		PRESENT VALUE, 7%		ANNUALIZED, 3%		ANNUALIZED, 7%	
	LOW	HIGH	LOW	LOW	LOW	HIGH	HIGH	HIGH	LOW	HIGH
Proposed Critical Habitat										
<i>VAIL LAKE CEANOTHUS</i>										
1A. Vail Lake	\$35,000	\$40,000	\$28,000	\$33,000	\$22,000	\$27,000	\$2,000	\$2,000	\$2,000	\$3,000
1B. Agua Tibia Mountains	\$56,000	\$82,000	\$51,000	\$77,000	\$46,000	\$71,000	\$3,000	\$5,000	\$4,000	\$7,000
<i>MEXICAN FLANNELBUSH</i>										
1A. Cedar Canyon	\$179,000	\$302,000	\$148,000	\$251,000	\$122,000	\$207,000	\$10,000	\$17,000	\$12,000	\$20,000
1B. Little Cedar Canyon	\$115,000	\$235,000	\$98,000	\$198,000	\$82,000	\$166,000	\$7,000	\$13,000	\$8,000	\$16,000
Total:	\$385,000	\$659,000	\$325,000	\$559,000	\$272,000	\$471,000	\$22,000	\$38,000	\$26,000	\$44,000
Areas Proposed for Exclusion										
<i>VAIL LAKE CEANOTHUS</i>										
A. Vail Lake	\$35,000	\$40,000	\$28,000	\$33,000	\$22,000	\$27,000	\$2,000	\$2,000	\$2,000	\$3,000
B. Agua Tibia Mountains	\$7,000	\$12,000	\$6,000	\$11,000	\$6,000	\$11,000	\$1,000	\$2,000	\$1,000	\$2,000
Total:	\$42,000	\$52,000	\$34,000	\$44,000	\$28,000	\$38,000	\$3,000	\$4,000	\$3,000	\$5,000
<u>Note:</u> Totals may not add due to rounding.										

CHAPTER 1 | FRAMEWORK FOR ANALYSIS

8. The purpose of this report is to estimate the economic impact of actions taken to protect the federally listed *Ceanothus ophiochilus* (referred to as the Vail Lake ceanothus in this report), *Fremontodendron mexicanum* (referred to as the Mexican flannelbush in this report), and their habitats. It attempts to quantify the economic effects associated with the proposed designation of critical habitat. It does so by taking into account the cost of conservation-related measures that are likely to be associated with future economic activities that may adversely affect the habitat within the proposed boundaries. The analysis looks retrospectively at costs incurred since the Vail Lake ceanothus and the Mexican flannelbush were listed, and it attempts to predict future costs likely to occur after the proposed critical habitat designation (CHD) is finalized.
9. This information is intended to assist the Secretary in determining whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation.⁴ In addition, this information allows the U.S. Fish and Wildlife Service (the Service) to address the requirements of Executive Orders 12866 and 13211, and the Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA).⁵ This report also complies with direction from the U.S. Court of Appeals for the 10th Circuit that “co-extensive” effects should be included in the economic analysis to inform decision-makers regarding which areas to designate as critical habitat.⁶
10. This chapter provides background information on the species and the proposed designation. Next, it describes the regulatory alternatives considered by the Service. Then, it describes the approach to estimating impacts and lays out the scope of the analysis. Information sources relied upon are summarized in the next section. The chapter concludes with a description of the organization of the remainder of this report.

1.1 BACKGROUND

11. On October 13, 1998, the Service published the final rule listing the Vail Lake ceanothus and the Mexican flannelbush as threatened and endangered, respectively.⁷ In the final

⁴ 16 U.S.C. §1533(b)(2)

⁵ Executive Order 12866, Regulatory Planning and Review, September 30, 1993; Executive Order 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use, May 18, 2001; 5.U.S.C. §601 et seq; and Pub Law No. 104-121.

⁶ In 2001, the U.S. Court of Appeals for the 10th Circuit instructed the Service to conduct a full analysis of all of the economic impacts of proposed CHD, regardless of whether those impacts are attributable co-extensively to other causes (*New Mexico Cattle Growers Ass'n v. U.S.F.W.S.*, 248 F.3d 1277 (10th Cir. 2001)).

⁷ 63 FR 54956

rule, the Service determined that designation of critical habitat for the plant species was not prudent. On August 10, 2004, the Center for Biological Diversity and the California Native Plant Society filed a lawsuit against the Service for violations under the Endangered Species Act (the Act) for failure to designate critical habitat for the species.⁸ The Service agreed to publish a proposed rule on or before September 20, 2006, and a final rule by September 20, 2007. For a description of the two plant species and the primary constituent elements that are essential to the conservation of the species, refer to the draft proposed rule, dated June 21, 2006.

12. The Service identifies 644 acres in Riverside and San Diego counties as potential critical habitat for the Vail Lake ceanothus and the Mexican flannelbush.⁹ Of this amount, the Service proposes to exclude from critical habitat designation approximately 80 acres currently covered by the Western Riverside Multiple Species Habitat Conservation Plan (WRMSHCP). In the remainder of this report, the entire 644 acres are referred to as potential critical habitat.
13. Potential critical habitat areas are divided into two units (one for each species), each of which is further subdivided into two subunits. Both units are comprised of a mix of public (e.g., U.S. Forest Service (USFS) and U.S. Bureau of Land Management (BLM)) and private lands, which account for 67 percent and 33 percent of the total area, respectively. Exhibits 1-1 and 1-2 summarize landownership and primary threats by subunit. For maps showing the location of each subunit, see Exhibits ES-1 and ES-2 in the Executive Summary.

EXHIBIT 1-1 PROPOSED CRITICAL HABITAT LANDOWNERS

CRITICAL HABITAT		LANDOWNERSHIP (ACRES)				LANDOWNERS(S)/ LAND MANAGERS
UNIT	SUBUNIT	FEDERAL	PRIVATE	PROPOSED FOR EXCLUSION	TOTAL	
Vail Lake ceanothus						
1: Western Riverside County	A: Vail Lake	-	-	76	76	Private
	B: Agua Tibia Mountains	203	-	4	207	Cleveland National Forest, Private
Mexican flannelbush						
1: Otay Mountain	A: Cedar Canyon	145	114	-	259	BLM, Private
	B: Little Cedar Canyon	83	19	-	102	BLM, Private
TOTAL:		431	133	80	644	
% of Total:		67%	21%	12%	100%	

⁸ See Draft Proposed Rule, dated June 21, 2006.

⁹ For a description of the species and the primary constituent elements of its habitat, see the proposed rule.

EXHIBIT 1-2 PRIMARY THREATS BY SUBUNIT

SUBUNITS		COUNTY	LANDOWNERS/ LAND MANAGER(S)	PRIMARY THREATS
Vail Lake ceanothus				
1: Western Riverside County	A: Vail Lake	Riverside	Private	Urban development
	B: Agua Tibia Mountains	Riverside	Cleveland National Forest Private	Fire management activities and urban development
Mexican Flannelbush				
1: Otay Mountain	A: Cedar Canyon	San Diego	Bureau of Land Management Private	Fire management, alien plant species, and urban development
	B: Little Cedar Canyon	San Diego	Bureau of Land Management Private	
<u>Source:</u> Draft proposed rule, dated June 21, 2006.				

1.2 REGULATORY ALTERNATIVES

14. Executive Order 12866 directs Federal Agencies to evaluate regulatory alternatives. The Service identifies 4 subunits or areas of potential habitat, and proposes 3 subunits for designation as critical habitat. An alternative to the proposed rule is the designation of all 4 subunits and areas, and the potential impacts of all are estimated in this report. In addition, section 4(b)(2) of the Act allows the Service to exclude additional areas proposed for designation based on economic impact and other relevant impact. Consideration of impacts at a subunit level may result in alternate combinations of potential habitat that may or may not ultimately be designated as critical habitat. As a result, the impacts of multiple combinations of potential habitat are also available to the Service.

1.3 APPROACH TO ESTIMATING ECONOMIC IMPACTS

15. This economic analysis considers economic efficiency effects that may result from activities to protect the Vail Lake ceanothus, the Mexican flannelbush and their habitats (hereinafter referred to collectively as “conservation activities”). Economic efficiency effects generally reflect “opportunity costs” associated with the commitment of resources required to accomplish species and habitat conservation. For example, if activities that can take place on a parcel of land are limited as a result of the designation or the presence of the species, and thus the market value of the land is reduced, this reduction in value represents one measure of opportunity cost or change in economic efficiency. Similarly, the costs incurred by a Federal action agency to consult with the Service under section 7 represent opportunity costs of required conservation activities.

EFFICIENCY EFFECTS

16. At the guidance of the Office of Management and Budget (OMB) and in compliance with Executive Order 12866 "Regulatory Planning and Review," Federal agencies measure changes in economic efficiency in order to understand how society, as a whole, will be

affected by a regulatory action. In the context of regulations that protect Vail Lake ceanothus and the Mexican flannelbush habitat, these efficiency effects represent the opportunity cost of resources used or benefits foregone by society as a result of the regulations. Economists generally characterize opportunity costs in terms of changes in producer and consumer surpluses in affected markets.¹⁰

17. In some instances, compliance costs may provide a reasonable approximation for the efficiency effects associated with a regulatory action. For example, a Federal land manager, such as the US Forest Service, may enter into a consultation with the Service to ensure that a particular activity will not adversely modify critical habitat. The effort required for the consultation is an economic opportunity cost, because the landowner or manager's time and effort would have been spent in an alternative activity had the parcel not been included in the designation. When compliance activity is not expected to significantly affect markets -- that is, not result in a shift in the quantity of a good or service provided at a given price, or in the quantity of a good or service demanded, given a change in price -- the measurement of compliance costs can provide a reasonable estimate of the change in economic efficiency.
18. Where habitat protection measures are expected to significantly impact a market, it may be necessary to estimate changes in producer and consumer surpluses. For example, a designation that precludes the development of large areas of land may shift the price and quantity of housing supplied in a region. In this case, changes in economic efficiency (i.e., social welfare) can be measured by considering changes in producer and consumer surplus in the market. For this analysis, compliance costs are estimated. Market effects are unlikely, because the costs of this proposed regulation are relatively small and borne by Federal agencies.

IMPACTS ON SMALL ENTITIES AND ENERGY SUPPLY, DISTRIBUTION, AND USE

19. This analysis also considers how small entities, including small businesses, organizations, and governments, as defined by the Regulatory Flexibility Act, might be affected by future conservation activities for the Vail Lake ceanothus and the Mexican flannelbush¹¹ In addition, in response to Executive Order 13211 "Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use," this analysis considers the future impacts of conservation activities on the energy industry and its customers.¹²

¹⁰ For additional information on the definition of "surplus" and an explanation of consumer and producer surplus in the context of regulatory analysis, see: Gramlich, Edward M., *A Guide to Benefit-Cost Analysis (2nd Ed.)*, Prospect Heights, Illinois: Waveland Press, Inc., 1990; and U.S. Environmental Protection Agency, *Guidelines for Preparing Economic Analyses*, EPA 240-R-00-003, September 2000, available at <http://yosemite.epa.gov/ee/epa/eed/nsf/webpages/Guidelines.html>.

¹¹ 5 U.S.C. § 601 *et seq.*

¹² Executive Order 13211, *Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use*, May 18, 2001.

CALCULATING PRESENT VALUE AND ANNUALIZED IMPACTS

For each land use activity, this analysis compares economic impacts incurred in different time periods in present value terms. The present value represents the value of a payment or stream of payments in common dollar terms. That is, it is the sum of a series of past or future cash flows expressed in today's dollars. Translation of economic impacts of past or future costs to present value terms requires the following: a) past or projected future costs of plant conservation activities; and b) the specific years in which these impacts have been or are expected to be incurred. With these data, the present value of the past or future stream of impacts (PV_c) of plant conservation efforts from year t to T is measured in 2007 dollars according to the following standard formula:^a

$$PV_c = \sum_t^T \frac{C_t}{(1+r)^{t-2007}}$$

C_t = cost of plant conservation efforts in year t

r = discount rate^b

Impacts of conservation efforts for each activity in each unit are also expressed as annualized values. Annualized values are calculated to provide comparison of impacts across activities with varying forecast periods (T). For this analysis, however, all activities employ a forecast period of 20 years, 2006 through 2025. Annualized impacts of future plant conservation activities (APV_c) are calculated by the following standard formula:

$$APV_c = PV_c \left[\frac{r}{1 - (1+r)^{-N}} \right]$$

N = number of years in the forecast period (in this analysis, 20 years)

^a To derive the present value of past conservation activities for this analysis, t is 1998 and T is 2006; to derive the present value of future conservation efforts, t is 2007 and T is 2026.

^b To discount and annualize costs, guidance provided by the OMB specifies the use of a real rate of seven percent. In addition, OMB recommends sensitivity analysis using other discount rates such as three percent, which some economists believe better reflects the social rate of time preference. (U.S. Office of Management and Budget, Circular A-4, September 17, 2003 and U.S. Office of Management and Budget, "Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations; Notice," 68 *Federal Register* 5492, February 3, 2003.)

1.4 SCOPE OF THE ANALYSIS

20. This analysis identifies those economic activities believed to most likely threaten the listed species and its habitat and, where possible, quantifies the economic impact to avoid, mitigate, or compensate for such threats within the boundaries, or adjacent to, potential critical habitat. In instances where critical habitat is being proposed after a

species is listed, some future impacts may be unavoidable, regardless of the final designation and exclusions under 4(b)(2). However, due to the difficulty in making a credible distinction between listing and critical habitat effects within critical habitat boundaries, this analysis considers all future conservation-related impacts to be co-extensive with the designation.^{13,14}

21. Coextensive effects may also include impacts associated with overlapping protective measures of other Federal, State, and local laws that aid habitat conservation in the areas proposed for designation. In past instances, some of these measures have been precipitated by the listing of the species and impending designation of critical habitat. Because habitat conservation efforts affording protection to a listed species likely contribute to the efficacy of the CHD efforts, the impacts of these actions are considered relevant for understanding the full effect of the proposed CHD. Enforcement actions taken in response to violations of the Act, however, are not included.

SECTIONS OF THE ACT RELEVANT TO THE ANALYSIS

22. This analysis focuses on activities that are influenced by the Service through sections 4, 7, 9, and 10 of the Act.
- Section 4 of the Act focuses on the listing and recovery of endangered and threatened species, as well as CHD. In this section, the Secretary is required to list species as endangered or threatened "solely on the basis of the best available scientific and commercial data."¹⁵ Section 4 also requires the Secretary to designate critical habitat "on the basis of the best scientific data available and after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat."¹⁶
 - Section 7 of the Act requires Federal agencies to consult with the Service to ensure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat.¹⁷

¹³ In 2001, the U.S. Court of Appeals for the 10th Circuit instructed the Service to conduct a full analysis of all of the economic impacts of proposed CHD, regardless of whether those impacts are attributable co-extensively to other causes (*New Mexico Cattle Growers Assn v. U.S.F.W.S.*, 248 F.3d 1277 (10th Cir. 2001)).

¹⁴ In 2004, the U.S. Ninth Circuit invalidated the Service's regulation defining destruction or adverse modification of critical habitat (*Gifford Pinchot Task Force v. United States Fish and Wildlife Service*). The Service is currently reviewing the decision to determine what effect it (and to a limited extent *Center for Biological Diversity v. Bureau of Land Management* (Case No. C-03-2509-SI, N.D. Cal.)) may have on the outcome of consultations pursuant to section 7 of the Act.

¹⁵ 16 U.S.C. 1533.

¹⁶ 16 U.S.C. 1533.

¹⁷ The Service notes that the Ninth Circuit judicial opinion, *Gifford Pinchot Task Force v. United States Fish and Wildlife Service*, invalidated the Service's regulation defining destruction or adverse modification of critical habitat. The Service is currently reviewing the decision to determine what effect it (and to a limited extent *Center for Biological Diversity v. Bureau of Land Management* (Case No. C-03-2509-SI, N.D. Cal.)) may have on the outcome of consultations pursuant to section 7 of the Act.

- Section 9 defines the actions that are prohibited by the Act. In particular, it prohibits the "take" of endangered wildlife, where "take" means to "harass, harm, pursue, or collect, or to attempt to engage in any such conduct."¹⁸
- Under section 10(a)(1)(B) of the Act, an entity (e.g., a landowner or local government) may develop a Habitat Conservation Plan (HCP) for an endangered animal species in order to meet the conditions for issuance of an incidental take permit in connection with the development and management of a property.¹⁹

Note that although section 9, and therefore section 10 as well, do not apply to plant species, landowners often consider the presence of listed plants during the development of HCPs for animal species (e.g., the Western Riverside Multiple Species Habitat Conservation Plan (WRMSHCP) is one such example.

OTHER RELEVANT PROTECTION EFFORTS

23. The protection of listed species and habitat is not limited to the Act. Other Federal agencies, as well as State and local governments, may also seek to protect the natural resources under their jurisdiction.²⁰ For the purpose of this analysis, such protective efforts are considered to be co-extensive with the protection offered by critical habitat, and costs associated with these efforts are included in this report. In addition, under certain circumstances, the CHD may provide new information to a community about the sensitive ecological nature of a geographic region, potentially triggering additional economic impacts under other State or local laws. In cases where these costs would not have been triggered absent the designation of critical habitat, they are included in this economic analysis.

ADDITIONAL ANALYTIC CONSIDERATIONS

24. This analysis also considers the potential for other types of economic impacts that can be related to section 7 consultations in general and CHD in particular, including time delay, regulatory uncertainty, and stigma impacts.

Time Delay and Regulatory Uncertainty Impacts

25. Time delay impacts are costs resulting from project delays associated with the consultation process or compliance with other regulations. Regulatory uncertainty costs occur in anticipation of having to modify project parameters (e.g., retaining outside experts or legal counsel to better understand responsibilities with regard to critical habitat). Time delays and regulatory uncertainty impacts are not anticipated in this case, because the Federal agencies involved in consultations are familiar with the process.

¹⁸ 16 U.S.C. 1532.

¹⁹ U.S. Fish and Wildlife Service, "Endangered Species and Habitat Conservation Planning," August 6, 2002, accessed at <http://endangered.fws.gov/hcp/>.

²⁰ For example, the Sikes Act Improvement Act (Sikes Act) of 1997 requires Department of Defense (DoD) military installations to develop Integrated Natural Resources Management Plans (INRMPs) that provide for the conservation, protection, and management of wildlife resources (16 U.S.C. §§ 670a - 670o). These plans must integrate natural resource management with the other activities, such as training exercises, taking place at the facility.

Stigma Impacts

26. Stigma refers to the change in economic value of a particular project or activity due to negative (or positive) perceptions of the role critical habitat will play in developing, implementing, or conducting that policy. For example, changes to private property values associated with public attitudes about the limits and costs of implementing a project in critical habitat are known as "stigma" impacts. Because the proposed designation includes little private property (approximately 133 acres proposed for designation), stigma effects are not quantified in this analysis.

BENEFITS

27. Under Executive Order 12866, OMB directs Federal agencies to provide an assessment of both the social costs and benefits of proposed regulatory actions.²¹ OMB's Circular A-4 distinguishes two types of economic benefits: *direct benefits and ancillary benefits*. Ancillary benefits are defined as favorable impacts of a rulemaking that are typically unrelated, or secondary, to the statutory purpose of the rulemaking.²²
28. In the context of CHD, the primary purpose of the rulemaking (i.e., the direct benefit) is the potential to enhance conservation of the species. The published economics literature has documented that social welfare benefits can result from the conservation and recovery of endangered and threatened species. In its guidance for implementing Executive Order 12866, OMB acknowledges that it may not be feasible to monetize, or even quantify, the benefits of environmental regulations due to either an absence of defensible, relevant studies or a lack of resources on the implementing agency's part to conduct new research.²³ *Rather than rely on economic measures, the Service believes that the direct benefits of the proposed rule are best expressed in biological terms that can be weighed against the expected cost impacts of the rulemaking.*
29. Critical habitat designation may also generate ancillary benefits. Critical habitat aids in the conservation of species specifically by protecting the primary constituent elements on which the species depends. To this end, critical habitat designation can result in maintenance of particular environmental conditions that may generate other social benefits aside from the preservation of the species. That is, management actions undertaken to conserve a species or habitat may have coincident, positive social welfare implications, such as increased recreational opportunities in a region. While they are not the primary purpose of critical habitat, these ancillary benefits may result in gains in employment, output, or income that may offset the direct, negative impacts to a region's economy resulting from actions to conserve a species or its habitat.
30. It is often difficult to evaluate the ancillary benefits of critical habitat designation. To the extent that the ancillary benefits of the rulemaking may be captured by the market through an identifiable shift in resource allocation, they are factored into the overall economic impact assessment. For example, if habitat preserves are created to protect a

²¹ Executive Order 12866, *Regulatory Planning and Review*, September 30, 1993.

²² U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at <http://www.whitehouse.gov/omb/circulars/a004/a-4.pdf>.

²³ *Ibid.*

species, the value of existing residential property adjacent to those preserves may increase, resulting in a measurable positive impact. Ancillary benefits that affect markets are not anticipated in this case, and therefore are not quantified.

GEOGRAPHIC SCOPE OF THE ANALYSIS

31. The geographic scope of the analysis includes areas proposed for CHD and areas proposed for exclusion under section 4(b)(2) of the Act. The economic impacts of potential designation are estimated for each of these two categories of land identified in the proposed rule. The analysis focuses on activities within or affecting these areas.
32. Impacts are presented at the finest level of resolution feasible, given available data. For this proposed critical habitat designation, impacts are reported for each subunit identified in the proposed rule. The Executive Summary presents maps showing the location of the subunits relative to major cities, national forest land, and wilderness lands.

ANALYTIC TIME FRAME

33. The analysis estimates impacts based on activities that are "reasonably foreseeable," including, but not limited to, activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. This analysis estimates economic impacts to activities from 1998 (year of the species' final listing) to 2026 (20 years from the final year anticipated in 2007). Forecasts of economic conditions and other factors beyond the next 20 years would be speculative.

1.5 INFORMATION SOURCES

34. The primary sources of information for this report were communications with and data provided by personnel from the Service, Federal action agencies, affected private parties, and local and State governments within California. Specifically, the analysis relies on data collected in communication with personnel from the following entities:
 - U.S. Forest Service (USFS);
 - Bureau of Land Management (BLM);
 - California Department of Forest and Fire Protection;
 - Riverside and San Diego County Assessor's Offices; and
 - County and city planning departments; and
 - An environmental consultant for a private landowner.
35. In addition, this analysis relies upon the Service's section 7 consultation records, the WRMSHCP, public comments, and published journal sources. The reference section at the end of this document provides a full list of information sources.

1.6 STRUCTURE OF THE REPORT

36. The remainder of this report is organized as follows:

- Section 2: Impacts to Development Activities;
- Section 3: Impacts to Fire Management Activities;
- Section 4: Impacts to Alien Plant Species Management Activities;
- Section 5: Impacts to Other Activities on Federal Lands;
- Appendix A: SBREFA Screening Analysis and Impacts to the Energy Industry;
- Appendix B: Summary of Past Impacts to All Activities by Subunit;
- Appendix C: Detailed Future Impacts to All Activities by Subunit; and
- References.

CHAPTER 2 | POTENTIAL ECONOMIC IMPACTS TO DEVELOPMENT ACTIVITIES

37. According to the proposed rule, urban development may result in long-term or permanent fragmentation or destruction of habitat containing primary constituent elements. These activities can reduce the amount of available habitat, and directly and indirectly increase the extirpation probability of target plant populations. This section considers whether conservation activities for the Vail Lake ceanothus and the Mexican flannelbush may impact urban development within potential habitat. It concludes that impacts are unlikely, because no development of private lands located in potential critical habitat is anticipated in the reasonably foreseeable future.²⁴
38. The section begins with an overview of the location and value of private lands in potential critical habitat. Next, it discusses past development-related costs, including the preparation of a Habitat Conservation Plan (HCP), and potential types of modifications that might be requested or required in the future. The section concludes with a discussion of development projections obtained from existing landowners and the San Diego Association of Governments (SANDAG).
- 2.1 PRIVATE LANDS WITHIN POTENTIAL CRITICAL HABITAT**
39. Private lands are found in all subunits for the Vail Lake ceanothus (subunits 1A and 1B) and the Mexican Flannelbush (subunits 1A and 1B). Exhibits 2-1 and 2-2 provide maps of the location of private lands within each subunit.
40. Exhibit 2-3 presents the reported assessed values of potentially developable private lands overlapping potential critical habitat areas. As shown, the total assessed value of all private lands in potential critical habitat areas is approximately \$8.4 million and \$4.3 million for Vail Lake ceanothus and Mexican flannelbush, respectively. On a per acre basis, land values range from approximately \$33,000 per acre in Mexican flannelbush habitat to \$105,000 per acre in Vail Lake ceanothus habitat.

²⁴ The proposed rule also discusses the potential for development in areas surrounding proposed critical habitat to alter the natural fire regime. The interaction between fire management activities and private lands is discussed in more detail in Chapter 4.

EXHIBIT 2-1 PRIVATE LANDS WITHIN VAIL LAKE CEANOOTHUS SUBUNITS 1A AND 1B

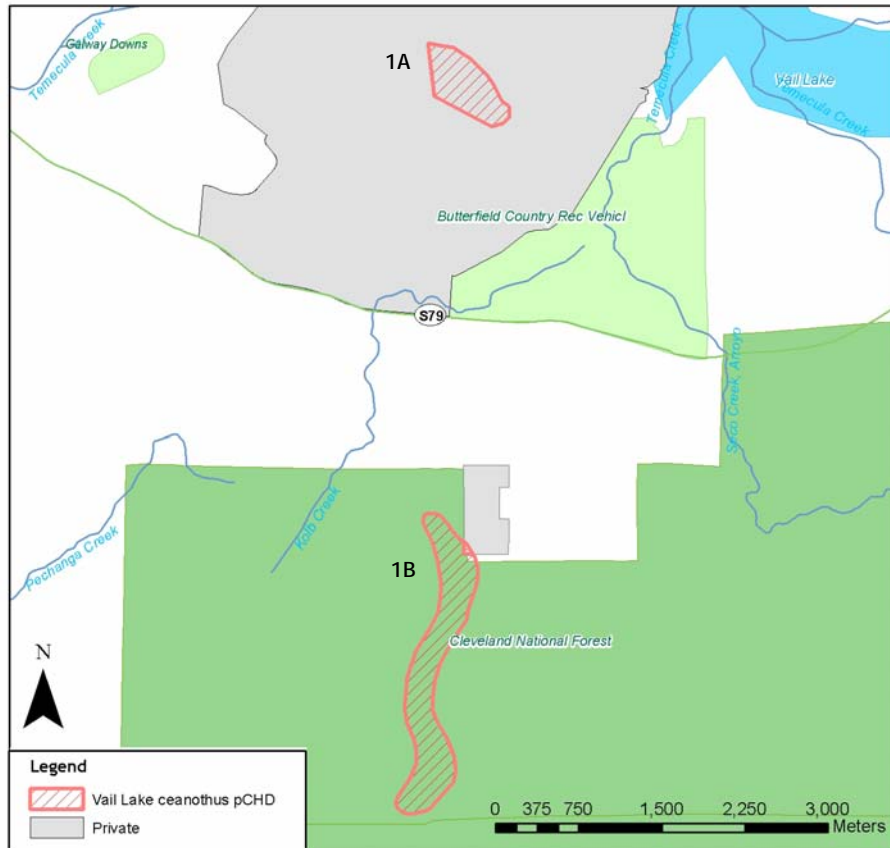
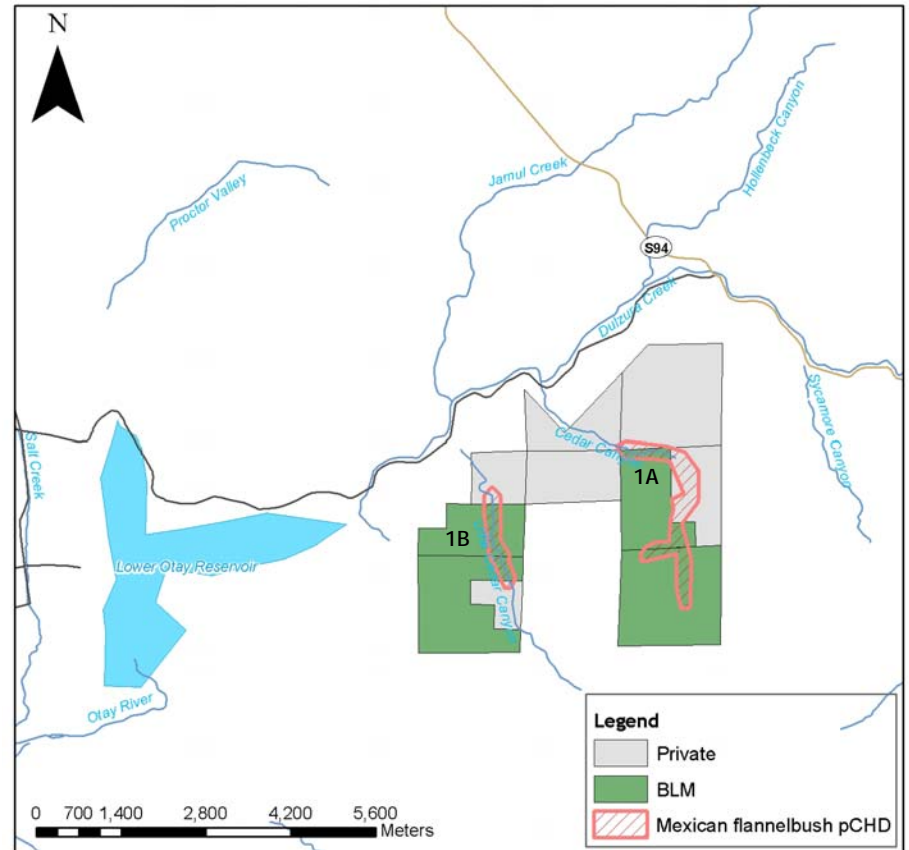


EXHIBIT 2-2 PRIVATE LANDS WITHIN MEXICAN FLANNELBUSH SUBUNITS 1A AND 1B



Source: Riverside County Assessor's Office; SanGIS, a joint power agency of the City and County of San Diego responsible for maintenance of and access to regional geographic databases.

EXHIBIT 2-3 REPORTED LAND VALUES BY SUBUNIT

SUBUNIT	SUBUNIT NAME	NUMBER OF PARCELS	TOTAL PARCEL ACRES	ACRES OF POTENTIAL CRITICAL HABITAT	TOTAL REPORTED LAND VALUE
Vail Lake ceanothus					
1A	Vail Lake	1	2,644	76	\$7,717,279*
1B	Agua Tibia Mountains	1	75	4	\$651,066
	Subtotal:	2	2,719	80	\$8,368,345
Mexican flannelbush					
1A	Cedar Canyon	4	1,578	114	\$3,509,254
1B	Little Cedar Canyon	2	323	19	\$817,907
	Subtotal:	6	1,901	133	\$4,327,161
	TOTAL:	8	4,620	213	\$12,695,506
* This property is owned by William Johnson, Vail Lake, LLC. According to William Johnson, the developed value of the property is approximately \$1 million per acre (Personal communication with William Johnson, Vail Lake, LLC on September 7, 2006). Sources: Assessor's Offices for San Diego and Riverside Counties; Draft proposed rule, dated June 21, 2006.					

41. In California, Proposition 13, an initiative passed in June 1978, governs the property assessment process. Proposition 13 included four major provisions: (1) a limit on the *ad valorem* property tax rate to one percent of the assessed value; (2) a rollback of assessed values to their 1975-1976 levels; (3) a limit on the annual growth in assessed value to a maximum of two percent per year; and (4) limiting property reassessment to current market values only when a change in ownership occurs or new construction takes place.²⁵ As a result, two identical properties with the same market value could have different assessed values for tax purposes if one of them has been sold since 1975. Information on the year that parcels were last assessed was not readily available from the County Assessor's offices. As a result, the reported land values in Exhibit 2-3 likely understate the current market value of these lands.

2.2 PAST IMPACTS

42. The Service has not previously consulted on development projects for either the Vail Lake ceanothus or the Mexican flannelbush since their listing in 1998. However, the Vail Lake ceanothus is one of 146 species covered under the Western Riverside Multiple Species Habitat Conservation Plan (WRMSHCP), a comprehensive, multi-jurisdictional HCP focusing on conservation of species and their associated habitats in Western Riverside County. This plan is one of several large, multi-jurisdictional habitat-planning efforts in Southern California with the overall goal of "maintaining biological and ecological diversity within a rapidly urbanizing region."²⁶ The WRMSCHP includes

²⁵ California. March 2003. State Assessment Manual. California State Board of Equalization.

²⁶ Riverside County. June 2003. Final MSHCP: Volume 1 - The Plan. Accessed on: January 25, 2006 at: <http://rcip.org/mshcpdocs/vol1/mshcpvol1toc.htm>

approximately 1.3 million acres in Western Riverside County, including 14 incorporated cities. On June 22, 2004, the Service completed its biological opinion (BO) for the WRMSHCP and issued a 75-year permit to the Western Riverside County permittees. In addition, the WRMSHCP is also a subregional plan under California's Natural Community Conservation Plan Act of 1991, approved by the State on June 22, 2004.

43. As shown in Exhibit 2-4, estimated costs to private entities and local and Federal governments of developing the plan are approximately \$4 million (undiscounted, 2005 dollars).²⁷ The plan covers a total of 146 species, including 14 federally listed animals, 11 federally listed plants, and 121 unlisted plants and animals. The Vail Lake ceanothus is included as one of the covered species, however, this analysis is unable to attribute a specific portion of these costs solely to Vail Lake ceanothus. Furthermore, areas covered by the WRMSHCP are proposed for exclusion from the final designation.

EXHIBIT 2-4 WRMSHCP PREPARATION COSTS

CONSULTANT COSTS	LOCAL AGENCY COSTS	FEDERAL AGENCY COSTS	TOTAL COSTS
\$3,000,000	\$640,000	\$320,000	\$3,960,000
<small>Source: Economic and Planning Systems. March 2005. Economic Analysis of Critical Habitat Designation for the Arroyo Toad. Prepared for the U.S. Fish and Wildlife Service.</small>			

44. Under the terms of the WRMSHCP, Vail Lake ceanothus surveys must be conducted annually for five years, or whenever a landowner wants to develop land falling within the boundaries of the WRMSCHP. If a survey determines that an area is occupied by the Vail Lake ceanothus, 90 percent of that area must be avoided. If it is determined that the 90 percent threshold cannot be met, the Permittee(s) must make a determination of biologically equivalent or superior preservation.

2.3 FUTURE IMPACTS

45. Conservation activities impact development in areas of essential habitat in two ways: (1) surveys must be conducted annually; and/or (2) lands otherwise available for development may be restricted from future development (e.g., see discussion above of WRMSHCP requirements). In the potential critical habitat areas, neither scenario is likely to occur, because development is not anticipated.

VAIL LAKE CEANOTHUS

46. The majority of private lands (76 acres) within potential critical habitat for the Vail Lake ceanothus fall within one large parcel, approximately 2,600 acres in size, overlapping subunit 1A, Vail Lake. The parcel was purchased in 2002 by Vail Lake, LLC and is one of several parcels owned by the company totaling approximately 7,500 acres. Vail Lake,

²⁷ Economic and Planning Systems. March 2005. Economic Analysis of Critical Habitat Designation for the Arroyo Toad. Prepared for the U.S. Fish and Wildlife Service.

LLC plans to build a golf resort and winery, including the construction of 5,000 homes.²⁸ According to discussions with Vail Lake, LLC's biological consultant, 1,800 acres of the 7,500-acre project area are proposed for development, and the remaining area will be set aside as open space to maintain the project's rural characteristics. Based on the project's latest development plan (2005), the area containing the Vail Lake ceanothus is not intended for development, rather it is part of the planned open space.²⁹

47. On the remaining private land (4 acres in subunit 1B, Agua Tibia Mountains), current zoning laws limit the type of development that may take place, making it unlikely that the land will be used for large-scale development. The area is zoned as either RR (Rural Residential) or RM (Rural Mountainous), which limits development to light agriculture or one single family home per five acres and ten acres, respectively.^{30,31}

MEXICAN FLANNELBUSH

48. Private lands are found in both subunits for the Mexican flannelbush. Along Cedar Canyon (subunit 1A), potential critical habitat for the Mexican flannelbush overlap with four privately owned parcels. In Little Cedar Canyon (subunit 2B), two privately owned parcels overlap with potential critical habitat. According to available GIS data maintained by the San Diego Association of Governments (SANDAG), both parcels are currently classified as vacant.
49. As part of the 2030 Regional Growth Forecast, SANDAG generates data on the location of vacant and agricultural lands that are available for potential development. This information is a result of computer overlays of various land layer databases including: existing land use, planned land use, land ownership, and physical and policy constraints to development. Land use information generated is also reviewed by each of the local jurisdictions and the County of San Diego to ensure its accuracy. According to this dataset, no development is projected in the next twenty years within potential critical habitat in Cedar Canyon and Little Cedar Canyon.³²

²⁸ WaterTech Online. 2002. "Developer faces \$400,000 in fines." February 19, 2002.

²⁹ Personal communication with Barry Jones, Helix Environmental Planning, Inc. on August 24, 2006.

³⁰ County of Riverside Transportation and Land Management Agency, Geographic Information Services, Riverside County Land Information Service (RCLIS) accessed at <http://www2.tlma.co.riverside.ca.us/aims/pa/rclis/> on August 7, 2006.

³¹ Riverside County Planning Department. "Table LU-3. Land Use Designations Summary Table " accessed at http://www.rcip.org/Documents/general_plan/gen_plan/tab_02.pdf on August 7, 2006.

³² SANDAG. GIS Digital Boundary Files & Layers: LAND COVER AND ACTIVITY CENTERS, Developable Land. accessed at http://www.sandag.org/resources/maps_and_gis/gis_downloads/land.asp on August 7, 2006.

CHAPTER 3 | POTENTIAL ECONOMIC IMPACTS TO FIRE MANAGEMENT ACTIVITIES

50. Like other Mediterranean shrubland communities, chaparral species are adapted to wildfire intervals of approximately 20 to 50 years.³³ For example, the Vail Lake ceanothus reproduces after fire, primarily by seed. As a result, fire suppression activities can considerably limit species reseeding. However, frequent fires can also be detrimental to the species by preventing plants from reaching reproductive maturity and facilitating the establishment of non-native grasses that can compete for limited space and resources. The impact of fire on the Mexican flannelbush is less well understood. Recent field data indicate that Mexican flannelbush recovered well after the recent 2003 wildfires. For example, at the time of listing only 100 individuals of this species were known; after the fires, over 1,000 individuals are now estimated in Cedar Canyon. In light of this information, special planning efforts may be necessary to maintain a natural fire regime for the benefit of the Vail Lake ceanothus and the Mexican flannelbush.
51. This section is divided into two parts discussing the impact of fire management on public and private lands, respectively. Each section begins with a brief discussion of the potential for the interaction of species conservation and fire management. For public lands, this analysis provides a summary of the associated economic impacts of implementing additional conservation activities to protect the Vail Lake ceanothus and the Mexican flannelbush. For private lands, this analysis first identifies the areas in or adjacent to potential critical habitat at risk of forest fires. Next, the analysis estimates the potential economic impact of implementing fire management activities on private lands within potential critical habitat to provide further protection to the plant species.
52. Exhibit 3-1 summarizes future impacts associated with fire management activities on Federal and private lands. In areas proposed for critical habitat designation, total future impacts are estimated to range from \$221,000 to \$395,000 (undiscounted dollars) over 20 years. In areas proposed for exclusion, total future impacts are estimated to range from \$42,000 to \$52,000 (undiscounted dollars) over 20 years.
53. No development is anticipated on private lands within potential critical habitat. Although the proposed rule states that urban development near the species may increase the frequency of fire, thereby threatening their habitat, the areas surrounding the habitat are zoned for rural agricultural and residential uses (e.g., 5 to 20 acres per home). Whether rural projects proposed near designated critical habitat will pose a threat to the habitat is unknown. A large development project is planned near Vail Lake subunit 1A, which is proposed for exclusion from critical habitat designation.

³³ Draft proposed rule, dated June 21, 2006.

EXHIBIT 3-1 SUMMARY OF FUTURE IMPACTS ON FIRE MANAGEMENT ACTIVITIES, 2007-2026 (\$2006)

UNIT	SUBUNIT	UNDISCOUNTED DOLLARS		PRESENT VALUE, 3%		PRESENT VALUE, 7%	
		LOW	HIGH	LOW	HIGH	LOW	HIGH
Proposed Critical Habitat							
Vail Lake ceanothus							
1	A: Vail Lake	\$35,000	\$40,000	\$28,000	\$33,000	\$22,000	\$27,000
	B: Agua Tibia Mountains	\$17,000	\$27,000	\$16,000	\$26,000	\$15,000	\$25,000
Mexican flannelbush							
1	A: Cedar Canyon	\$104,000	\$183,000	\$81,000	\$144,000	\$62,000	\$110,000
	B: Little Cedar Canyon	\$66,000	\$145,000	\$53,000	\$115,000	\$41,000	\$89,000
TOTAL:		\$221,000	\$395,000	\$178,000	\$317,000	\$140,000	\$252,000
Areas Proposed for Exclusion							
Vail Lake ceanothus							
1	A: Vail Lake	\$35,000	\$40,000	\$28,000	\$33,000	\$22,000	\$27,000
	B: Agua Tibia Mountains	\$7,000	\$12,000	\$6,000	\$11,000	\$6,000	\$11,000
Total:		\$42,000	\$52,000	\$34,000	\$44,000	\$28,000	\$38,000
<u>Note:</u> Totals may not add due to rounding.							

3.1 FIRE MANAGEMENT ACTIVITIES ON FEDERAL LANDS

54. The proposed rule discusses the need to maintain a natural fire regime for the Vail Lake ceanothus and the Mexican flannelbush. According to USFS and BLM staff, fire management activities in potential critical habitat areas are limited for two reasons: (1) both populations occur in designated Wilderness Areas, which limits the types of activities that can occur in the area (e.g., no motorized equipment; no fire break construction); and (2) neither area is designated as WUI.³⁴

PAST COSTS

55. Past fire management activities by the Cleveland National Forest in the Agua Tibia Wilderness Area (subunit 1B) for the Vail Lake ceanothus were limited to emergency fire fighting activities, which included post-fire survey and monitoring and an emergency consultation in response to the 2004 wildfires.³⁵ No past activities for fire management have occurred on BLM lands containing Mexican flannelbush.
56. Total past costs associated with fire management activities on Federal lands are limited to \$5,000 (undiscounted dollars) for post-fire survey and monitoring in the Cleveland National Forest. Applying a discount rate of three percent yields a present value of \$5,000, while applying a discount rate of seven percent yields a present value of \$6,000.

³⁴ Wildland-Urban Interface (WUI) areas are defined by each agency (e.g., USFS, BLM) as areas "where human life, property, and natural resources are in imminent danger from catastrophic wildfire." WUI are areas where houses meet or intermingle with undeveloped wildland vegetation. This makes the WUI a focal area for human-environment conflicts such as wildland fires. Based on analysis of WUI data provided by the Cleveland National Forest, there is no overlap of proposed critical habitat areas with WUI areas.

³⁵ Administrative costs associated with a formal consultation for emergency fire fighting activities is included in Chapter 6.

FUTURE COSTS

57. According to the proposed rule, special planning efforts may be necessary to maintain a natural fire regime for the Vail Lake ceanothus and the Mexican flannelbush. USFS and BLM staff estimate a cost of \$5,000 to \$10,000 to develop a fire management plan for each species on Federal lands.³⁶ In addition to developing a fire management plan, each Federal agency anticipates the following fire management activities over the next 20 years:

- **Cleveland National Forest.** Over the next 20 years, CNF staff expect one additional fire in the area by 2014. This event will require post-fire survey and monitoring for the Vail Lake ceanothus at a cost of approximately \$5,000 (undiscounted dollars).³⁷
- **Bureau of Land Management.**³⁸ Although there have been no past fire management activities in potential critical habitat, fires are frequent in this region and the recent 2003 wildfires have prompted BLM to re-examine fire management in an area that includes potential critical habitat for the Mexican flannelbush. According to discussions with BLM staff, two options are available to reduce fire threat for Mexican flannelbush populations:
 1. **Weed-wackers.** Cutting non-native grasses back from Mexican flannelbush populations using weed-wackers costs approximately \$10,000 per year; or
 2. **Herbicides.** Mexican flannelbush populations on BLM lands occur in a designated Wilderness Area. As a result, the use of motorized equipment, such as a weed-wacker, may not be permitted. A second, more expensive option available to BLM is the hand application of herbicides, estimated to cost approximately \$25,000 per year.

The frequency of either treatment depends on a number of factors, in particular the amount of annual rainfall. Over 20 years, BLM staff estimate that treatment would be required on average every other year.

In addition, regardless of which treatment is selected, because the area is designated as Wilderness, BLM staff will also be required to prepare documentation under the National Environmental Policy Act (NEPA), including an Environmental Analysis, a Notice of Proposed Action and a Minimum Tool Analysis. This effort would require approximately 40 hours of staff time at a GS-11 or GS-12 rate.

BLM staff also indicate that this type of vegetation management can be concurrently used to manage exotic grasses that may adversely impact (e.g., compete for space and resources) Mexican flannelbush populations. As a result,

³⁶ Personal communication with Kirsten Winter, Forest Biologist, Cleveland National Forest August 2006; Personal communication with Joyce Schlachter, Wildlife Biologist, BLM San Diego Project Office/Palm Springs-South Coast Field Office on August 25, 2006.

³⁷ Administrative costs associated with a formal consultation for emergency fire fighting activities is included in Chapter 5.

³⁸ Personal communication with Joyce Schlachter, Wildlife Biologist, BLM San Diego Project Office/Palm Springs-South Coast Field Office on August 25, 2006.

this analysis assigns a portion of the costs (including the NEPA analysis) to alien plant species management (see Chapter 4).³⁹

58. Total future costs associated with fire management activities on Federal lands range from \$117,000 to \$270,000 (undiscounted dollars). Present value future costs are estimated to be \$93,000 to \$213,000 over this same time period using a discount rate of three percent, or \$73,000 to \$165,000 using a discount rate of seven percent.

3.2 FIRE MANAGEMENT ACTIVITIES ON PRIVATE LANDS

59. According to the proposed rule, urban development on private lands near the plant species may increase the frequency of fire. Prevention of frequent fires is important in maintaining Primary Constituent Elements (PCEs) in potential critical habitat areas. More specifically, the proposed rule discusses the need to maintain a natural fire regime (e.g., wildfire intervals of approximately 20 to 50 years) for the Vail Lake ceanothus and the Mexican flannelbush in potential critical habitat areas. This analysis did not identify any past consultations for fire management activities on private lands. However, conservation activities may impact fire management activities on private lands to the extent that private landowners implement fire management plans
60. This section is divided into two parts. First, this section identifies areas in or adjacent to potential critical habitat at risk of forest fires. The California Department of Forest and Fire Protection (CDFFP) maintains geographic information system (GIS) data that describe the relative risk to areas of significant population density from wildfire by intersecting data on residential housing unit density with geographic data on proximate fire threat. The result is WUI classifications across the State that identify areas in which fire management projects are needed to reduce wildland fire threats to people.⁴⁰ Next, this analysis estimates the potential economic impact of implementing fire management activities on private lands within potential critical habitat to protect the plant species.

WILDLAND-URBAN INTERFACE AREAS WITHIN PRIVATE LANDS

61. Based on analysis of these WUI data, potential critical habitat overlaps with approximately 123 acres of private land designated as WUI in Riverside and San Diego Counties. In addition to WUI acres, Exhibit 3-2 also provides information on housing density and proximate fire threat in potential critical habitat areas, both of which are inputs used in identifying WUI areas. Exhibits 3-3 and 3-4 present maps of the private lands proposed for critical habitat designation that are designated as WUI areas.

³⁹ According to BLM, treatment for alien plant species management is required on an annual basis but only for the first five years. In contrast, treatment for fire management is required every other year on an ongoing basis. Accordingly, this analysis divides the treatment costs equally between fire management and alien plant species every other year for the first five years (e.g., year 1, 3, and 5) and applies treatment costs only to alien plant species management in the alternating years (e.g., year 2 and 4). Ongoing treatment costs are then only applied to fire management activities -- that is, every other year, beginning in year 6.

⁴⁰ California Department of Forest and Fire Protection. 2003. "Fire: Wildland Urban Interface (WUI) Fire Threat." Accessed online on August 7, 2006 at: <http://frap.cdf.ca.gov/data/fraggisdata/select.asp>

EXHIBIT 3-2

URBAN AND FIRE CHARACTERISTICS OF PRIVATE LANDS PROPOSED FOR CRITICAL HABITAT

UNIT	SUBUNIT	PROPOSED CRITICAL HABITAT (ACRES)	HOUSING DENSITY ^{1,2}	FIRE THREAT ^{1,3}	WILDLAND URBAN INTERFACE (ACRES) ¹
Vail Lake ceanothus					
1	A: Vail Lake	76	None	Extreme	0
	B: Agua Tibia Mountains	4	Less than 1 unit per 160 acres	Very High	4
Mexican flannelbush					
1	A: Cedar Canyon	114	None	Very High	114
	B: Little Cedar Canyon	19	None	Very High to Extreme	5
TOTAL Acres:		213			123
Notes:					
1. <u>Source:</u> California Department of Forest and Fire Protection (CDFPP). 2003. "Fire: Wildland Urban Interface (WUI) Fire Threat." Accessed online on August 7, 2006 at: http://frap.cdf.ca.gov/data/frapgisdata/select.asp					
2. CDFPP based "housing density on two data sets: U.S. Census Bureau (2000) housing unit density and USGS National Land Cover Data (NLCD). There are a total of ten housing density classes ranging from 1 equal to None; 2 equal to less than 1 unit per 160 acres to 10, equal to 2 units per 1 acres to 5 units per acre.					
3. "Fire Threat" is a calculated numerical index based on data, including but not limited to, fuel type, climate, vegetation and historical fire rates. The result is a threat index ranging from -1 to 4, where 1 is equal to little or no threat and 4 is extreme.					

62. Although 123 acres of private land within potential critical habitat overlap WUI areas, conservation efforts intended to maintain natural fire regimes are not anticipated to affect these lands. As described in Chapter 2, future development is unlikely within these areas. However, urban development adjacent to or near habitat may also pose a threat.
63. Existing land use regulations and geographic conditions (i.e., remote terrain and steep slopes) suggest that future development in the surrounding areas will be limited to large lot, low density development (i.e., rural, rather than urban, development). For example, in Riverside County, private land parcels within potential critical habitat areas are zoned as either RR (Rural Residential), RM (Rural Mountainous), or OS-RUR (Open Space - Rural).⁴¹ Under these zoning codes, development is limited to light agriculture and one single family residence per five acres, ten acres and 20 acres, respectively.⁴²
64. As discussed in Chapter 2, Vail Lake, LLC plans a large development project near the Vail Lake ceanothus subunit 1A, including a golf resort, winery, and 5,000 homes.⁴³ No information is available regarding whether this particular project will threaten Vail Lake ceanothus potential habitat. The total assessed value of the land owned by Vail Lake, LLC is \$7,717,279.⁴⁴ Restrictions on development to protect subunit 1A could reduce the

⁴¹ County of Riverside Transportation and Land Management Agency, Geographic Information Services, Riverside County Land Information Service (RCLIS) accessed at <http://www2.tlma.co.riverside.ca.us/aims/pa/rclis/> on August 7, 2006.

⁴² Riverside County Planning Department. "Table LU-3. Land Use Designations Summary Table " accessed at http://www.rcip.org/Documents/general_plan/gen_plan/tab_02.pdf on August 7, 2006.

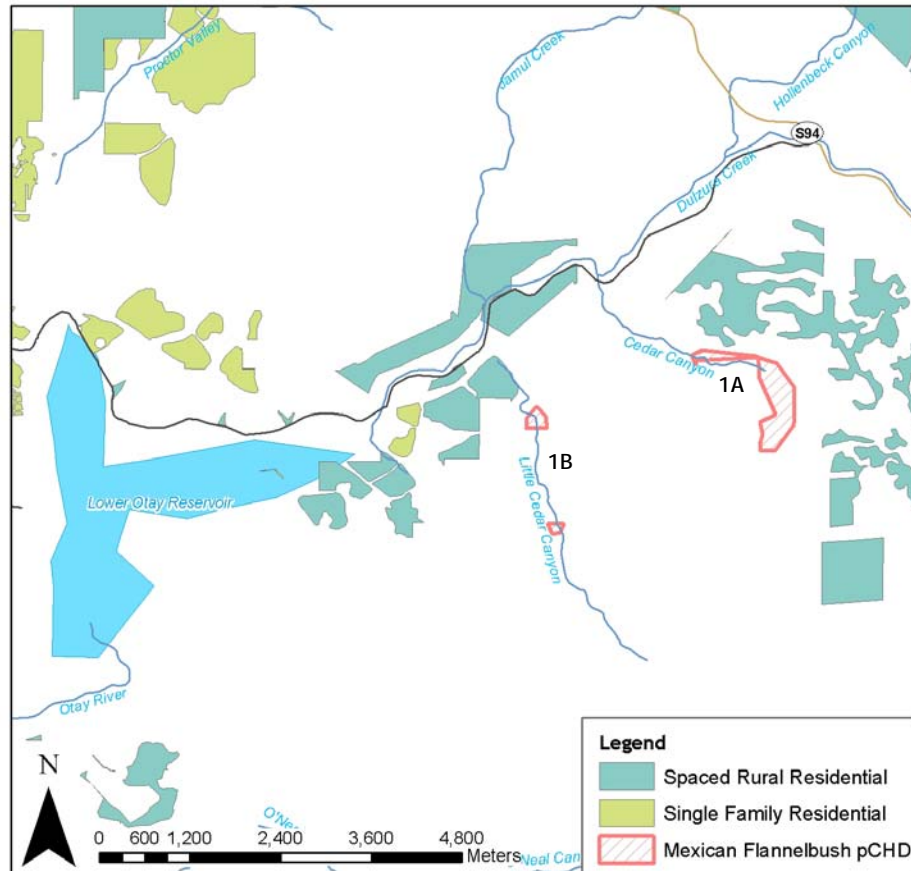
⁴³ WaterTech Online. 2002. "Developer faces \$400,000 in fines." February 19, 2002.

⁴⁴ Source: Assessor's Offices for San Diego County.

value of this property. It is important to note that this subunit is proposed for exclusion from the final critical habitat designation.

65. In San Diego County, the San Diego Association of Governments (SANDAG) maintains GIS data on planned land uses across the county as part of its 2030 Regional Growth Forecast efforts. These data show areas of the county available for development. As shown in Exhibit 3-5, rural residential development might occur to the north, east and south of Mexican flannelbush subunit 1A and to the north and west of subunit 1B.

EXHIBIT 3-5 PLANNED LAND USE FOR PRIVATE LANDS PROPOSED AS MEXICAN FLANNELBUSH CRITICAL HABITAT



Source: SANDAG. GIS Digital Boundary Files & Layers: LAND COVER AND ACTIVITY CENTERS, Developable Land. Accessed at http://www.sandag.org/resources/maps_and_gis/gis_downloads/land.asp on August 7, 2006.

66. In summary, one large-scale development project is planned adjacent to Vail Lake ceanothus subunit 1A, which is proposed for exclusion from the final designation. In addition, large lot, rural development may occur in other areas adjacent to proposed critical habitat for both species. Additional development in the area is likely to be rural, as opposed to urban. Whether proposed projects will be close enough, or dense enough, to increase the threat of fires to potential critical habitat is unknown.

FUTURE COSTS

67. Determining the potential future economic impact from fire management activities on the approximately 213 acres of private lands in Riverside and San Diego Counties requires an estimate of the cost per acre of implementing fire management activities that provide protection for the plant species. This analysis assumes that fire management activities on private lands will be similar to the preferred method of fire management on public BLM lands. According to BLM, the preferred fire management technique is to use weed-wackers aimed at reducing non-native vegetation that may disrupt the natural fire regime. On average, BLM estimates that removing vegetation will cost approximately \$10,000 per year across 228 acres, or \$43.86 per acre. This fire management activity would need to occur on a regular basis, every other year. In addition, it is expected that prior to initiating fire management activities, a survey of the land and development of a fire management plan will be necessary, at an approximate cost of \$5,000 to \$10,000 in the first year.⁴⁵
68. BLM staff also indicate that this type of vegetation management can be concurrently used to manage exotic grasses that may adversely impact (e.g., compete for space and resources) Mexican flannelbush populations. Similar to public lands (see Section 3.1), this analysis assigns a portion of the costs to alien plant species management (see Chapter 4).
69. Assuming that fire management activities on BLM lands will be similar to those on private lands, total future costs associated with fire management activities on private lands is estimated to be \$105,000 to \$125,000 (undiscounted dollars). Present value future costs are estimated to be \$84,000 to \$104,000 over this same time period using a discount rate of three percent, or \$67,000 to \$87,000 using a discount rate of seven percent.
- 3.3 CAVEATS TO ECONOMIC ANALYSIS OF IMPACTS ON FIRE MANAGEMENT ACTIVITIES**
70. Exhibit 3-6 discusses two sources of uncertainty regarding impacts to Federal land managers.

⁴⁵ Across the four subunits, there are four landowners, each of whom holds either all or a majority (greater than 99%) of the land in each subunit. Accordingly, this analysis assumes that each of these landowners will require a survey of the land and development of a fire management plan (i.e., these costs will be incurred in year one for each of the four subunits).

EXHIBIT 3-6 CAVEATS TO THE ECONOMIC ANALYSIS OF IMPACTS ON ALIEN PLANT SPECIES MANAGEMENT

KEY ASSUMPTION	EFFECT ON IMPACT ESTIMATE
Anticipated fire management activities and associated costs are based on preliminary data on area terrain and vegetation provided by the Service (i.e., BLM staff have not yet conducted a comprehensive fire management survey of proposed critical habitat areas).	+/-
The hourly BLM staff rate is \$39.72 (GS-11) to \$47.60 (GS-12).	+/-
Annual cost of fire management activities on private lands is \$46.65 per acre, similar to BLM lands.	+/-
Fire management activities will be required on all private lands proposed as critical habitat.	+
- : This assumption may result in an underestimate of real costs. + : This assumption may result in an overestimate of real costs. +/-: This assumption has an unknown effect on estimates.	

EXHIBIT 3-3 WUI DESIGNATION WITHIN PRIVATE LANDS FOR THE VAIL LAKE CEANOTHUS

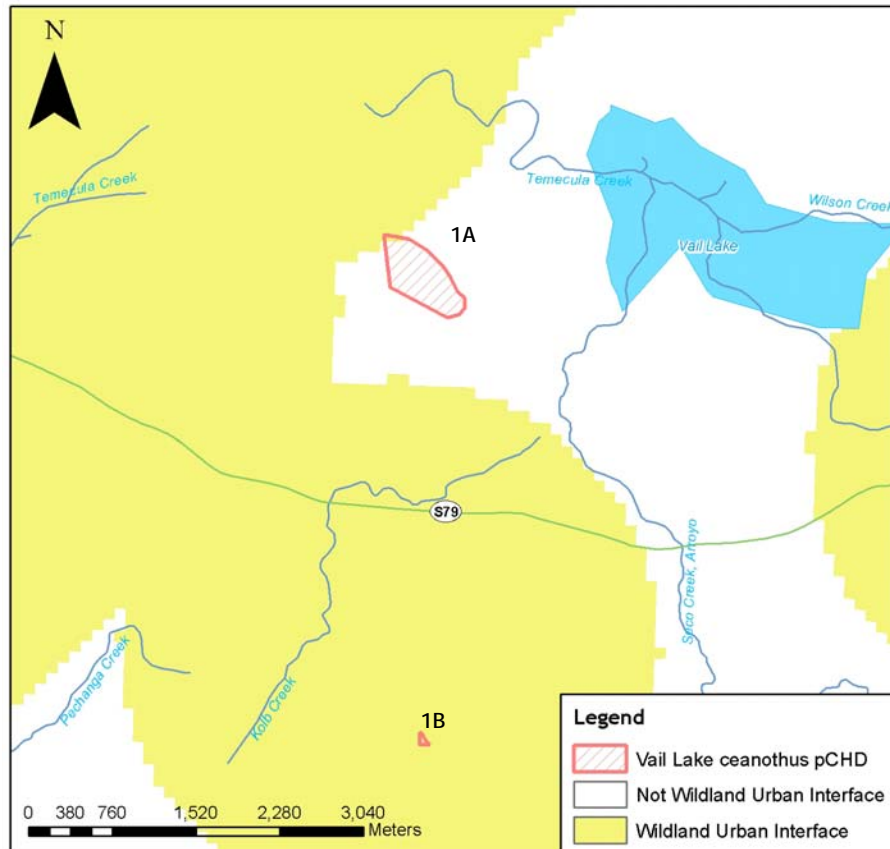
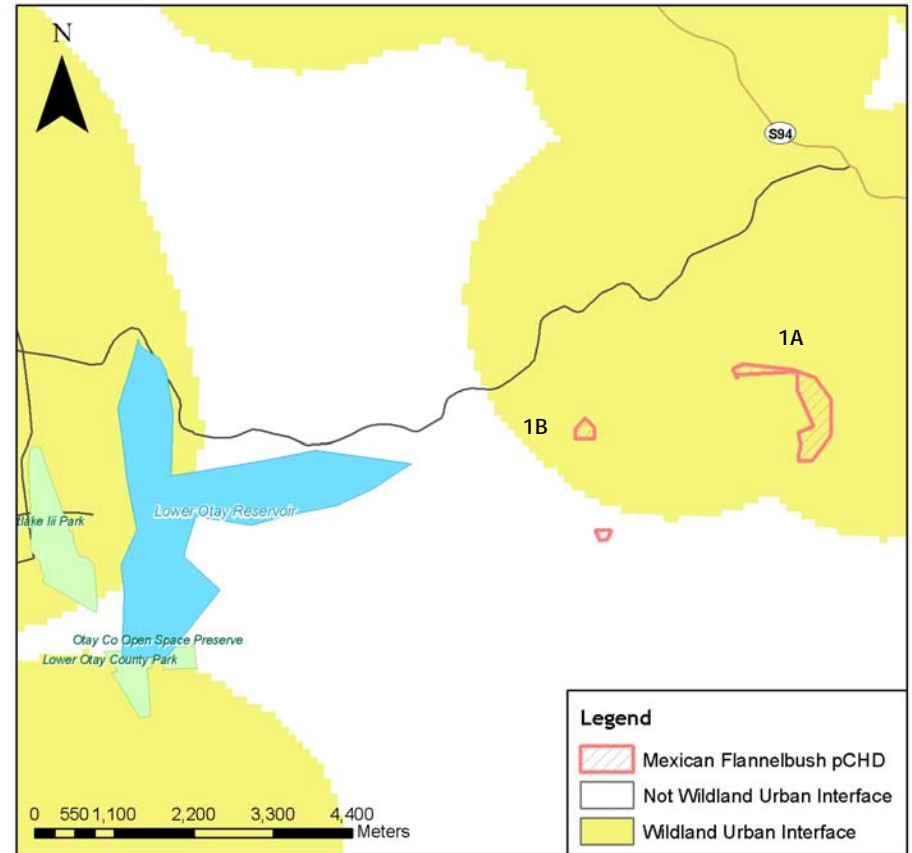


EXHIBIT 3-4 WUI DESIGNATION WITHIN PRIVATE MEXICAN FLANNELBUSH



Source: California Department of Forest and Fire Protection (CDFPP). 2003. "Fire: Wildland Urban Interface (WUI) Fire Threat." Accessed online on August 7, 2006 at: <http://frap.cdf.ca.gov/data/frapgisdata/select.asp>

CHAPTER 4 | POTENTIAL ECONOMIC IMPACTS TO ALIEN PLANT SPECIES MANAGEMENT ON FEDERAL LANDS

71. According to the proposed rule, alien plant species such as *Tamarix spp.* (salt cedar) and exotic grasses such as *Cortaderia selloana* (Pampas grass) could reduce the amount of space available to Mexican flannelbush and alter the vegetation community if they become well established in Cedar Canyon (subunit 1A) or Little Cedar Canyon (subunit 1B). As a result, the proposed rule indicates that special management may be required to keep alien species from impacting Mexican flannelbush populations.
72. This section quantifies the economic impact of implementing conservation activities to protect the Mexican flannelbush from encroachment by alien plant species. This section is divided into two parts discussing the impact of fire management on public and private lands, respectively. Exhibit 4-1 summarizes future impacts of alien plant species management. Total future impacts are estimated to range from \$71,000 to \$139,000 (undiscounted dollars) over twenty years.

EXHIBIT 4-1 SUMMARY OF FUTURE IMPACTS OF ALIEN PLANT MANAGEMENT ACTIVITIES FOR THE MEXICAN FLANNELBUSH, 2007-2026 (\$2006)

UNIT	SUBUNIT	UNDISCOUNTED DOLLARS		PRESENT VALUE 3%		PRESENT VALUE 7%	
		LOW	HIGH	LOW	HIGH	LOW	HIGH
Vail Lake ceanothus							
1	A: Vail Lake	\$0	\$0	\$0	\$0	\$0	\$0
	B: Agua Tibia Mountains	\$0	\$0	\$0	\$0	\$0	\$0
Mexican flannelbush							
2	A: Cedar Canyon	\$45,000	\$81,000	\$41,000	\$73,000	\$37,000	\$65,000
	B: Little Cedar Canyon	\$26,000	\$58,000	\$24,000	\$54,000	\$22,000	\$49,000
TOTAL:		\$71,000	\$139,000	\$65,000	\$127,000	\$59,000	\$114,000
<u>Note:</u> Totals may not sum due to rounding.							

4.1 FUTURE IMPACTS OF ALIEN PLANT SPECIES MANAGEMENT ON FEDERAL LANDS⁴⁶

73. This section quantifies the economic costs of future conservation activities to protect the Mexican flannelbush from the adverse impacts of two groups of alien plants species: (1) *Tamarix spp.* (salt cedar) and (2) exotic grasses.

⁴⁶ Within proposed critical habitat areas, there have been no past conservation activities to control alien plant species for either the Mexican flannelbush or the Vail Lake ceanothus.

TAMARIX SPP.

74. According to discussions with the Service, surveys conducted in 2006 identified fledgling populations of *Tamarix spp.* (salt cedar) in both Cedar Canyon and Little Cedar Canyon. In order to prevent these populations from gaining a permanent foothold in the area, the Service suggested the need to send four BLM staff for one to two days per canyon to remove the alien plant species. Discussions with BLM staff indicate an appropriate hourly rate is the GS-11 level, or \$39.72 per hour (2006 dollars).^{47,48} Total costs for one-year of *Tamarix spp.* removal activities are estimated to be approximately \$3,000 to \$5,000 (2006 dollars).
75. Following Tamarisk removal, annual monitoring would also be required consisting of one to two people for one day per year, per canyon at an annual cost of approximately \$1,000 to \$4,000 (2006 dollars).

EXOTIC GRASSES

76. Recent surveys (2006) conducted by the Service indicate that exotic grasses (e.g., *Avena*, *Lolium*, *Bromus*) are well established in both Cedar Canyon and Little Cedar Canyon.⁴⁹ According to BLM staff, there are two management options available.⁵⁰
- **Weed-wackers.** Cutting non-native grasses back from Mexican flannelbush populations using weed-wackers at an appropriate time of year on an annual basis for at least five years until the non-native seed bank is depleted.
 - **Herbicides.** The Mexican flannelbush populations on BLM lands occur in a designated Wilderness Area. As a result, the use of motorized equipment, such as a weed-wacker, may not be permitted. A second, more expensive option available to BLM is the hand application of herbicides. This treatment method is considerably more expensive than weed-wackers, estimated to cost approximately \$25,000 per year for at least five years.
77. In addition, regardless of which treatment method is selected, BLM staff indicate that they will also need to prepare documentation under the National Environmental Policy Act (NEPA), including an Environmental Analysis, a Notice of Proposed Action and a Minimum Tool Analysis. This effort would require approximately 40 hours of staff time at a GS-11 (\$39.72 per hour) or GS-12 (\$47.60 per hour) rate.

⁴⁷ Personal communication with Joyce Schlachter, Wildlife Biologist, BLM San Diego Project Office/Palm Springs-South Coast Field Office on August 16, 2006.

⁴⁸ According to the U.S. Office of Personnel Management (OPM), the GS-11 hourly rate for the San Diego-Carlsbad-San Marcos, CA region ranges from \$26.36 (Step 1) to \$34.29 (Step 10). This analysis assumes an hourly GS-11, Step 5 rate of \$29.90. Based on OMB Circular A-76, this hourly rate is then adjusted by a "fringe benefit" factor of 32.85 percent, which represents the sum of a retirement benefit cost factor of 24.0 percent, an insurance and health benefit cost factor of 5.7 percent, a Medicare benefit cost factor of 1.45 percent, and a miscellaneous fringe benefit cost factor of 1.7 percent.

⁴⁹ Email communication from John Martin, Refuge Biologist, U.S. Fish and Wildlife Service to Joyce Schlachter, Wildlife Biologist, BLM Palm Springs/South Coast San Diego Project Office on August 17, 2006.

⁵⁰ Email and personal communications with Joyce Schlachter, Wildlife Biologist, BLM Palm Springs/South Coast San Diego Project Office on August 21, 2006 and August 25, 2006.

78. BLM staff indicate that this type of vegetation management can also be used concurrently to achieve fire management objectives. As a result, this analysis assigns a portion of the costs (including the NEPA analysis) to fire management activities (see Chapter 3 for more detail).
79. As shown in Exhibit 4-1, the total undiscounted future costs of alien plant species management for the Mexican flannelbush range from \$45,000 to \$108,000 over twenty years. Present value future costs are estimated to be \$42,000 to \$100,000 over this same time period (\$3,000 to \$7,000 annualized) using a discount rate of three percent, or \$38,000 to \$91,000 (\$4,000 to \$9,000 annualized) using a discount rate of seven percent.

4.2 FUTURE IMPACTS OF ALIEN PLANT SPECIES MANAGEMENT ON PRIVATE LANDS

80. Determining the potential future economic impact from alien plant species management on the approximately 133 acres of private lands in San Diego County requires an estimate of the cost per acre of implementing alien plant species management that provide protection for the Mexican flannelbush. This analysis assumes that alien plant species fire management on private lands will be similar to the preferred method of alien plant species management on public BLM lands. According to BLM, the preferred technique to reduce non-native vegetation that may compete with Mexican flannelbush is to use weed-wackers. On average, BLM estimates that removing vegetation will cost approximately \$10,000 per year across 228 acres, or \$43.86 per acre. These activities would need to occur on an annual basis for at least five years until the non-native seed bank is depleted. After five years, annual survey and monitoring of the area would also be required to ensure that the non-native vegetation does not return.
81. BLM staff indicate that this type of vegetation management can also be used concurrently to achieve fire management objectives. Similar to public lands, this analysis assigns a portion of the costs to fire management activities (see Chapter 3 for more detail).
82. Assuming that alien plant species management on BLM lands will be similar to those on private lands, total future costs associated with alien plant species management on private lands is estimated to be \$26,000 to \$32,000 (undiscounted dollars). Present value future costs are estimated to be \$23,000 to \$27,000 over this same time period using a discount rate of three percent, or \$20,000 to \$32,000 using a discount rate of seven percent.

4.3 CAVEATS TO ECONOMIC ANALYSIS OF IMPACTS ON ALIEN PLANT SPECIES MANAGEMENT

83. It is important to recognize the uncertainty inherent in the assumptions underlying this analysis of potential impacts on alien plant species management activities. Exhibit 4-2 discusses the uncertainties.

EXHIBIT 4-2 CAVEATS TO THE ECONOMIC ANALYSIS OF IMPACTS ON ALIEN PLANT SPECIES MANAGEMENT

KEY ASSUMPTION	EFFECT ON IMPACT ESTIMATE
Anticipated management activities and estimated costs are based on preliminary information obtained during alien plant surveys conducted by the Service (i.e., BLM staff have not yet conducted an alien plant survey of proposed critical habitat areas).	+/-
The hourly BLM staff rate is \$39.72 (GS-11) to \$47.60 (GS-12).	+/-
- : This assumption may result in an underestimate of real costs. + : This assumption may result in an overestimate of real costs. +/-: This assumption has an unknown effect on estimates.	

CHAPTER 5 | POTENTIAL ECONOMIC IMPACTS OF SURVEY AND MONITORING AND ADMINISTRATIVE ACTIVITIES ON FEDERAL LANDS

84. This chapter quantifies the additional costs of general surveying efforts of the plant species as well as the administrative costs of participation in section 7 consultations.⁵¹ Since the listing of the species in 1998, these costs have ranged from \$31,000 to \$41,000 (undiscounted dollars). Total future impacts are estimated to be \$92,000 to \$126,000 (undiscounted dollars). The majority of these costs are associated with section 7 consultation for future fire management activities (see Chapter 3) and alien plant species management (see Chapter 4).⁵² Exhibits 5-1 and 5-2 summarize these past and future costs.
- 5.1 SURVEY AND MONITORING**
85. The Cleveland National Forest (CNF) conducts surveys of Vail Lake ceanothus within the Agua Tibia Wilderness Areas. According to CNF staff, survey and monitoring efforts have cost a total of \$5,000 since 1998. This same level of effort is expected to continue moving forward.⁵³
86. According to discussions with BLM staff, no past survey and monitoring efforts for the Mexican flannelbush have taken place in the Otay Wilderness Area. A conservative estimate of the cost of future survey and monitoring efforts is approximately \$1,300 per year, equal to the cost of staff time for four days of field work at a GS-11 hourly rate of \$39.72.⁵⁴
87. The total undiscounted past costs of survey and monitoring efforts since 1998 is \$5,000. Present value past costs are estimated to be \$6,000 over this same time period, using a discount rate of three percent, or \$7,000 using a discount rate of seven percent.
88. Total undiscounted future costs of survey and monitoring efforts are estimated to be \$37,000 over twenty years. Present value future costs are estimated to be \$28,000 over this same time period using a real rate of three percent, or \$21,000 using a real rate of seven percent.

⁵¹ Costs associated with surveys conducted to assess damage caused by fires are included in Chapter 4. Past administrative costs associated with completing the Western Riverside Multiple Species Habitat Conservation Plan are discussed in Chapter 3.

⁵² Note, previous chapters did not include administrative costs associated with section 7 consultation for fire management activities (Chapter 3) or alien plant species management (Chapter 4).

⁵³ Personal communication with Kirsten Winter, Forest Biologist, Cleveland National Forest on July 28, 2006.

⁵⁴ According to the U.S. Office of Personnel Management (OPM), the GS-11 hourly rate for the San Diego-Carlsbad-San Marcos, CA region ranges from \$26.36 (Step 1) to \$34.29 (Step 10). This analysis assumes an hourly GS-11, Step 5 rate of \$29.90. Based on OMB Circular A-76, this hourly rate is then adjusted by a "fringe benefit" factor of 32.85 percent, which represents the sum of a retirement benefit cost factor of 24.0 percent, an insurance and health benefit cost factor of 5.7 percent, a Medicare benefit cost factor of 1.45 percent, and a miscellaneous fringe benefit cost factor of 1.7 percent.

5.2 ADMINISTRATIVE COSTS OF SECTION 7 CONSULTATIONS

89. Section 7 of the Act requires Federal agencies (Action agencies) to consult with the Service whenever activities that they undertake, authorize, permit, or fund may affect a listed species or designated critical habitat. Estimates of the typical cost of an individual consultation were developed from a review and analysis in 2002 of historical section 7 files from a number of Service field offices around the country. Per consultation cost estimates are based on an average level of effort for low, medium, or high complexity consultations, multiplied by the appropriate labor rates for staff from the Service and other Federal agencies. Costs to the Service and an Action agency of conducting a formal consultation range from \$14,000 to \$22,000. Costs for a programmatic consultation range from \$26,000 to \$36,000.
90. Since the listing of the species in 1998, there have been two programmatic consultations by the Cleveland National Forest associated with its Southern California Forest Plan in 2001 and 2005. In addition, in subunit 1A, the Service completed a biological opinion for the Western Riverside Multiple Species Habitat Conservation Plan, which included the Vail Lake ceanothus, in 2004.
91. Based on the discussions in the preceding chapters, four additional formal consultations are anticipated in the future: two in Vail Lake ceanothus subunit 1B for fire management activities, and one each in Mexican flannelbush subunits 1A and 1B covering fire management activities and alien plant species management. Lacking information regarding when these consultations are likely to take place, this analysis assumes they occur in 2007.⁵⁵
92. The total undiscounted past costs of administrative efforts since 1998 range from \$79,000 to \$107,000. Present value past costs are estimated at \$85,000 to \$115,000 over this same time period, using a discount rate of three percent, or \$95,000 to \$128,000 using a discount rate of seven percent.
93. Total undiscounted future costs of administrative efforts are estimated to range from \$56,000 to \$89,000 over twenty years. Present value future costs are estimated to be from \$54,000 to \$87,000 over this same time period (\$4,000 to \$6,000 annualized) using a discount rate of three percent, or \$53,000 to \$85,000 (\$5,000 to \$8,000 annualized) using a discount rate of seven percent.

⁵⁵ Costs to USFS of conducting an emergency consultation on fire fighting activities are spread evenly from 2007 to 2014.

EXHIBIT 5-1 SUMMARY OF PAST IMPACTS OF SURVEY AND MONITORING AND ADMINISTRATIVE ACTIVITIES ON FEDERAL LANDS, 1998-2006 (\$2006)

UNIT	SUBUNIT	UNDISCOUNTED DOLLARS		PRESENT VALUE 3%		PRESENT VALUE 7%	
		LOW	HIGH	LOW	HIGH	LOW	HIGH
Vail Lake ceanothus							
1	A: Vail Lake	\$26,000	\$36,000	\$28,000	\$38,000	\$30,000	\$41,000
	B: Agua Tibia Mountains	\$53,000	\$71,000	\$58,000	\$78,000	\$65,000	\$88,000
Mexican flannelbush							
1	A: Cedar Canyon	\$0	\$0	\$0	\$0	\$0	\$0
	B: Little Cedar Canyon	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL:		\$79,000	\$107,000	\$85,000	\$115,000	\$95,000	\$128,000
Areas Proposed for Exclusion							
Vail Lake ceanothus							
1	A: Vail Lake	\$26,000	\$36,000	\$28,000	\$38,000	\$30,000	\$41,000
	B: Agua Tibia Mountains	\$0	\$0	\$0	\$0	\$0	\$0
<u>Note:</u> Totals may not sum due to rounding.							

EXHIBIT 5-2 SUMMARY OF FUTURE IMPACTS OF SURVEY AND MONITORING AND ADMINISTRATIVE ACTIVITIES ON FEDERAL LANDS, 2007-2026 (\$2006)

UNIT	SUBUNIT	UNDISCOUNTED DOLLARS		PRESENT VALUE 3%		PRESENT VALUE 7%	
		LOW	HIGH	LOW	HIGH	LOW	HIGH
Vail Lake ceanothus							
1	A: Vail Lake	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	B: Agua Tibia Mountains	\$39,000	\$56,000	\$35,000	\$51,000	\$31,000	\$46,000
Mexican flannelbush							
1	A: Cedar Canyon	\$30,000	\$38,000	\$26,000	\$35,000	\$23,000	\$31,000
	B: Little Cedar Canyon	\$23,000	\$32,000	\$21,000	\$29,000	\$19,000	\$28,000
TOTAL:		\$92,000	\$126,000	\$82,000	\$115,000	\$74,000	\$105,000
<u>Note:</u> Totals may not sum due to rounding.							

APPENDIX A | SMALL ENTITY AND ENERGY IMPACTS ANALYSIS

94. This appendix considers the extent to which the analytic results presented in the previous sections reflect potential future impacts to small entities and the energy industry. The screening analysis presented in this appendix is conducted pursuant to the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) in 1996. Information for this analysis was gathered from the Small Business Administration (SBA), U.S. Census Bureau, and the Risk Management Association (RMA). The energy analysis in Section A.2 is conducted pursuant to Executive Order No. 13211.

A.1 SBREFA ANALYSIS

95. In accordance with SBREFA, when a Federal agency publishes a notice of rulemaking for any proposed or final rule, it must make available for public comments a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions). No regulatory flexibility analysis is required, however, 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 RFA to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have significant economic impact on a substantial number of small entities.

96. To assist in this process, the following represents a screening level analysis of the potential for Vail Lake ceanothus and Mexican flannelbush conservation efforts to affect small entities. This analysis is based on the estimated impacts associated with the proposed rulemaking as described in Chapters 3 through 5 of this analysis. The analysis evaluates the potential for economic impacts related to four categories:

- Development;
- Fire management on Federal and private lands;
- Alien plant species management on Federal and private lands; and
- Other activities on Federal lands, including survey and monitoring efforts and administrative costs associated with Section 7 consultation.

97. Impacts of conservation activities are not anticipated to affect small entities in the following categories: development, fire management on Federal lands, alien plant species management on Federal lands, and other activities on Federal lands. Chapter 2 concludes that no development is likely in proposed critical habitat. Rural, large lot development may occur in areas adjacent to proposed critical habitat; however, the likelihood of this type of development and whether it will pose a threat to the habitat is

unknown. As described in Chapters 3 through 5, the modifications to activities on Federal lands, including fire management activities, alien plant species management, and surveying and monitoring activities will be borne by the U.S. Forest Service (USFS) and the U.S. Bureau of Land Management (BLM). The Federal government is not considered to be a small entity by the Small Business Administration (SBA).

98. Accordingly, the small business analysis contained in this appendix focuses on economic impacts to fire management activities and alien plant species management on private lands.⁵⁶ Two private landowners in Riverside County are included in areas proposed as critical habitat. The total economic impact for these two landowners over the next 20 years is \$3,000 to \$4,000 per year for fire management activities, and \$1,000 to \$2,000 per year for alien plant species management. Whether these two landowners qualify as a small business is unknown.

A.2 POTENTIAL IMPACTS TO THE ENERGY INDUSTRY

99. Pursuant to Executive Order No. 13211, “Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use,” issued May 18, 2001, Federal agencies must prepare and submit a “Statement of Energy Effects” for all “significant energy actions.” The purpose of this requirement is to ensure that all Federal agencies “appropriately weigh and consider the effects of the Federal Government’s regulations on the supply, distribution, and use of energy.”⁵⁷
100. The Office of Management and Budget provides guidance for implementing this Executive Order, outlining nine outcomes that may constitute “a significant adverse effect” when compared with the regulatory action under consideration:
- Reductions in crude oil supply in excess of 10,000 barrels per day (bbls);
 - Reductions in fuel production in excess of 4,000 barrels per day;
 - Reductions in coal production in excess of 5 million tons per year;
 - Reductions in natural gas production in excess of 25 million Mcf per year;
 - Reductions in electricity production in excess of 1 billion kilowatts-hours per year or in excess of 500 megawatts of installed capacity;
 - Increases in energy use required by the regulatory action that exceed the thresholds above;
 - Increases in the cost of energy production in excess of one percent;
 - Increases in the cost of energy distribution in excess of one percent; or
 - Other similarly adverse outcomes.⁵⁸

⁵⁶ Two additional private landowners in San Diego County are proposed for exclusion from the final designation.

⁵⁷ Memorandum For Heads of Executive Department Agencies, and Independent Regulatory Agencies, Guidance For Implementing E.O. 13211, M-01-27, Office of Management and Budget, July 13, 2001, <http://www.whitehouse.gov/omb/memoranda/m01-27.html>.

⁵⁸ Ibid.

As none of these criteria is relevant to this analysis, energy-related impacts associated with conservation efforts within the potential critical habitat are not expected.

APPENDIX B | PAST IMPACTS TO ALL ACTIVITIES BY SUBUNIT

EXHIBIT B-1 PAST IMPACTS (1998-2006) TO ALL ACTIVITIES BY SUBUNIT

UNIT	SUBUNIT	UNDISCOUNTED		PRESENT VALUE, 3%		PRESENT VALUE, 7%	
		LOW	HIGH	LOW	HIGH	LOW	HIGH
Vail Lake ceanothus							
1	A: Vail Lake	\$26,000	\$36,000	\$28,000	\$38,000	\$30,000	\$41,000
	B: Agua Tibia Mountains	\$63,000	\$81,000	\$69,000	\$89,000	\$77,000	\$100,000
Mexican flannelbush							
1	A: Cedar Canyon	\$0	\$0	\$0	\$0	\$0	\$0
	B: Little Cedar Canyon	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL:		\$89,000	\$117,000	\$96,000	\$126,000	\$108,000	\$141,000
Proposed for Exclusion							
1	A: Vail Lake	\$26,000	\$36,000	\$28,000	\$38,000	\$30,000	\$41,000
	B: Agua Tibia Mountains	\$0	\$0	\$0	\$0	\$0	\$0

APPENDIX C | FUTURE IMPACTS BY ACTIVITY, BY SUBUNIT

EXHIBIT C-1 TOTAL FUTURE IMPACTS (2007 - 2026) BY ACTIVITY, UNDISCOUNTED

SUBUNIT	FIRE MANAGEMENT		ALIEN PLANT SPECIES MANAGEMENT		SURVEYING & MONITORING	ADMIN		TOTAL	
	LOW	HIGH	LOW	HIGH		LOW	HIGH	LOW	HIGH
Vail Lake ceanothus									
1A: Vail Lake	\$35,000	\$40,000	\$0	\$0	\$0	\$0	\$0	\$35,000	\$40,000
1B: Agua Tibia Mountains	\$17,000	\$27,000	\$0	\$0	\$11,000	\$28,000	\$45,000	\$56,000	\$82,000
Mexican flannelbush									
1A: Cedar Canyon	\$104,000	\$183,000	\$45,000	\$81,000	\$16,000	\$14,000	\$22,000	\$179,000	\$302,000
1B: Little Cedar Canyon	\$66,000	\$145,000	\$26,000	\$58,000	\$9,000	\$14,000	\$22,000	\$115,000	\$235,000
Total:	\$221,000	\$395,000	\$71,000	\$139,000	\$37,000	\$56,000	\$89,000	\$385,000	\$659,000
Areas Proposed for Exclusion									
1A: Vail Lake	\$35,000	\$40,000	\$0	\$0	\$0	\$0	\$0	\$35,000	\$40,000
1B: Agua Tibia Mountains	\$7,000	\$12,000	\$0	\$0	\$0	\$0	\$0	\$7,000	\$12,000
Total:	\$42,000	\$52,000	\$0	\$0	\$0	\$0	\$0	\$42,000	\$52,000
<u>Note:</u> Totals may not sum due to rounding.									

EXHIBIT C-2 TOTAL FUTURE IMPACTS (2007 - 2026) BY ACTIVITY, ASSUMING A THREE PERCENT DISCOUNT RATE

SUBUNIT	FIRE MANAGEMENT		ALIEN PLANT SPECIES MANAGEMENT		SURVEYING & MONITORING	ADMIN		TOTAL	
	LOW	HIGH	LOW	HIGH		LOW	HIGH	LOW	HIGH
Vail Lake ceanothus									
1A: Vail Lake	\$28,000	\$33,000	\$0	\$0	\$0	\$0	\$0	\$28,000	\$33,000
1B: Agua Tibia Mountains	\$16,000	\$26,000	\$0	\$0	\$9,000	\$26,000	\$42,000	\$51,000	\$77,000
Mexican flannelbush									
1A: Cedar Canyon	\$81,000	\$144,000	\$41,000	\$73,000	\$12,000	\$14,000	\$22,000	\$148,000	\$251,000
1B: Little Cedar Canyon	\$53,000	\$115,000	\$24,000	\$54,000	\$7,000	\$14,000	\$22,000	\$98,000	\$198,000
Total:	\$178,000	\$317,000	\$65,000	\$127,000	\$28,000	\$54,000	\$87,000	\$325,000	\$559,000
Areas Proposed for Exclusion									
1A: Vail Lake	\$28,000	\$33,000	\$0	\$0	\$0	\$0	\$0	\$28,000	\$33,000
1B: Agua Tibia Mountains	\$6,000	\$11,000	\$0	\$0	\$0	\$0	\$0	\$6,000	\$11,000
Total:	\$34,000	\$44,000	\$0	\$0	\$0	\$0	\$0	\$34,000	\$44,000
<u>Note:</u> Totals may not sum due to rounding.									

EXHIBIT C-3 TOTAL FUTURE IMPACTS (2007 - 2026) BY ACTIVITY, ASSUMING A SEVEN PERCENT DISCOUNT RATE

SUBUNIT	FIRE MANAGEMENT		ALIEN PLANT SPECIES MANAGEMENT		SURVEYING & MONITORING	ADMIN		TOTAL	
	LOW	HIGH	LOW	HIGH		LOW	HIGH	LOW	HIGH
Vail Lake ceanothus									
1A: Vail Lake	\$22,000	\$27,000	\$0	\$0	\$0	\$0	\$0	\$22,000	\$27,000
1B: Agua Tibia Mountains	\$15,000	\$25,000	\$0	\$0	\$6,000	\$25,000	\$40,000	\$46,000	\$71,000
Mexican flannelbush									
1A: Cedar Canyon	\$62,000	\$110,000	\$37,000	\$65,000	\$9,000	\$14,000	\$22,000	\$122,000	\$207,000
1B: Little Cedar Canyon	\$41,000	\$89,000	\$22,000	\$49,000	\$5,000	\$14,000	\$22,000	\$82,000	\$166,000
Total:	\$140,000	\$252,000	\$59,000	\$114,000	\$21,000	\$53,000	\$85,000	\$272,000	\$471,000
Areas Proposed for Exclusion									
1A: Vail Lake	\$22,000	\$27,000	\$0	\$0	\$0	\$0	\$0	\$22,000	\$27,000
1B: Agua Tibia Mountains	\$6,000	\$11,000	\$0	\$0	\$0	\$0	\$0	\$6,000	\$11,000
Total:	\$28,000	\$38,000	\$0	\$0	\$0	\$0	\$0	\$28,000	\$38,000
<u>Note:</u> Totals may not sum due to rounding.									

REFERENCES

California. March 2003. State Assessment Manual. California State Board of Equalization.

California Department of Forest and Fire Protection. 2003. "Fire: Wildland Urban Interface (WUI) Fire Threat." Accessed on August 7, 2006 online at: <http://frap.cdf.ca.gov/data/frapgisdata/select.asp>

County of Riverside Transportation and Land Management Agency, Geographic Information Services. Riverside County Land Information Service (RCLIS). Accessed on August 7, 2006 online at: <http://www2.tlma.co.riverside.ca.us/aims/pa/rclis/>.

Economic and Planning Systems. March 2005. Economic Analysis of Critical Habitat Designation for the Arroyo Toad.

Email communication from John Martin, Refuge Biologist, U.S. Fish and Wildlife Service to Joyce Schlachter, Wildlife Biologist, BLM Palm Springs/South Coast San Diego Project Office on August 17, 2006.

Executive Order 12866. 1993. *Regulatory Planning and Review*. September 30, 1993

Executive Order 13211. 2001. *Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use*. May 18, 2001.

Gramlich, Edward M. 1990. A Guide to Benefit-Cost Analysis (2nd Ed.). Prospect Heights, Illinois. Waveland Press, Inc.

New Mexico Cattle Growers Ass'n v. U.S.F.W.S., 248 F.3d 1277 (10th Cir. 2001).

Personal communication with Barry Jones, Helix Environmental Planning, Inc. on August 24, 2006.

Personal communications with Joyce Schlachter, Wildlife Biologist, BLM Palm Springs/South Coast San Diego Project Office, July and August 2006.

Personal communication with Kirsten Winter, Forest Biologist, Cleveland National Forest on July 28, 2006.

Riverside County. 2003. Final MSHCP: Volume 1 - The Plan. June 2003. Accessed on: August 1, 2006 online at: <http://rcip.org/mshcpdocs/vol1/mshcpvol1toc.htm>

Riverside County Planning Department. "Table LU-3. Land Use Designations Summary Table." Accessed on August 7, 2006 online at: http://www.rcip.org/Documents/general_plan/gen_plan/tab_02.pdf.

San Diego Association of Governments (SANDAG). GIS Digital Boundary Files & Layers: Land Cover and Activity Centers, Developable Land. Accessed on August 7, 2006 at: http://www.sandag.org/resources/maps_and_gis/gis_downloads/land.asp.

U.S. Environmental Protection Agency. 2000. *Guidelines for Preparing Economic Analyses*. EPA 240-R-00-003. September 2000. Available online at: <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Guidelines.html>.

U.S. Fish and Wildlife Service. “Endangered Species and Habitat Conservation Planning.” Accessed on August 6, 2006 online at: <http://endangered.fws.gov/hcp/>.

U.S. Fish and Wildlife Service (Service). 2005. Biological and Conference Opinions on the Revised Land and Resource Management Plans for the Four Southern California National Forests, California (1-6-05-F-773.9)

U.S. Forest Service (USFS). 2005. Southern California Forest Plan Revision Final Environmental Impact Statement, Angeles National Forest, Cleveland National Forest, Los Padres National Forest, San Bernardino National Forest, Lead Agency: USDA Forest Service. Responsible Official: Bernie Weingardt, Regional Forester, Pacific Southwest Region (Accessible via: <http://www.fs.fed.us/r5/scfpr/projects/Imp/index.htm>)

U.S. Office of Management and Budget. 2003. *Circular A-4*. Washington, D.C. September 17, 2003, Available at: <http://www.whitehouse.gov/omb/circulars/a004/a-4.pdf>.

U.S. Office of Management and Budget. 2003. *Circular A-76*. Washington, D.C. May 29, 2003, Available at: http://www.whitehouse.gov/omb/circulars/a076/a76_incl_tech_correction.html.

U.S. Office of Management and Budget. 2003. *Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations; Notice*. 68 Federal Register 5492. Washington, D.C. February 3, 2003.

U.S. Office of Management and Budget. 2001. Memorandum For Heads of Executive Department Agencies, and Independent Regulatory Agencies, Guidance For Implementing E.O. 13211, M-01-27, July 13, 2001, <http://www.whitehouse.gov/omb/memoranda/m01-27.html>.

U.S. Office of Personnel Management. 2006. “2006 General Schedule (GS) Locality Pay Tables.” Accessed on August 15, 2006 online at: <http://www.opm.gov/oca/06tables/indexGS.asp>.

WaterTech Online. 2002. “Developer faces \$400,000 in fines.” February 19, 2002.