

# **Economic Analysis of Critical Habitat Designation for Yadon's Piperia**

**Monterey County, California**

Prepared for:  
U.S. Fish and Wildlife Service  
4401 North Fairfax Drive  
Arlington, VA 22203

Prepared by:  
CRA International  
5335 College Avenue, Suite 26  
Oakland, CA 94618

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## Executive Summary

The purpose of this report is to identify and analyze the potential economic impacts associated with the proposed critical habitat designation for the federally listed Yadon's Piperia, *Piperia yadonii*. This report was prepared by CRA International (CRA), for the U.S. Fish and Wildlife Service (Service).

This report 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 over a twenty year horizon, from 2007 to 2026. It also considers past impacts associated with conservation of the species from the time the species was listed under the Endangered Species Act of 1973 (the Act) on August 12, 1998, through the present.

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 them.<sup>1</sup> In addition, this information allows 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).<sup>2</sup> This report also complies with direction from the U.S. 10th Circuit Court of Appeals that "coextensive" effects should be included in the economic analysis to inform decision-makers regarding which areas to designate as critical habitat.<sup>3</sup> Additionally, Appendix A of this report describes the subset of coextensive impacts that are forecast to occur solely because of the designation of critical habitat; these are referred to as the "incremental" impacts of the rulemaking, and would not be expected to occur but for the designation of critical habitat.

Following the Executive Summary, Section I summarizes the purpose of the report. Section II provides an outline of the analytical framework. Section III describes the proposed critical habitat, including the primary constituent elements, threats, and the units and subunits. Section IV presents historical information regarding consultations, the Recovery Plan published by the Service, and past conservation efforts. The economic impacts associated with the proposed critical habitat are presented in Section V and are organized by unit and subunit. The potential incremental impacts of critical habitat designation for the piperia are presented in Appendix A. Past economic impacts are

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<sup>1</sup> U.S. Code, Title 16, Chapter 35, §1533 Determination of endangered species and threatened species (b) Basis for determinations (2).

<sup>2</sup> 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.

<sup>3</sup> In 2001, the U.S. 10<sup>th</sup> Circuit Court of Appeals instructed the Service to conduct a full analysis of all of the economic impacts of proposed critical habitat, regardless of whether those impacts are attributable coextensively to other causes (*New Mexico Cattle Growers Ass'n v. U.S.F.W.S.*, 248 F.3d 1277 (10<sup>th</sup> Cir. 2001)).

summarized in Appendix B. Finally, Appendix C details the screening analysis of potential effects on the energy industry and small entities.

The key economic impacts associated with efforts to conserve the piperia within the area of proposed critical habitat are presented in the box below. Table ES-1 shows the impacts ranked by entity. Impacts include future costs associated with actions to conserve the species. Past impacts are presented in Appendix B.

Appendix A attempts to isolate those direct and indirect impacts that are expected to be triggered specifically by the critical habitat designation. That is, the incremental conservation efforts and associated impacts included in this appendix would not be expected to occur absent the designation of critical habitat for the species. The results of this analysis are summarized in table A-3

A screening analysis of potential effects on the energy industry and small entities was conducted. Designation of critical habitat is not expected to lead to a reduction in electricity production or an increase in the cost of energy production or distribution. As a result of the screening analysis, one small entity could potentially be affected by the proposed rule. Please see Appendix C for a summary of the results of the screening analysis.

## Key Findings

**Total Incremental Impacts:** The proposed rule may impact two landowners, the Pebble Beach Company (PBC), and the Stevenson School. Incremental impacts to PBC are estimated to range from \$0 to \$2.6 million, depending on the scenarios described in section V of this analysis. The Stevenson School may bear incremental administrative impacts as a result of addressing adverse modification in section 7 consultation. The Stevenson School may bear additional incremental impacts associated with the modifications that may be placed on the project to address adverse modification, but these project modifications are too hypothetical to quantify. The remaining impacts quantified in the report, which are discussed below, are expected to occur regardless of the designation of critical habitat.

**Coextensive Future Impacts:** The economic analysis forecasts future coextensive impacts associated with conservation efforts for the piperia within areas of proposed critical habitat to range from \$6.6 to \$16.1 million (present value at a three percent discount rate) over the next 20 years (\$0.43 to \$1.0 million annualized).

Impacts to PBC, and the Stevenson School comprise the majority of the total quantified impacts in the areas of proposed critical habitat.

- **Pebble Beach Company:** PBC, which manages land in units 4a, 4b, 5, 6a, 6b, 6c, and 6e, has implemented management techniques designed to conserve the piperia and its habitat. Efforts include ongoing open space management and maintenance, golf course and residential area management and maintenance, site clean up and restoration, and monitoring and patrolling. As a result, total impacts to the Pebble Beach Company of protecting and restoring the piperia habitat are \$5.5 million (present value at a three percent discount rate) over 20 years.
- **Stevenson School:** The Stevenson School, which owns land in unit 6a, plans to develop an area of proposed critical habitat into an athletic field in the future. Currently, the Stevenson School is in an agreement to use a field owned by the PBC, but an approved PBC development plan will eliminate the School's ability to use the PBC field. If the Stevenson School cannot develop the field, the School would have to transport student athletes to an alternative off-campus site. If the Stevenson School can develop the field, section 7 of the ESA will likely apply, which will trigger a federal nexus, and require the ACOE to consult with the Service, leading to administrative costs to the Stevenson School. After the designation of critical habitat, the outcome of the biological opinion from the section 7 consultation will be more costly due to additional measures to address the adverse modification of critical habitat. As a result, the potential economic impacts to the Stevenson School could range from \$0.006 to \$9.2 million (present value at a three percent discount rate) over 20 years.

**Table ES-1: Estimated Future Economic Impacts: Landowner Ranking**

**Estimated impacts occurring over 20-year time frame (2007 - 2026)**

<b>Entity</b>	<b>Undiscounted Dollars</b>	<b>Present Value (3%)</b>	<b>Present Value (7%)</b>	<b>Annualized (3%)</b>	<b>Annualized (7%)</b>
Stevenson School Subunit 6a	[\$7,500 - \$12,310,963]	[\$5,579 - \$9,214,150]	[\$3,973 - \$6,624,591]	[\$364 - \$601,297]	[\$350 - \$584,406]
Pebble Beach Company Subunits 4, 5, 6a, 6b, 6c, 6e	\$7,411,240	\$5,514,973	\$3,929,313	\$359,896	\$346,635
Del Monte Forest Foundation Subunits 6a, 6c, 6d, 6e	\$1,000,160	\$743,993	\$529,785	\$48,551	\$46,736
Private Landowners Subunits 2b, 8	[\$0 - \$300,000]	[\$0 - \$223,162]	[\$0 - \$158,910]	[\$0 - \$14,563]	[\$0 - \$14,019]
Monterey County Subunit 2c	\$250,000	\$185,968	\$132,425	\$12,136	\$11,682
CA Dept. of Parks and Recreation Subunit 7	\$174,000	\$129,434	\$92,168	\$8,447	\$8,131
Elkhorn Slough Foundation Subunits 1a, 1b, 2a	\$41,480	\$31,212	\$22,590	\$2,037	\$1,993
Caltrans Subunits 3b, 3c	\$3,533	\$2,638	\$1,890	\$172	\$167
<b>Total Low</b>	<b>\$8,887,913</b>	<b>\$6,613,798</b>	<b>\$4,712,145</b>	<b>\$431,603</b>	<b>\$415,695</b>
<b>Total High</b>	<b>\$21,491,376</b>	<b>\$16,045,531</b>	<b>\$11,491,673</b>	<b>\$1,047,099</b>	<b>\$1,013,769</b>

Note:

(1) 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).

## **I Purpose**

The purpose of this report is to estimate the economic impact of actions taken to protect the federally listed *Piperia yadonii* (referred to as the piperia in this report) and its habitat. It attempts to quantify the economic effects associated with the proposed designation of critical habitat. It does so by taking into account the impacts of conservation-related measures that are likely to be associated with future economic activities that may adversely affect the species or habitat within the proposed boundaries. The analysis looks retrospectively at impacts incurred since the piperia was listed, and it attempts to predict future impacts likely to occur after the proposed critical habitat designation is finalized.

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.<sup>1</sup> 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).<sup>2</sup> This report also complies with direction from the U.S. Court of Appeals for the 10th Circuit that “coextensive” effects should be included in the economic analysis to inform decision-makers regarding which areas to designate as critical habitat.<sup>3</sup> Additionally, Appendix A of this report describes the subset of coextensive impacts that are forecast to occur solely because of the designation of critical habitat; these are referred to as the “incremental” impacts of the rulemaking, and would not be expected to occur but for the designation of critical habitat.

## **II Analytical Framework**

This economic analysis considers both the economic efficiency and distributional effects that may result from species and habitat protection. Economic efficiency effects generally reflect “opportunity costs” associated with the commitment of resources required to accomplish species and habitat conservation. Efficiency losses also include reductions in surplus levels resulting from economic activities such as land development. Similarly, the costs incurred by a Federal action agency to consult with the Service under section 7 represent opportunity costs of habitat conservation.

This analysis also addresses the distribution of impacts associated with the designation, including an assessment of any local or regional impacts of habitat conservation and the

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<sup>1</sup> 16 U.S.C. §1533(b)(2)

<sup>2</sup> 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.

<sup>3</sup> 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 critical habitat, regardless of whether those impacts are attributable coextensively to other causes (*New Mexico Cattle Growers Ass'n v. U.S.F.W.S.*, 248 F.3d 1277 (10th Cir. 2001)).

potential effects of conservation activities on small entities and the energy industry. This information may be used to determine whether the effects of the designation unduly burden a particular group or economic sector. For example, while habitat conservation activities may have a small impact relative to the national economy, individuals employed in a particular sector of the regional economy may experience a significant level of impact. The difference between economic efficiency effects and distributional effects, as well as their application in this analysis, are discussed in greater detail below.

## **II.A Efficiency Effects**

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 discern the implications on a societal level of a regulatory action. For regulations specific to the conservation of the piperia, 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 surplus in affected markets.<sup>4</sup>

In some instances, compliance costs may provide a reasonable approximation of the efficiency effects associated with a regulatory action. For example, a lead Federal agency may enter into a consultation with the Service to ensure that a particular activity will not adversely modify critical habitat. The end result of the consultation may be a small amount of additional conservation measures for on-site impacts of the proposed activity. The cost of the additional conservation measures would have been spent on alternative activities if the proposed project area had not been occupied by the species or designated as critical habitat. In the case that 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 provides a reasonable estimate of the change in economic efficiency.

More generally, 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 real estate market.

## **II.B Distributional and Regional Economic Effects**

Measurements of changes in economic efficiency focus on the net impact of conservation activities, without consideration of how certain economic sectors or groups of people are affected. Thus, a discussion of efficiency effects alone may miss important distributional considerations. OMB encourages Federal agencies to consider distributional effects

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<sup>4</sup> 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 EPA 240-R-00-003, September 2000, available at <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Guidelines.html>.

separately from efficiency effects.<sup>5</sup> This analysis considers several types of distributional effects, including impacts on small entities and impacts on energy supply, distribution, and use.

## **II.C Scope of the Analysis**

This analysis identifies those 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 of the proposed 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 coextensive with the designation.<sup>6</sup>

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. We note that 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 critical habitat designation, the impacts of these actions are considered relevant for understanding the full effect of the proposed designation. Enforcement actions taken in response to violations of the Act, however, are not included.

To provide additional information to decision-makers, Appendix A of this report describes the subset of coextensive impacts that are expected to precipitate specifically from this rulemaking. That is, Appendix A employs a "world without critical habitat designation" baseline to identify those impacts that would not be expected to occur but for the designation of critical habitat. These "incremental" impacts of the rulemaking are recognized as occurring above and beyond those impacts quantified in this report that are associated with the listing of the species, or with other Federal, State, and local laws that may contribute to the conservation of the species and habitat.

### **II.C.1 Sections of the Act Relevant to the Analysis**

The 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 critical habitat designation. According to section 4, the Secretary is required to list species as endangered or threatened “solely on the basis of the best available scientific and commercial data.”<sup>7</sup>

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<sup>5</sup> 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>.

<sup>6</sup> In 2001, the U.S. 10th Circuit Court of Appeals instructed the Service to conduct a full analysis of all of the economic impacts of proposed critical habitat, regardless of whether those impacts are attributable coextensively to other causes (*New Mexico Cattle Growers Assn v. U.S.F.W.S.*, 248 F.3d 1277 (10th Cir. 2001)).

<sup>7</sup> 16 U.S.C. §1533.

The protections afforded to threatened and endangered species and their habitat are described in sections 7, 9, and 10 of the Act, and economic impacts resulting from these protections are the focus of this analysis:

Section 7 of the Act requires Federal agencies to consult with the Service to ensure that any action they authorize, fund, or carry out will not likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of the species' designated critical habitat. The administrative costs of these consultations, along with the costs of project modifications resulting from these consultations, represent compliance costs associated with the listing of the species and the designation of critical habitat.<sup>8</sup>

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."<sup>9</sup> The economic impacts associated with this section manifest themselves in sections 7 and 10. While incidental take statements are not issued for plant species, in situations where a Federal nexus exists, the Service is obligated to evaluate whether or not the proposed action is likely to jeopardize the continued existence of the species or adversely modify designated critical habitat.

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.<sup>10</sup> The requirements posed by the HCP may have economic impacts associated with the goal of ensuring that the effects of incidental take are adequately minimized and mitigated. The designation of critical habitat does not require completion of an HCP; however, the designation may influence conservation measures provided under HCPs. While HCPs are not developed solely for plant species, if listed plants occur in the area subject to the HCP, the Service must consider whether the proposed activities adversely affect or jeopardize the continued existence of the plant species.

### **II.C.2 Other Relevant Protection Efforts**

The protection of listed species and habitat is not limited to the Act. Other Federal agencies, such as the Army Corps of Engineers, as well as State and local governments, may also seek to protect the natural resources under their jurisdiction.

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<sup>8</sup> The Service notes, however, that a recent Ninth Circuit judicial opinion, *Gifford Pinchot Task Force v. United States Fish and Wildlife Service*, has 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.

<sup>9</sup> 16 U.S.C. §1538 and 16 U.S.C. §1532.

<sup>10</sup> U.S. Fish and Wildlife Service, "Endangered Species Habitat Conservation Planning," <http://endangered.fws.gov/hcp/>.

Managed by the California Department of Fish & Game (DFG), CESA is similar in nature and scope to the Federal ESA. It requires state agencies to consult with DFG over actions that may jeopardize the continued existence of a state-listed endangered or threatened species, or its habitat. Like the Federal ESA, it also allows for take incidental to otherwise lawful development projects.<sup>11</sup> The piperia has not been listed by the State of California under the California Endangered Species Act (CESA).

In general, economic impacts will be evaluated regardless of whether or not species protection measures required by the Act are also required by other Federal agencies or State and local governments. The impacts of these protection measures are “coextensive” with or attributable to the species’ listing and critical habitat designation. Examples of the type of regulations that fall into this category include but are not limited to the California Environmental Quality Act (CEQA) and Section 404 of the Clean Water Act.

### **II.C.3 Time Frame**

This analysis defines past impacts as impacts that occurred between when piperia was listed under the Act (August 12, 1998) and the present (2006). Past impacts were calculated by interviewing the affected entities within proposed critical habitat—typically landowners—to determine if any resources had been expended on management, consultation with the Service, or other activities intended to conserve the species. Past impacts also include the value of any lost economic opportunities attributable to listing. For example, a housing development that was reconfigured to avoid development on areas containing piperia would incur an economic loss if those actions were required to conserve the species or its habitat.

Future impacts are impacts of efforts to conserve the species that will occur between 2007 and 2026. These impacts vary based on the reasonably-foreseeable highest and best economic uses for each individual parcel of land. For example, land owned by a public entity and designated as open space typically has little potential to be used for residential or commercial development purposes over the relevant time frame. In these cases, the future impacts of critical habitat designation are calculated as the sum of the management and other burdens imposed on the landowner, discounted to present value.

### **II.C.4 Benefits**

Under Executive Order 12866, OMB directs Federal agencies to provide an assessment of both the social costs and benefits of proposed regulatory actions.<sup>12</sup> 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.<sup>13</sup>

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<sup>11</sup> [http://www.dfg.ca.gov/hcpb/ceqacesa/cesa/incidental/cesa\\_policy\\_law.shtml](http://www.dfg.ca.gov/hcpb/ceqacesa/cesa/incidental/cesa_policy_law.shtml)

<sup>12</sup> Executive Order 12866, *Regulatory Planning and Review*, September 30, 1993.

<sup>13</sup> 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>.

In the context of critical habitat, the primary purpose of the rulemaking (i.e., direct benefits) is the potential to enhance conservation of the species. The published economics literature has documented that social welfare benefits can result from the conservation 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.<sup>14</sup> *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.*

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.

It is often difficult to evaluate the ancillary benefits of critical habitat designation. To the extent that the ancillary benefits of the rule making may be captured by the market through an identifiable shift in resource allocation, they are factored into the overall economic impact assessment in this report. For example, if decreased off-road vehicle use to improve species habitat leads to an increase in opportunities for wildlife viewing or hiking within the region, the local economy may experience an associated, measurable, positive impact. Ancillary benefits that affect markets are not anticipated in this case, and therefore are not quantified.

### **III Identified Habitat**

The Service identified eight habitat units comprising fifteen subunits with known occurrences of the piperia.

#### **III.A Primary Constituent Elements**

In identifying areas as critical habitat, the Service considered those physical and biological habitat features that are essential to the conservation of the species. These essential features are referred to as the species' primary constituent elements (PCEs). Please see the Proposed Rule for a description of the PCEs for piperia.

#### **III.B Threats**

The Service identified the following threats to piperia that may require special management within the areas of proposed critical habitat:

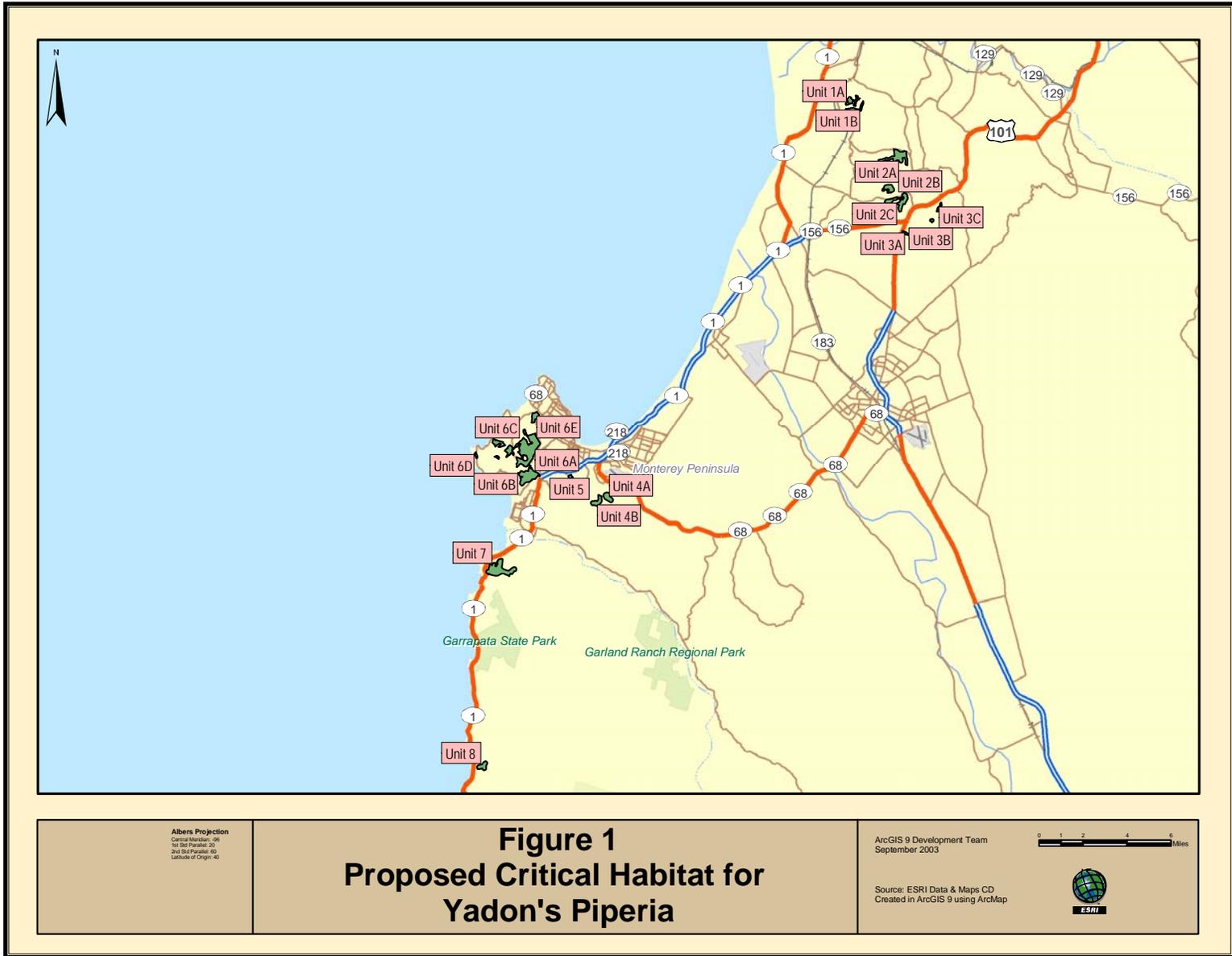
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<sup>14</sup> *Ibid.*

1. Habitat fragmentation or loss due to residential, commercial, or recreational development;
2. Competition with nonnative plants for light, space, or water;
3. Deer and rabbit herbivory;
4. Vegetation cutting for fire prevention;
5. Changes in light, space, and soil moisture availability due to loss or alteration of adjacent vegetation or forest canopy;
6. Changes in fecundity (number and viability of offspring) or genetic variability resulting from loss and fragmentation of populations or potentially low pollinator abundance or activity;
7. Disease;
8. Trampling; and
9. Reduced opportunity to use fire as a management tool due to increased development surrounding piperia habitat.

### **III.C Description of Units**

All units are shown in Figure 1 below. The land ownership within each of the proposed critical habitat units is summarized in the table following Figure 1.



<b>Table 1: Acres of Ownership by Type in Each Unit</b>			
<b>Subunit</b>	<b>Total Acres in Subunit</b>	<b>Owner Type</b>	<b>Acres</b>
1A	72	Private conservation-oriented NGO	72
1B	56	Private conservation-oriented NGO	56
2A	231	Private conservation-oriented NGO	231
2B	83	Private	83
2C	183	Local Agency	183
3A	17	Private	17
3B	12	State	12
3C	21	State	21
4A	77	Private	77
4B	77	Private	77
5	16	Private	16
6A	904	Private	823
		Private conservation-oriented NGO	81
6B	9	Private	9
6C	70	Private	47
		Private conservation-oriented NGO	23
6D	12	Private conservation-oriented NGO	12
6E	63	Local agency	19
		Private	15
		Private conservation-oriented NGO	29
7	325	Private conservation-oriented NGO	97
		State	228
8	73	Private	73

## IV History of Conservation Efforts

On August 12, 1998, the Service published a final rule listing five plants from Monterey County, including the Yadon's Piperia (piperia), which was listed as endangered. In the final listing rule, the Service determined that designation of critical habitat for the piperia was not prudent.<sup>15</sup> On August 13, 2004, the Service's decision not to designate critical habitat for the piperia was challenged by the Center for Biological Diversity and the California Native Plant Society. The Service agreed to a new proposed critical habitat determination for piperia by October 5, 2006.<sup>16</sup> On October 18, 2006, the Service proposed 2,301 acres of critical habitat in Monterey County, CA for the piperia pursuant to The Act.<sup>17</sup>

<sup>15</sup> 63 FR 43114.

<sup>16</sup> 71 FR 61550.

<sup>17</sup> 71 FR 61546.

Since the piperia was listed as endangered in 1998 there have been efforts to conserve the species.<sup>18</sup> Past consultation results and the Recovery Plan aid in understanding what management actions the Service will recommend to landowners to conserve the piperia.

#### **IV.A Consultation History**

Through the section 7 process, the Service has consulted with Federal agencies. There was also one exchange between the Service and a private entity on actions that could have potentially affected the piperia. However, there was no Federal nexus and therefore no consultation with the private entity. The past consultations that have occurred include:

- One formal and two informal consultations in 1998 with the United States Department of Agriculture Natural Resources Conservation Service (NRCS) and the U.S. Army Corps of Engineers regarding the Elkhorn Slough Watershed Project. As a result of the consultation, the NRCS developed steps to minimize adverse effects to listed, proposed, and candidate species in order to complete the project.
- Two informal consultations in 1997 and 1999 with the Department of the Army regarding the Closure and Reuse of Fort Ord. It was found that the project would have no effect on the piperia and the species was not addressed further in the consultations.
- One formal consultation in 2001 with the Department of the Navy, regarding the Invasive Plant Species Control and Vegetation Management Activities at the Naval Postgraduate School. As a result of the consultation, the Navy took steps to minimize harming the piperia.
- One informal consultation in 2002 with the Department of the Navy and the Army Corps of Engineers, regarding the Residential Communities Initiative Project. It was found that the project would have no effect on the piperia because the Navy and the Corps implemented avoidance and protection measures.
- One formal consultation in 2003 with the NRCS, regarding the Salinas River Watershed Permit Coordination Program. The consultation led the NRCS to develop management plans and conservation practices to reduce negatively affecting the piperia.

#### **IV.B Recovery Plan**

In 2004, the Service published a recovery plan for the piperia, along with 4 other threatened or endangered plants in the Monterey County area.<sup>19</sup> The objective of the Recovery Plan is to recover the species sufficiently to down-list the piperia from endangered to threatened status. The Recovery Plan serves as an indicator of what

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<sup>18</sup> 63 FR 43100.

<sup>19</sup> U.S. Fish and Wildlife Service, 2004, Recovery Plan for Five Plants from Monterey County, California, U.S. Fish and Wildlife Service, Portland, Oregon, xii + 159 pp.

actions could be taken if special management actions are needed to conserve the species in the area of proposed critical habitat.

Please see the Recovery Plan for a more detailed outline of how to implement the Recovery Actions.<sup>20</sup>

<b>Table 2: Threats and Recovery Actions from the Recovery Plan</b>	
<b>Threat</b>	<b>Recovery Action</b>
Habitat loss and fragmentation due to urbanization and recreational (e.g., golf course) development.	Inform landowners. Secure and protect existing sites. Minimize threats. Establish a working group to develop and implement recovery guidelines. Use research results and monitoring data to determine effectiveness of management. Develop a public outreach program.
Competition from nonnative species.	Minimize threats. Use research and monitoring data to determine effectiveness of management. Establish a working group to develop and implement recovery guidelines. Develop a public outreach program.
Roadside maintenance (mowing); a fire directive requesting removal of roadside vegetation for prevention of wildfires.	Advise landowners and planning departments for proper management. Minimize threats. Use research results and monitoring data to determine effectiveness of management. Develop a public outreach program.
Potential increase in deer grazing of flowering stems.	Advise landowners. Minimize threats. Obtain specific data to manage the listed species.
Roadway circulation improvement at Monterey Peninsula Airport.	Consult with agencies. Protect habitat. Manage land to control threats. Coordinate with lead agency.
Proposed realignment of U.S. Route 101 near Prunedale.	Consult with agencies. Protect habitat. Manage land to control threats. Coordinate with lead agency.
Collection of plants by horticulturists / researchers.	Advise landowners. Secure and protect existing sites. Minimize threats. Develop a public outreach program.
Possibly, loss of viable habitat due to changes in vegetation structure within areas following fire suppression.	Inform landowners and planning department for proper management. Manage land to control threats. Use research results and monitoring data to determine effectiveness of management.
<i>Source:</i> U.S. Fish and Wildlife Service, 2004, Recovery Plan for Five Plants from Monterey County, California, U.S. Fish and Wildlife Service, Portland, Oregon, xii + 159 pp, page C-3.	

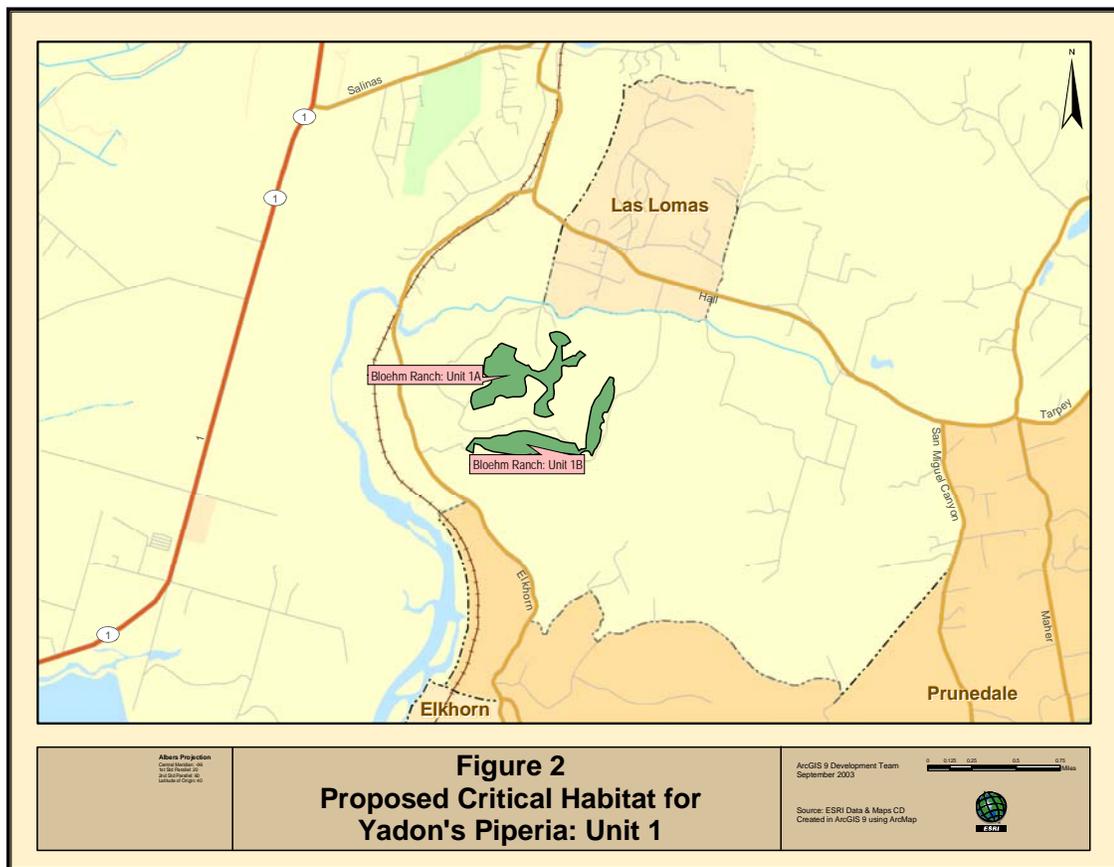
<sup>20</sup> U.S. Fish and Wildlife Service, 2004, Recovery Plan for Five Plants from Monterey County, California, U.S. Fish and Wildlife Service, Portland, Oregon, xii + 159 pp.

## V Economic Impacts of Conservation Efforts in Proposed Critical Habitat for Yadon's Piperia

The economic impacts in each subunit are described below, along with a summary of ownership and threats in each unit and subunit.

### V.A Unit 1: Blohm Ranch

Threats that may require special management in this unit are: removal of the piperia occurrence or its associated natural community to accommodate road construction, agricultural, or other facilities (e.g. reservoirs); the growth and spread of invasive plant species (such as Jubata grass); erosion from old roadbeds or past earth-moving activities; and herbivory. Special management may also be needed to ensure that the abundance of potential pollinators, such as moths or bees, are maintained or enhanced.<sup>21</sup>



**Subunit 1a** consists of 72 acres of private land owned by the Elkhorn Slough Foundation and The Nature Conservancy and managed by the Elkhorn Slough Foundation.<sup>22</sup>

<sup>21</sup> 71 FR 61556-7.

<sup>22</sup> 71 FR 61557.

**Subunit 1b** consists of 56 acres of private land owned by The Nature Conservancy and managed by the Elkhorn Slough Foundation, or owned and managed by the Elkhorn Slough Foundation.<sup>23</sup>

The Elkhorn Slough Foundation is not planning to build any roads or facilities, including reservoirs and homes, on the proposed critical habitat. Agricultural activities are not allowed in the proposed critical habitat. The piperia is not threatened by removal to accommodate development. Additionally, there is no public access allowed in the maritime chaparral habitat, except for the supervised nature walks the Foundation leads twice a year for small groups of people.<sup>24</sup> The Service has indicated that road construction, agriculture, and development of other facilities need no further management attention on Elkhorn Slough Foundation land.<sup>25</sup> Therefore, no additional impacts of managing these potential threats are forecast.

The Foundation has been managing the growth and spread of invasive plant species, in particular Jubata grass, for over seven years. The Foundation conducts surveys on foot numerous times a year. The Jubata grass is removed by digging up each plant with a special hand tool. If follow-up control is needed, the plant is sprayed with a solution of 2% Round-Up and dye that clearly marks where the herbicide was applied.<sup>26</sup>

The growth and spread of invasive species has been largely controlled in the area of proposed critical habitat for the piperia. The Foundation is now focusing on outreach campaigns to the Foundation's neighbors to eradicate the Jubata grass. The past impacts of controlling the invasive species within the area of proposed critical habitat since the time of listing are approximately \$14,450.<sup>27,28</sup> All staff members involved in the invasive plant removal efforts have been trained to identify and avoid the piperia through educational fact sheets developed by the Coastal Training Program.<sup>29</sup> The past cost to the Coastal Training Program of developing the fact sheet for the piperia was approximately \$5,318.<sup>30</sup>

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<sup>23</sup> *Ibid.*

<sup>24</sup> Personal communication from Land Manager, Elkhorn Slough Foundation, December 13, 2006.

<sup>25</sup> Electronic communication from Diane Steeck, Ecologist, U.S. Fish and Wildlife Service, December 18, 2006.

<sup>26</sup> Personal communication from, Land Manager, Elkhorn Slough Foundation, December 13, 2006.

<sup>27</sup> 60 labor-hours per year, at a rate of \$30 per labor-hour; 5 hand tools at a price of \$40 each; herbicide purchased each year at a price of \$100 per year; invasive plant removal has occurred for approximately 7.5 years.

<sup>28</sup> Personal communication from, Land Manager, Elkhorn Slough Foundation, December 13, 2006.

<sup>29</sup> Personal communication from, Land Manager, Elkhorn Slough Foundation, December 13, 2006.

<sup>30</sup> Electronic communication from Coastal Training Program Coordinator, Elkhorn Slough National Estuarine Research Reserve, January 18, 2007.

The costs for invasive species control represent efforts over the entire 359 acres of Foundation land proposed for critical habitat designation for the piperia (subunits 1a, 1b, and 2a). Past costs were \$55 per acre to control the spread of invasive plants.<sup>31</sup>

Impacts of maintaining control of the invasive species within the proposed critical habitat in the future are expected to be around \$1,900 per year.<sup>32</sup> Maintenance control will probably always be needed.<sup>33</sup>

Erosion from roads is not considered a threat by the Foundation, because there are no actively used roads running through the proposed critical habitat unit; only trails. Erosion from old man-made reservoirs used to be a threat to the maritime chaparral habitat within the proposed critical habitat areas. These reservoirs were built on ridge-tops in maritime chaparral in order to irrigate lower-elevation agricultural lands by gravity. Many of these reservoirs blew out, causing large-scale erosion problems in the maritime chaparral habitat. The Foundation has controlled the erosion problem by laying out rice straw and jute fabric. The impact of controlling the threat of erosion within the piperia habitat since the time of the listing has been approximately \$100,000. The erosion from the old reservoirs has been almost completely controlled at this point. Future impacts are expected to be no more than \$1,000 in total over the next three to four years to completely control the problem within the piperia habitat.<sup>34</sup>

The Foundation regularly surveys the proposed critical habitat area and checks on the status of the populations of piperia in the proposed critical habitat. Through these surveys, the Foundation has determined that herbivory does not threaten the success of the piperia within the proposed critical habitat.<sup>35,36</sup> The Service has advised that the Foundation continue surveying the piperia for possible herbivory. The need for action to protect the piperia will depend on the outcome of the surveying. If the surveying finds herbivory to be a problem, the cost to the Foundation of installing cages around the plants would be around \$640 initially.<sup>37</sup> The annual cost of checking on the cages would be

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<sup>31</sup> \$19,768 divided by 359 acres.

<sup>32</sup> \$1,800 per year for labor and \$100 per year for herbicides.

<sup>33</sup> Personal communication from Land Manager, Elkhorn Slough Foundation, December 13, 2006.

<sup>34</sup> Personal communication from Land Manager, Elkhorn Slough Foundation, December 13, 2006.

<sup>35</sup> Herbivory is believed to not be a problem in this unit because the deer and rabbit populations were heavily hunted in the recent past and their populations have not fully recovered. In addition, there are numerous herbivore predators, including bobcats and mountain lions, in the area to keep the deer and rabbit populations under control naturally.

<sup>36</sup> Personal communication from Land Manager, Elkhorn Slough Foundation, December 13, 2006.

<sup>37</sup> Cost of installing cages is around \$240.00 assuming it takes 8 labor-hours at a rate of \$30 per labor-hour; cost of purchasing all cages is approximately \$400.

around \$60.<sup>38</sup> The cages need to be replaced every 10 years at a cost the same as the initial installation, about \$640.<sup>39</sup>

In the proposed rule, the Service stated that special management may be needed to ensure that the abundance of potential pollinators, such as moths or bees, are maintained or enhanced. The Foundation owns large, contiguous tracts of preserved habitat, which it considers to positively contribute to pollination of the piperia and other plants. During its regular surveys of the piperia habitat, the Foundation has not noticed the area to be lacking in potential pollinators. In addition, herbivory has not been found to be a problem for the piperia, and so the plant is believed to have a large enough flower display to attract pollinators.<sup>40</sup> The Service would advise that the Foundation continue its current surveying efforts, but not take any actions until the relationship between pollinators and the piperia are better understood.<sup>41</sup> Therefore, costs of special management to ensure the abundance of potential pollinators are not expected.

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<sup>38</sup> Two labor-hours at a rate of \$30 per labor-hour.

<sup>39</sup> Electronic communication from Diane Steeck, Ecologist, U.S. Fish and Wildlife Service, December 18, 2006.

<sup>40</sup> Personal communication from Land Manager, Elkhorn Slough Foundation, December 13, 2006.

<sup>41</sup> Electronic communication from Diane Steeck, Ecologist, U.S. Fish and Wildlife Service, December 18, 2006.

**Table 3: Estimated Economic Impacts to Elkhorn Slough Foundation, Units 1a, 1b and 2a**

Threat	Management Action	Past Impacts			Future Impacts		
		Undiscounted Dollars	Present Value (3%)	Present Value (7%)	Undiscounted Dollars	Present Value (3%)	Present Value (7%)
The growth and spread of invasive plant species	Remove invasive species from piperia habitat <sup>(1)</sup>	\$19,768	\$24,254	\$29,914	\$38,000	\$28,267	\$20,129
Erosion	Control erosion in piperia habitat <sup>(2)</sup>	\$100,000	\$116,265	\$142,405	\$1,000	\$936	\$861
Herbivory	Monitor. If necessary, install cages around piperia plants to prevent herbivory	\$0	\$0	\$0	\$2,480	\$2,009	\$1,601
Disease	Monitor. No management actions needed until threat better understood	\$0	\$0	\$0	\$0	\$0	\$0
Lack of pollinators	Monitor. No management actions needed until threat better understood	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total</b>		<b>\$119,768</b>	<b>\$140,519</b>	<b>\$172,319</b>	<b>\$41,480</b>	<b>\$31,212</b>	<b>\$22,590</b>
<b>Annualized Impact</b>					<b>\$2,037</b>	<b>\$1,993</b>	

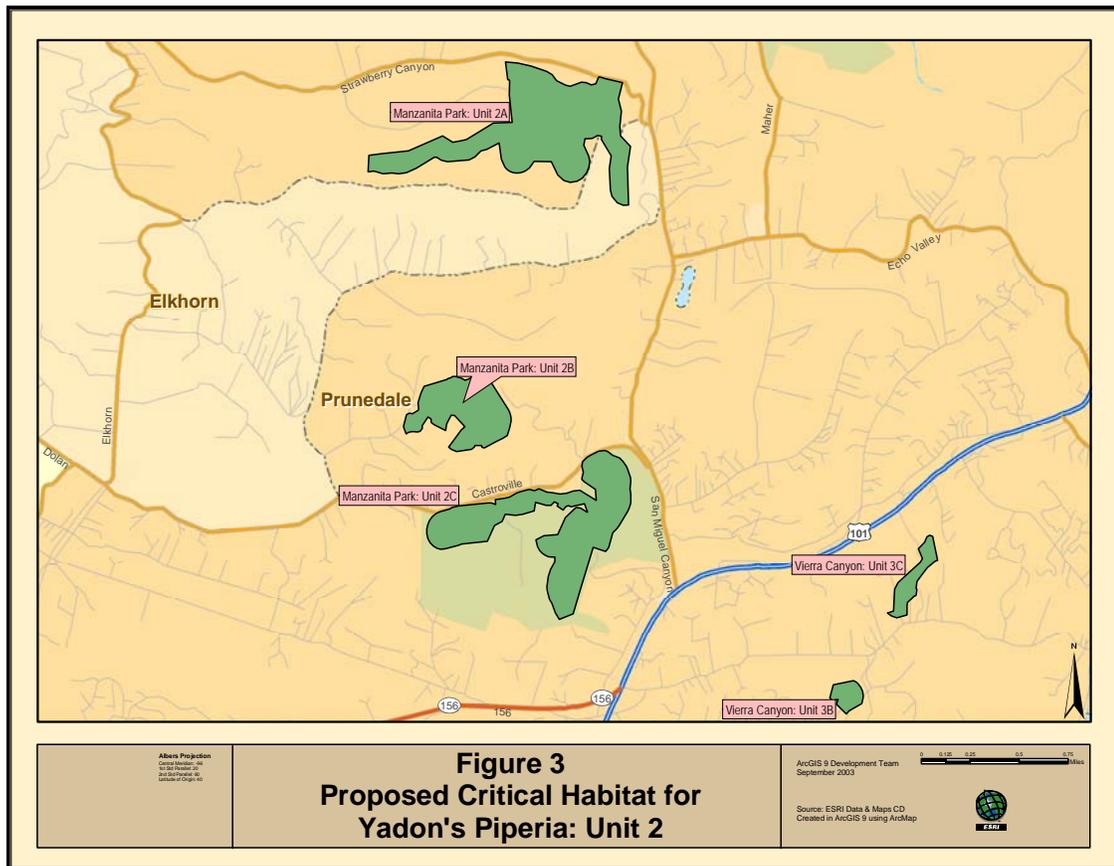
Notes:

- (1) Invasive species control has occurred over the past 7 to 8 years
- (2) Erosion control has occurred over the past 9 years (since the time of listing in 1998)
- (3) Italicized costs are costs that will be incurred only if necessary after monitoring and further research.
- (4) 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).

**V.B Unit 2: Manzanita Park**

Threats that may require special management in this unit are: elimination or further fragmentation of habitat from residential development; vegetation removal for fuel reduction purposes; the growth and spread of invasive plant species, such as Jubata grass, French broom, and eucalyptus; disease; and herbivory. Special management may also be needed to ensure the abundance of potential pollinators, such as moths or bees, are maintained or enhanced to ensure the production of sufficient viable seed.<sup>42</sup>

<sup>42</sup> 71 FR 61557.



**Subunit 2a** consists of 231 acres of land owned and managed by the Elkhorn Slough Foundation.<sup>43</sup> Please see the previous section for a discussion of development, invasive species, and herbivory on land owned and managed by the Elkhorn Slough Foundation.

The Elkhorn Slough Foundation does not engage in fuel reduction activities in areas where the piperia is found. Vegetation removal for fuel reduction purposes is not a threat to the piperia on land managed by the Foundation.<sup>44</sup> Therefore, the Service has advised that management actions to protect the piperia from this threat are not needed.<sup>45</sup>

The Foundation does not consider fungal diseases to be a threat to the piperia on their land since public access is limited to two small, guided tours each year, thus limiting the potential of fungal diseases to be tracked into the area by hikers or horses.<sup>46</sup> The Service

<sup>43</sup> 71 FR 61557.

<sup>44</sup> Personal communication from Land Manager, Elkhorn Slough Foundation, December 13, 2006.

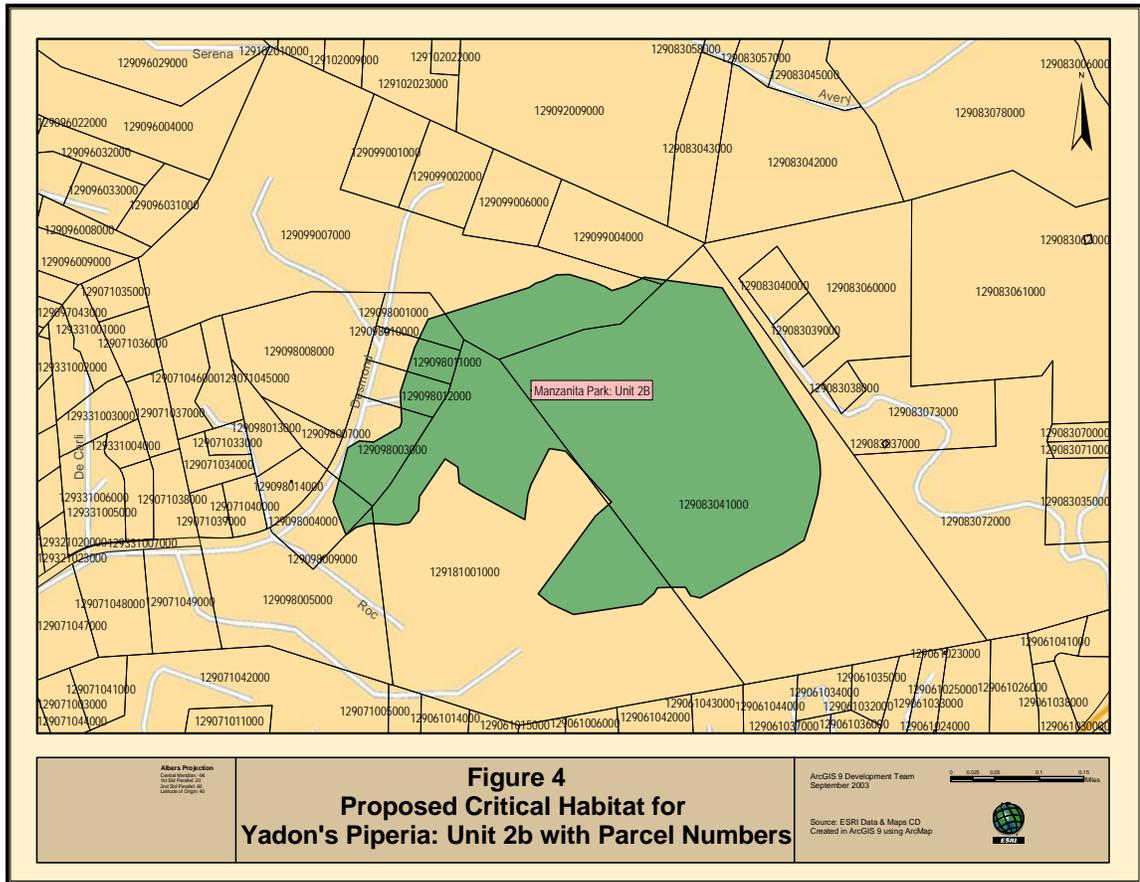
<sup>45</sup> Electronic communication from Diane Steeck, Ecologist, U.S. Fish and Wildlife Service, December 18, 2006.

<sup>46</sup> Personal communication from Land Manager, Elkhorn Slough Foundation, December 13, 2006.

has advised that the Foundation continue its current surveying efforts, but not take any actions until disease in the piperia is better understood.<sup>47</sup> Therefore costs of management to protect the piperia from disease are not forecast.

See table 3 above for a summary of impacts to the Elkhorn Slough Foundation.

**Subunit 2b** consists of 83 acres of private lands. Some of the lands in this subunit were proposed for a 10 lot subdivision, residential development, and open space designation in 2000. The parcels of private land within the proposed critical habitat area are shown in the figure below.



Sixty-eight acres of proposed critical habitat, within parcels 129-083-041, 129-181-001, and 129-098-005 are owned by the same entity. These three parcels overlap the southern portion of the proposed critical habitat in the figure above. Parcels 129-083-041 and 129-181-001 are zoned “Rural Density Residential” with a zoning density of 20 acres per structure (RDR/20). Parcel 129-098-005 is zoned RDR/5. The entire areas of parcels 129-083-041, 129-181-001, and 129-098-005 are 66.97 acres, 83.71 acres, and 17.07

<sup>47</sup> Electronic communication from Diane Steeck, Ecologist, U.S. Fish and Wildlife Service, December 18, 2006.

acres, respectively. According to the zoning restrictions, the maximum number of residential structures which could be built on this land according to zoning restrictions is 3, 4, and 3, respectively. Thus, according to zoning restrictions, a total of 10 residential structures could be built within the three parcels.<sup>48</sup>

The entity that owns the parcels 129-083-041, 129-181-001, and 129-098-005 completed an application with the Monterey County Planning and Building Department for a 10 lot subdivision in September of 2006. As of the writing of this report, no mitigation measures had been placed on this project. Final review of the permit application was not yet complete. Mitigation measures may still be placed on the project.<sup>49</sup>

The application for the 10 parcels subdivision was initially submitted in 1999. Before the application was submitted, the developer was aware of the presence of environmentally sensitive habitat within the parcels. With that in mind, the subdivision was proposed only on land that had previously been used for farming; no pristine land or ridge-tops have ever been proposed for development.

Since the initial application in 1999, a botanist conducted a survey for environmentally sensitive habitat within the parcels and the County of Monterey required avoidance of environmentally sensitive areas. The developer anticipates the County of Monterey will require a conservation or scenic easement on the ridge-tops (i.e. the portion of the parcels that overlaps the area of proposed critical habitat) and that the County will approve the request to develop the low-elevation, former agricultural land. The developer anticipates the permit to be approved by the end of 2007 and to begin construction in 2008.

The developer is planning to build 10 residential units in the three parcels. Each home will be approximately 2,500 - 3,500 square feet in size, and have a sale price of approximately \$1 million or more. The developer anticipates a profit of approximately \$300,000 per home. The developer estimates that the project has been delayed 2 years due to its proximity to environmentally sensitive habitat.<sup>50</sup> Loss in economic surplus in the 10 parcel subdivision from delay is estimated at \$900,000.<sup>51</sup>

As stated above, the Monterey County Planning and Building Department may still place mitigation measures on the project. Mitigation measures range from simple protections, at a negligible cost, to denial of the permit.<sup>52</sup> It is unlikely that the permit would be

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<sup>48</sup> Electronic communication from Assistant Planner, Monterey County RMA-Planning Department, December 19 and 27, 2006.

<sup>49</sup> Electronic communication from Assistant Planner, Monterey County RMA-Planning Department, December 19 and 27, 2006.

<sup>50</sup> Personal communication from parcel owner / building permit applicant, January 5, 2007 and January 18, 2007.

<sup>51</sup> The delay cost is calculated by multiplying lost surplus per house by the number of houses, the interest rate (15%), and the years of delay, where lost surplus per house is equal to the sale price minus construction and development costs.

<sup>52</sup> Personal communication from Assistant Planner, Monterey County RMA-Planning Department, January 24, 2007.

denied because the developer has had the land surveyed and has avoided development in the ridge-tops where environmentally sensitive habitat occurs. Thus, additional possible mitigation measures are expected to have negligible costs.

The rest of the parcels that overlap proposed critical habitat in unit 2b (129-098-001, 129-098-012, and 129-098-003) are each owned by separate entities and are not part of the 10 lot subdivision described above.

Parcel 129-098-001 is 2.5 acres in size. According to zoning density restrictions, only one home can be built in this parcel. On this parcel, a permit was submitted to the Monterey County Planning and Building Department in November 2006 to demolish a mobile home and construct a new single family dwelling. As of the writing of this report, mitigation measures may still be placed on the project. The home proposed to be built is a 3,845 square foot two-story single family dwelling with an attached 724 square foot three-car garage and 414 square feet of covered porches. The size may or may not change before the project goes through the final stage.<sup>53</sup> The location of the proposed home might not be within the area of critical habitat; it could be close to the road. However, the landowner and / or building permit applicant could not be reached to confirm the location of the proposed home. The Monterey County Planning and Building Department may still place mitigation measures on the project, ranging from simple protection measures at negligible cost, to denying the permit.<sup>54</sup> If development is prohibited within this unit due to critical habitat designation, the total lost surplus from development could be approximately \$300,000.<sup>55</sup> Therefore impacts of mitigation range from \$0 - \$300,000.

Parcel 129-098-012 is approximately 2.5 acres in size. According to zoning density restrictions, only one home can be built in this parcel. On this parcel, a permit was approved by the County of Monterey for the construction of a new single family dwelling in April 2005. Conditions were placed on the project to protect and/or minimize impacts to sensitive species. No mitigation measures were placed on the project.<sup>56</sup> Construction of the home has been completed. The location of the water tank on the parcel had to be changed to avoid impacts to sensitive manzanita plants found on the parcel and the County of Monterey required a conservation easement on the eastern portion of the parcel. Other than those alterations, the construction of the home was completed as planned. No significant losses in development surplus were incurred.<sup>57</sup>

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<sup>53</sup> Electronic communication from Assistant Planner, Monterey County RMA-Planning Department, December 19 and 27, 2006.

<sup>54</sup> Personal communication from Assistant Planner, Monterey County RMA-Planning Department, January 24, 2007.

<sup>55</sup> Reasonable estimate of economic surplus provided by personal communication with developer in Monterey County, January 18, 2007.

<sup>56</sup> Electronic communication from Assistant Planner, Monterey County RMA-Planning Department, December 19 and 27, 2006.

<sup>57</sup> Personal communication from parcel owner / building permit applicant, January 5, 2007.

Parcel 129-098-003 is approximately 5 acres in size. According to zoning density restrictions, two homes could be built on this parcel. Monterey County Planning and Building Department approved a permit to keep a non-permitted single family dwelling in October of 2004. The single family dwelling is 1,344 square feet with decking, a carport, and a 5,000 gallon water tank. Both conditions and mitigation measures were placed on the permit.<sup>58</sup> The permit was approved; therefore no significant losses in development were incurred.

Because there are no plans for new development on any of the other parcels within this area of proposed critical habitat, we can assume that potential development is too far into the future and still too hypothetical to estimate lost surplus from development opportunities.

Special management may be needed to protect the piperia and its habitat in this subunit from the threats identified in the proposed rule.<sup>59</sup> However, it is unlikely that private landowners will undertake special management actions as there is no known regulatory mechanism to compel them to do so, and they have not undertaken special management actions voluntarily in the past.

**Table 4: Estimated Economic Impacts to Private Landowners, Unit 2b**

Threat		Past Impacts			Future Impacts					
		Undiscounted Dollars	Present Value (3%)	Present Value (7%)	Undiscounted Dollars		Present Value (3%)		Present Value (7%)	
					Low	High	Low	High	Low	High
Elimination or fragmentation of habitat from residential development	Reduce impacts to piperia (causing permit approval delay)	\$900,000	\$954,810	\$1,030,410	\$0	\$0	\$0	\$0	\$0	\$0
	Prevent development	\$0	\$0	\$0	\$0	\$300,000	\$0	\$223,162	\$0	\$158,910
<b>Total</b>		<b>\$900,000</b>	<b>\$954,810</b>	<b>\$1,030,410</b>	<b>\$0</b>	<b>\$300,000</b>	<b>\$0</b>	<b>\$223,162</b>	<b>\$0</b>	<b>\$158,910</b>
<b>Annualized Impact</b>							<b>\$0</b>	<b>\$14,563</b>	<b>\$0</b>	<b>\$14,019</b>

Note:

(1) 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).

<sup>58</sup> Electronic communication from Assistant Planner, Monterey County RMA-Planning Department, December 19 and 27, 2006.

<sup>59</sup> The Service cannot require private landowners to conduct conservation measures on their land for the piperia. However, if the development is going to avoid the proposed critical habitat (i.e. occur within the privately owned parcels, but not in the area that overlaps critical habitat), and if the private land owners are interested in reducing threats to piperia, the Service would make recommendations on how to best manage the land for conservation purposes.

**Subunit 2c** consists of 183 acres owned by the County of Monterey within Manzanita County Park. A portion of the park within the proposed unit is used for hiking and equestrian use.<sup>60</sup>

Development plans exist for sports fields within Manzanita Park. However, the development plans do not overlap the area proposed to be designated critical habitat within the park. No costs related to altering the development plans to avoid the species will occur.<sup>61</sup>

The California Fire Safe Council, founded in 1993, is a nonprofit organization that strives to protect homes, communities and natural resources from fire through its members and local fire safe councils.<sup>62</sup> The Monterey Fire Safe Council, a member of the California Fire Safe Council, has identified Manzanita Park as a high priority area for fuel reduction because of the dense residential development surrounding the park.<sup>63</sup> To prepare for the removal of eucalyptus, the Fire Safe Council funded a survey in 2006 to locate the piperia within the eucalyptus groves. The survey will enable the Council to avoid damaging the piperia when removing the trees. This survey cost approximately \$6,000.<sup>64</sup>

Impacts of removing the trees will be minimal. The Monterey Fire Safe Council is a non-profit organization that offsets as many of its costs as possible. Volunteer inmates will do the manual labor. Any additional costs of removing the trees will be offset by selling the wood.<sup>65</sup>

Future costs of changing the fuel reduction activities to accommodate the piperia and its habitat will be minimal. Because fuel reduction in this area involves removing trees (rather than mowing or spraying) it can easily occur outside of the flowering phase of the piperia and avoid harming the species. The staff at the Monterey County Parks Department is aware of the location of the piperia and its life-cycle, and knows how to avoid harming the plant.<sup>66</sup>

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<sup>60</sup> 71 FR 61557.

<sup>61</sup> Personal communication from Parks Area Manager, Monterey County Parks Department, December 11, 2006.

<sup>62</sup> California Fire Safe Council website at: <http://www.firesafecouncil.org/about/index.cfm>, site visited December 28, 2006.

<sup>63</sup> Personal communication from Parks Area Manager, Monterey County Parks Department, December 11, 2006.

<sup>64</sup> Personal communication from Ecologist hired by Monterey Fire Safe Council, December 11, 2006.

<sup>65</sup> Personal communication from Parks Area Manager, Monterey County Parks Department, December 11, 2006.

<sup>66</sup> Personal communication from Parks Area Manager, Monterey County Parks Department, December 11, 2006.

Invasive species in Manzanita Park are currently controlled by the Monterey County Agriculture Commissioners Office, Weed Division. Total impacts of invasive species control in the piperia habitat since the efforts began three or four years ago have been about \$20,000, including the \$12,000 spent in 2006 alone. In the future, the Division plans to expand its efforts to target French broom, yellow-star thistle, and ice plant, and to expand its Jubata grass removal to areas outside the park. The Division plans to spend about \$10,000-\$15,000 every year, for an indefinite amount of years.<sup>67</sup>

Monterey County has no plans to manage disease, herbivory, or the lack of potential pollinators in the future and therefore no economic impacts to Monterey County of managing these additional threats are expected.

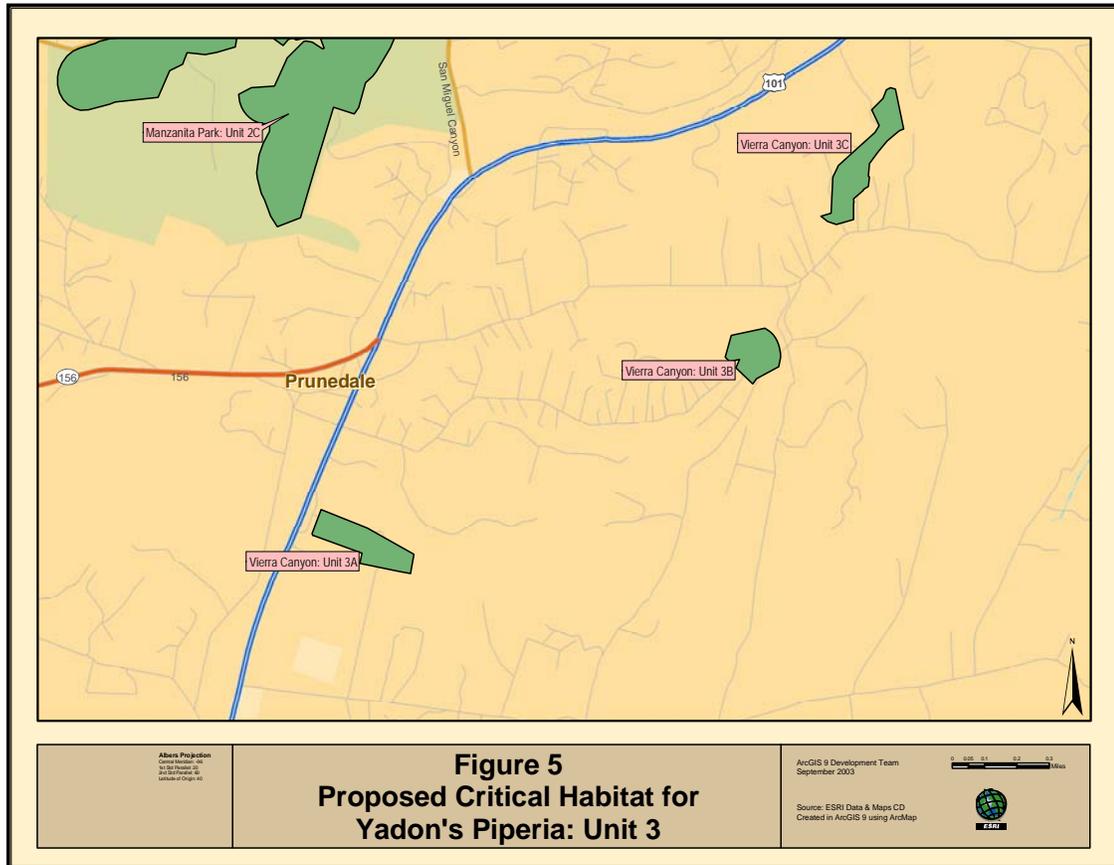
<b>Threat</b>	<b>Management Action</b>	<b>Past Impacts</b>			<b>Future Impacts</b>		
		<b>Undiscounted Dollars</b>	<b>Present Value (3%)</b>	<b>Present Value (7%)</b>	<b>Undiscounted Dollars</b>	<b>Present Value (3%)</b>	<b>Present Value (7%)</b>
Vegetation removal for fire fuel reduction	Remove vegetation when piperia dormant	\$6,000	\$6,180	\$6,420	\$0	\$0	\$0
The growth and spread of invasive plant species	Remove invasive species from piperia habitat <sup>(1)</sup>	\$20,000	\$38,461	\$41,937	\$250,000	\$185,968	\$132,425
<b>Total</b>		<b>\$26,000</b>	<b>\$44,641</b>	<b>\$48,357</b>	<b>\$250,000</b>	<b>\$185,968</b>	<b>\$132,425</b>
<b>Annualized Impacts</b>					<b>\$12,136</b>	<b>\$11,682</b>	

Notes:  
(1) Invasive plant species have been controlled for the past 3 to 4 years.  
(2) 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).

<sup>67</sup> Personal communication from Weed Division Supervisor, Monterey County Agricultural Commissioner's office, December 11, 2006.

### V.C Unit 3: Vierra Canyon

Threats that may require special management in this unit are elimination or further fragmentation of habitat from development; grading or other vegetation removal (e.g. for fuel reduction purposes or roads); and the spread of invasive plant species.<sup>68</sup>



**Subunit 3a** consists of 17 acres of private land overlain by a Pacific Gas and Electric Company easement.<sup>69</sup>

PG&E has three transmission lines that run through the unit, with a total of seven towers located within the unit. There is also a non-paved access road used to service the towers. PG&E does not have any plans to develop the area of proposed critical habitat. The company's transmission line corridor precludes development of reservoirs, homes, or other facilities. Elimination or fragmentation of habitat from development is therefore not considered a threat.<sup>70</sup>

<sup>68</sup> 71 FR 61557.

<sup>69</sup> *Ibid.*

<sup>70</sup> Electronic communication from, Manager, Environmental Policy, Habitat & Species Protection, PG&E, January 4, 2007.

PG&E engages in fire fuel load reduction and maintains their road in the area of proposed critical habitat. PG&E has no plans to change its vegetation removal activities to avoid harming the piperia. Additionally, PG&E does not have plans to manage invasive plant species. It is unlikely that PG&E will be required in the future to implement special management activities for the piperia. Therefore, no the economic impacts to PG&E of managing vegetation removal and invasive species for the piperia are forecast.

**Subunit 3b** consists of 12 acres of lands owned by the California Department of Transportation (Caltrans). **Subunit 3c** consists of 21 acres of State lands also owned by Caltrans. The lands in these subunits were part of a previous study area for a highway alignment. The alignment was eventually excluded from further consideration and the State retains the lands.<sup>71</sup>

Caltrans is currently holding this land to use as mitigation for future road construction projects elsewhere. It anticipates being able to own the land for the next 20 years. Caltrans does not plan to develop this land in any way, nor does it intend to remove any vegetation for roads or fuel reduction purposes.<sup>72</sup> The Service has indicated that if the landowner does not think development or vegetation removal is a threat to the piperia on its land, then no further management actions are needed.<sup>73</sup> Therefore, this report does not expect there to be any impacts of managing these potential threats.

Caltrans currently monitors the status of invasive species on their land, but does not control the spread of the invasive plant species. Monitoring efforts involve one or two biologists visiting the site every year or every other year. No efforts have been made to map the weeds or estimate how extensive their spread has been. Costs of the monitoring efforts have been approximately \$1,000 per year, for the past seven years.<sup>74</sup>

Caltrans believes that a program will need to be developed and implemented to control the spread of invasive plants in order to conserve the piperia in units 3b and 3c. However, Caltrans could not estimate what such a program would cost.<sup>75</sup> This analysis assumes management actions needed to control the spread of invasive plant species will be similar to those implemented by the Elkhorn Slough Foundation.<sup>76</sup> Using the per-acre cost of controlling invasive species from the Foundation, the total cost of controlling invasive species on the thirty-three acres owned and managed by Caltrans will be

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<sup>71</sup> 71 FR 61557.

<sup>72</sup> Personal communication from Associate Biologist, California Department of Transportation (Caltrans), December 12, 2006.

<sup>73</sup> Electronic communication from Diane Steeck, Ecologist, U.S. Fish and Wildlife Service, December 18, 2006.

<sup>74</sup> Personal communication from, Associate Biologist, California Department of Transportation (Caltrans), December 12, 2006.

<sup>75</sup> *Ibid.*

<sup>76</sup> Assumption made at the advice of the Service: Electronic communication from Diane Steeck, Ecologist, U.S. Fish and Wildlife Service, December 20, 2006.

approximately \$3,533 in undiscounted dollars over the next twenty years, assuming control of invasive, non-native plant species takes place every year.

**Table 6: Estimated Economic Impacts to Caltrans, Units 3b and 3c**

Threat	Management Action	Past Impacts			Future Impacts		
		Undiscounted Dollars	Present Value (3%)	Present Value (7%)	Undiscounted Dollars	Present Value (3%)	Present Value (7%)
The growth and spread of invasive plant species	Remove invasive species from piperia habitat <sup>(1)</sup>	\$7,000	\$7,892	\$9,260	\$3,533	\$2,638	\$1,890
<b>Total</b>		<b>\$7,000</b>	<b>\$7,892</b>	<b>\$9,260</b>	<b>\$3,533</b>	<b>\$2,638</b>	<b>\$1,890</b>
<b>Annualized Impacts</b>					<b>\$172</b>	<b>\$167</b>	

Notes:  
 (1) Cost of invasive species control is estimated by multiplying the cost per acre to control invasive species on Elkhorn Slough Foundation land by the number of acres of Caltrans land.  
 (2) 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).

**V.D Unit 4: Aguajito**

Threats that may require special management in this unit are fragmentation of habitat from development and the colonization and spread of invasive plant species.<sup>77</sup>

**Subunit 4a** consists of 77 acres of private land owned by the Pebble Beach Company (PBC). **Subunit 4b** also consists of 77 acres of private lands owned by the PBC.<sup>78</sup> Because PBC is the landowner and manager of units 4a, 4b, and 5 and the threats to the piperia in these three subunits are similar, they are discussed together in section V.E below with unit 5.

**V.E Unit 5: Old Capitol**

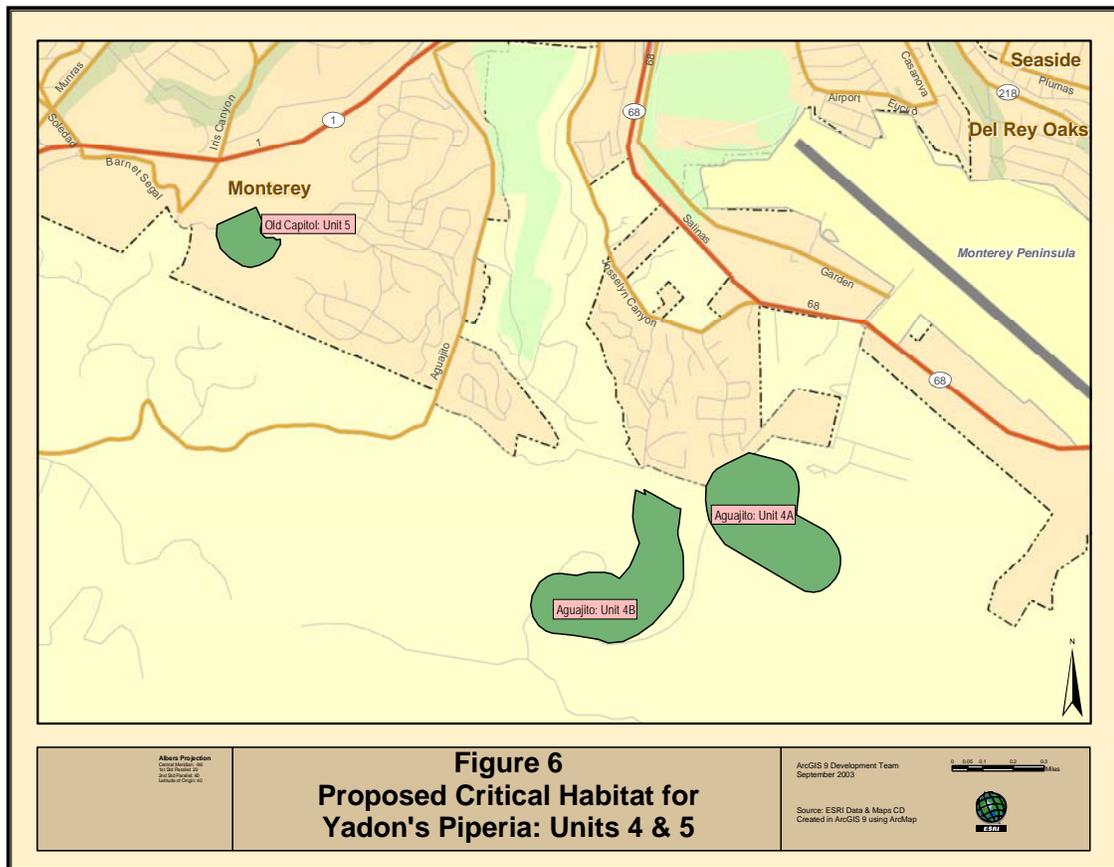
Threats that may require special management in this unit are fragmentation or loss of habitat from development, habitat degradation by motorized vehicles and encampments, debris dumping, and competition from nonnative invasive plants.<sup>79</sup> This unit consists of 16 acres of private land owned by the PBC.<sup>80</sup>

<sup>77</sup> 71 FR 61558.

<sup>78</sup> *Ibid.*

<sup>79</sup> *Ibid.*

<sup>80</sup> *Ibid.*



It is beneficial at this point to explain the history of development and preservation proposed by the PBC and the efforts that have been made in the past to understand the extent of the population of piperia in the area.

There have been three proposals for a combination of development and preservation on the PBC's undeveloped land in the Del Monte Forest. The first proposal for build out, the Pebble Beach Lot Program, proposed 403 residential units on 685 acres, 53 low-cost housing units, an 18-hole golf course, and expansion of an existing driving range.

The second proposal for build out, known as Refined Alternative 2 was a revision of the Pebble Beach Lot Program in response to public and agency comments. Refined Alternative 2 reduced the number of housing units to 364, relocated some housing units, and moved the golf course. The relocation of the golf course required the Pebble Beach Equestrian Center be moved to the Sawmill Site near the City of Pacific Grove.

The Pebble Beach Lot Program and Refined Alternative 2 were analyzed in a Final Environmental Impact Report (FEIR) in 1997. However, in 1999, the ownership of the Pebble Beach Company changed hands, the project application was withdrawn and the FEIR was not certified by the Monterey County Planning Commission.

In November of 2000, the Del Monte Forest Plan: Forest Preservation and Development Limitations (Measure A) was passed by the voters of Monterey County. Measure A resulted in the following changes to the Del Monte Forest Local Coastal Program (LCP):

- Increase forest open space by approximately 217 acres;
- Increase designated recreational open space by about 220 acres;
- Decrease the residential unit development potential allowed under the LCP's land use designations by 856 lots from 7 planning areas with a decrease in density from medium to low, subject to other resource policies in the plan;
- Increase potential visitor-serving use with deletion of the specified limits of visitor-serving units at two locations in the Del Monte Forest and designation of an additional area (4 acres) of visitor-serving commercial use;
- Remove the Resource Constraint Overlay from much of the Pebble Beach Company owned constrained property in the Del Monte Forest.

The Pebble Beach Company Del Monte Forest Preservation and Development Plan (PBC DMF / PDP) was designed to meet the changes in the LCP according to Measure A. The PBC DMF / PDP, as compared to the Pebble Beach Lot Program and Refined Alternative 2, would have reduced the number of housing units in the Del Monte Forest, increased the number of visitor-serving units, and dedicated larger areas for preservation of open space and habitat. The PBC DMF / PDP proposed a golf course in Area MNOUV and proposed to relocate the Equestrian Center to the Sawmill site.<sup>81</sup>

The reduction in development occurred for a number of reasons, including the public and agency comments on the Pebble Beach Lot Program and the changes in the LCP due to the passage of Measure A. Although developers have incurred impacts due to losses in revenue associated with the reduction in permissible development, the presence of the piperia on the property was incidental to the other driving factors mentioned above. Consequently, this analysis does not recognize impacts from lost development to be coextensive with the proposed designation of critical habitat in this particular area.

Table 7 presents the differences in the three plans for development and preservation in the Del Monte Forest.

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<sup>81</sup> Monterey County, Pebble Beach Company's DMF/PDP Final EIR, January 2005, p. ES-2 - ES-4.

**Table 7: Comparison of Proposals for Development and Preservation in Del Monte Forest**

Land Use	Pebble Beach Lot Program	Refined Alternative 2	Proposed Project
Golf Course	New golf course and driving range in Area PQR	New golf course in Area MNOUV	New golf course in Area MNOUV New driving range at Spanish Bay
Equestrian Center	In existing location	Relocated to Sawmill Site	Relocated to Sawmill Site
Visitor-Serving Units	0	0	160 new units
Additional Visitor-Serving Meeting and Hospitality Space	0	0	~17,790 sq. feet
Residential Lots and Townhouses	403	364	33 new lots
Employee Housing Units	0	0	60
Inclusionary Housing Units	53, included in 403 total above	48, included in 364 total above	14 included in employee housing total above
Preservation (acres)	25	254	436
Conservation (acres)	52	31	56
Resource Management (acres)	204	114	32
All habitat areas (acres)	281	399	524
Notes:			
(1) Preservation is defined as areas not within development site boundaries to be managed for the sole purpose of preservation of natural resources. Project totals do not include the Huckleberry Hill Natural Area which was previously dedicated by the PBC in relation to implementation of the DMF Land Use Plan and permit conditions for the original Spanish Bay resort project.			
(2) Conservation is defined as areas within development site boundaries that are separable from development and can be managed for natural resources.			
(3) Resource Management areas are defined as areas within development site boundaries that are not separable from development, but that would be managed for natural resources and for adjacent land use purposes.			
Source:			
(1) Monterey County, Pebble Beach Company's DMF/PDP FEIR, January 2005, p. ES-5.			

Although the County of Monterey approved the PBC DMF / PDP in March of 2005, the approval has since been rescinded. PBC is in the planning process for a new conservation and development plan in the Del Monte Forest which will result in the permanent preservation of certain large areas of undeveloped Monterey pine forest and the development of certain more limited areas of undeveloped Monterey pine forest.<sup>82</sup>

If PBC receives approval for a project comparable to that initially approved by the County of Monterey in 2005, PBC has agreed to carry out the suite of mitigation measures identified for the piperia in the PBC DMF / PDP Final Environmental Impact

<sup>82</sup> Memorandum of Understanding between U.S. Fish and Wildlife Service, Ventura Field Office, and Pebble Beach Company, September 2007.

Report (FEIR).<sup>83,84</sup> Given the uncertainty surrounding future PBC projects, this analysis assumes that the PBC will gain approval for a project similar to the one approved by the County in 2005 and will carry out the mitigation measures outlined in the FEIR.<sup>85</sup>

The PBC is also required to fulfill the requirements of a Memorandum of Understanding (MOU) between the Service and PBC. The MOU was signed to ensure that – whether or not the PBC receives approval for a project in the future – the piperia would be conserved on land owned by the PBC in the Del Monte Forest, Aguajito, and Old Capitol areas and certain management measures for the piperia would be implemented on those lands. Under the terms of the MOU, the Service and PBC agree that the conserved land in the Del Monte Forest, Aguajito, and Old Capitol areas may be designated critical habitat and that certain other lands in the Del Monte Forest area, which the PBC intends to develop, would not be designated critical habitat.<sup>86</sup>

If the PBC receives approval for a development project within the next twenty years and subsequently meets the measures outlined in the FEIR, no additional measures would be required to fulfill the requirements of the MOU. There would be no additional cost to the PBC of fulfilling the MOU because the mitigation measures outlined in the FEIR encompass the measures in the MOU.

The MOU is considered to be incremental to the designation of critical habitat because it was created to ensure that there would be an understanding between the Service and PBC as to which lands would be designated critical habitat. Because the MOU is already signed, PBC will still be obligated to fulfill the management measures of the MOU regardless of whether it receives approval for a project similar to the one approved by the County in 2005.

Thus, this analysis considers two possible scenarios: 1) the impact to the PBC of complying with the FEIR (and therefore the MOU), in the event that PBC receives approval for a project similar to the one approved by the County in 2005; and 2) the impact to PBC of complying with the MOU in the event that it does not receive approval for a preservation and development project within the next twenty years.

*Scenario 1: PBC complies with the FEIR (and therefore the MOU)*

In the Aguajito area, PBC would be required to control invasive plant species and monitor the invasive plant species removal efforts. In the Old Capitol area, PBC would be required to control invasive plant species, monitor the invasive plant removal efforts,

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<sup>83</sup> Monterey County, Pebble Beach Company's Del Monte Forest Preservation and Development Plan Final Environmental Impact Report, 2005.

<sup>84</sup> Memorandum of Understanding between U.S. Fish and Wildlife Service, Ventura Field Office, and Pebble Beach Company, September 2007.

<sup>85</sup> Personal communication from Diane Steeck, September 11, 2007.

<sup>86</sup> Memorandum of Understanding between U.S. Fish and Wildlife Service, Ventura Field Office, and Pebble Beach Company, September 2007, p. 1.

install and maintain vehicle barriers, remove unnecessary roads and trails and restore disturbed areas, remove encampments and debris, and conduct regular patrols. In the Del Monte Forest Area, PBC would be required to control invasive species, monitor the invasive plant removal efforts, establish and maintain trails, regulate access, and control runoff and erosion, control golf course and residential pesticide use, educate landowners and golf course personnel, regulate (seasonally) mowing activities, monitor herbivory, and monitor understory growth. Other miscellaneous costs such as vehicle expenses and supervision are also partially attributable to the piperia in all three areas. See table 8 for a breakdown of these impacts.<sup>87</sup>

*Scenario 2: PBC complies with the MOU*

The piperia management measures in the MOU are:

- Control Invasive, Non-Native Species
- Monitor Non-Native Species Control
- Establish and Maintain Trails
- Install and Maintain Vehicle Barriers
- Control Runoff and Erosion
- Regulate (Seasonally) Mowing & Clearing Activities
- Remove Encampments
- Remove Debris
- Educate Landowners / Utility Workers / Golf Course Personnel
- Conduct Regular Patrols
- Support Research-Oriented Management
- Provide an Annual Report<sup>88,89</sup>

Pebble Beach Company will pursue these activities, as needed, on its lands at the Aguajito sites (83 acres), Old Capitol site (16 acres), and Del Monte Forest sites (412 acres).<sup>90</sup> The total impacts to the PBC are presented in table 9.<sup>91</sup> The lower range of complying with the MOU is zero because in the event that PBC gets approval for a development project and complies with the FEIR, the additional impact of compliance with the MOU would effectively be zero).

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<sup>87</sup> Biological Consultant for the Pebble Beach Company, cost estimates provided via electronic communication, March 5, 2007.

<sup>88</sup> Memorandum of Understanding between U.S. Fish and Wildlife Service, Ventura Field Office, and Pebble Beach Company, September 2007, Appendix C.

<sup>89</sup> Source for cost of annual report: personal communication from Principal, Zander Associates, September 20, 2007.

<sup>90</sup> Memorandum of Understanding between U.S. Fish and Wildlife Service, Ventura Field Office, and Pebble Beach Company, September 2007, Appendix C and p 1.

<sup>91</sup> Source: Biological Consultant for the Pebble Beach Company, cost estimate provided via electronic communication, March 5, 2007. This estimate is based on the cost of management measures for the piperia that were provided by the PBC consultant for the larger area of proposed critical habitat.

**Table 8: Estimated Economic Impacts to PBC of FEIR Compliance**  
**Units 4a, 4b, 5, 6a, 6b, 6c, 6e**

Threat	Management Actions	Past Impact	Future Impacts		
			Undiscounted Dollars	Present Value (3%)	Present Value (7%)
The growth and spread of invasive plant species	Remove invasive plants; monitor invasive plant removal	\$0	\$3,840,760	\$2,857,041	\$2,034,453
Habitat degradation by motorized vehicles and encampments; Debris dumping	Install & maintain vehicle barriers; Remove unnecessary roads & trails; Restore disturbed areas; Remove encampments and debris; Conduct regular patrols	\$0	\$603,600	\$450,949	\$323,302
Increased trampling and potential hydrologic changes	Establish and Maintain Trails, Regulate Access, and Control Runoff and Erosion	\$0	\$288,000	\$214,236	\$152,554
Overspray of pesticides	Control pesticide use; Educate landowners and golf course personnel	\$0	\$1,140,000	\$848,016	\$603,859
Mowing	Regulate mowing activities	\$0	\$20,000	\$14,877	\$10,594
Herbivory	Monitor	\$0	\$416,000	\$309,451	\$220,355
Increased understory growth	Monitor	\$0	\$416,000	\$309,451	\$220,355
Additional miscellaneous expenses			\$686,880	\$510,952	\$363,841
<b>Total</b>		<b>\$0</b>	<b>\$7,411,240</b>	<b>\$5,514,973</b>	<b>\$3,929,313</b>
<b>Annualized Impact</b>				<b>\$359,896</b>	<b>\$346,635</b>

Notes:

- (1) The cost of removing debris is included in the cost of removing encampments above.
- (2) Elimination or fragmentation of habitat from development is no longer considered a threat because the areas dedicated to preservation for mitigation
- (3) No management actions can be taken for loss of adjacent forest canopy and introduction of pathogens and disease.
- (4) 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).

**Table 9: Estimated Economic Impacts to PBC of MOU Compliance**  
**Units 4a, 4b, 5, 6a, 6b, 6c, 6e**

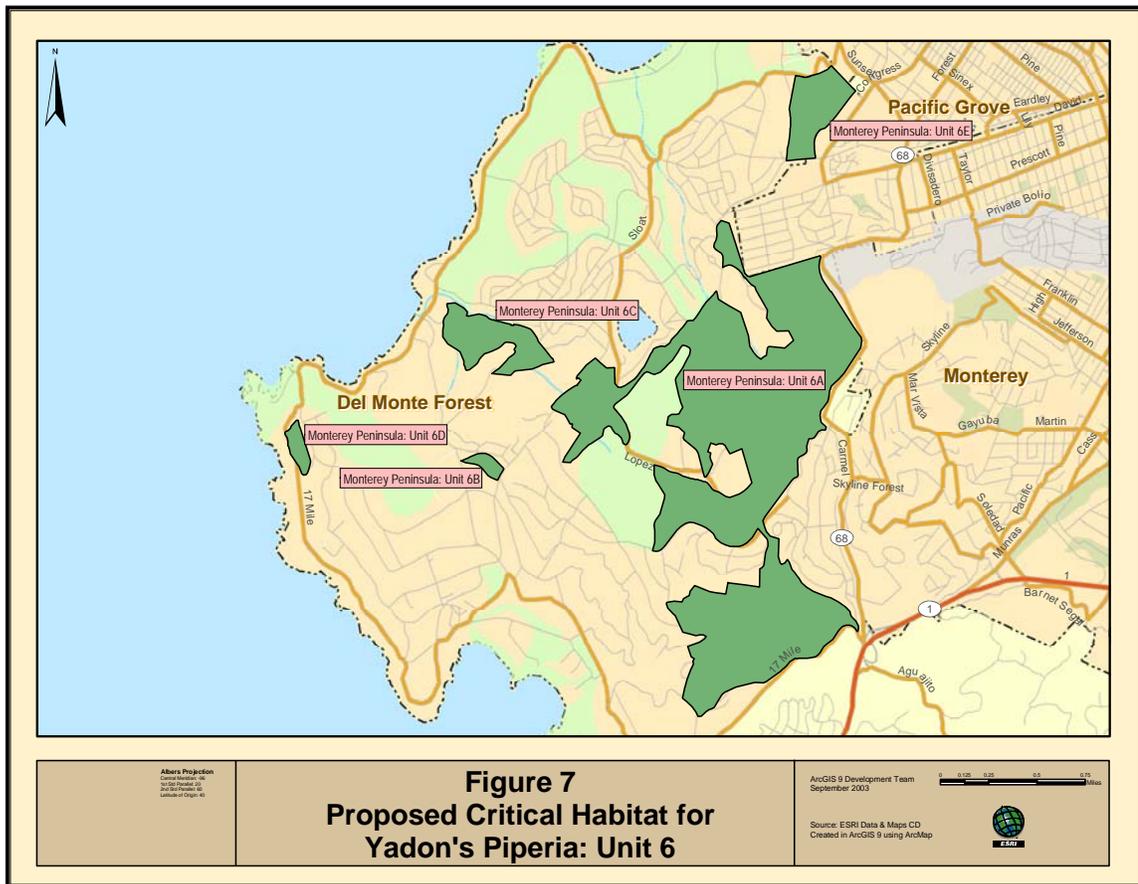
Threat	Management Action	Past Impact	Future Impacts					
			Undiscounted Dollars		Present Value (3%)		Present Value (7%)	
			Low	High	Low	High	Low	High
The growth and spread of invasive plant species	Control invasive species; monitor invasive species control	\$0	\$0	\$1,965,066	\$0	\$1,461,761	\$0	\$1,040,897
Habitat degradation by motorized vehicles and encampments; Debris dumping	Install & maintain vehicle barriers; Remove encampments and debris; Conduct regular patrols	\$0	\$0	\$222,600	\$0	\$166,764	\$0	\$120,075
Increased trampling and potential hydrologic changes	Establish and Maintain Trails; Control Runoff and Erosion	\$0	\$0	\$514,022	\$0	\$383,136	\$0	\$273,689
Overspray of pesticides	Educate landowners and golf course personnel	\$0	\$0	\$46,188	\$0	\$34,358	\$0	\$24,466
Mowing	Regulate mowing and clearing activities	\$0	\$0	\$9,238	\$0	\$6,872	\$0	\$4,893
Additional requirements of MOU:		\$0						
	Support Research-Oriented Management	\$0	\$0	\$500,000	\$0	\$371,937	\$0	\$264,850
	Provide an Annual Report	\$0	\$0	\$250,000	\$0	\$185,968	\$0	\$132,425
<b>Total</b>		<b>\$0</b>	<b>\$0</b>	<b>\$3,507,115</b>	<b>\$0</b>	<b>\$2,610,797</b>	<b>\$0</b>	<b>\$1,861,295</b>
<b>Annualized Impact</b>						<b>\$170,375</b>		<b>\$164,199</b>

Notes:

- (1) Elimination or fragmentation of habitat from development is no longer considered a threat because the areas are dedicated to preservation for mitigation.
- (2) No management actions can be taken to manage the loss of adjacent forest canopy and introduction of pathogens and disease, although they were identified as threats.
- (3) 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).

## V.F Unit 6: Monterey Peninsula

Threats that may require special management in this unit are: adverse effects from adjacent existing and future development, including the loss of adjacent forest canopy, increased trampling, potential hydrologic changes, overspray of pesticides, the introduction of pathogens or disease, mowing, and the introduction and spread of invasive plant species; continuing high and/or increasing deer populations resulting in high herbivory levels; and increased growth of understory vegetation due to exclusion of wildfire.<sup>92</sup>



**Subunit 6a** consists of 823 acres of private land owned by the PBC, 4.7 acres of private land owned by the Stevenson School, and 81 acres of private land owned by the Del Monte Forest Foundation (DMFF). Protected lands in this area include the SFB Morse Botanical Reserve (owned by the DMFF) and the Huckleberry Hill Natural Reserve (easement held by the DMFF). The DMFF conducts some monitoring and removal of

<sup>92</sup> 71 FR 61558.

nonnative plant populations. **Subunit 6b** consists of 9 acres of private land owned by the PBC. It is identified in PBC's DMF/PDP as the Bristol Curve Conservation Area. **Subunit 6c** consists of 23 acres of private lands owned by the DMFF and 47 acres of private land owned by the PBC. **Subunit 6d** consists of 12 acres of private land owned by the DMFF. **Subunit 6e** consists of 29 acres of private land owned by the DMFF, 13 acres owned by the PBC, and 19 acres owned by the City of Pacific Grove.<sup>93</sup> The City of Pacific Grove does not manage its land for the piperia and there is no legal impetus for the City of Pacific Grove to undertake management actions for the piperia in the future.<sup>94</sup> Therefore, no impacts to the City of Pacific Grove are anticipated.

For the reasons explained in section V.E above, this economic analysis estimates the impact to the PBC of two scenarios: carrying out the mitigation measures identified for the piperia in the FEIR, and carrying out the mitigation measures in the MOU. The impacts to PBC of complying with the FEIR and the MOU are included in tables 8 and 9 above.

### *The Stevenson School*

The Stevenson School is a non-profit, non-sectarian, independent, K-12 school that owns 4.7 acres in unit 6A. The Stevenson School has plans to develop a portion of its campus (called the "Forested Area" in its Master Plan) into an athletic field. The Master Plan for the Campus was developed in the 1980's and submitted to and approved by the Monterey County Board of Supervisors in 1983. The Master Plan, which includes plans for new educational facilities, residence halls, as well as athletic facilities, has been implemented in stages since 1983.<sup>95</sup>

The Forested Area is proposed to be designated critical habitat. Although the Stevenson School has not developed the Forested Area yet, it may do so in the future, as described in the Master Plan. The Stevenson School is temporarily using a nearby athletic field owned by the PBC called Collins Field.<sup>96</sup> However, an approved PBC development plan will eliminate the School's ability to use Collins field.<sup>97</sup> The Stevenson School plans to develop the Forested Area according to the timeline laid out in the Master Plan to ensure its students are guaranteed an on-campus athletic field to use.

It is possible that the Stevenson School will not be able to develop its athletic field. The California Coastal Commission can restrict development in environmentally sensitive

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<sup>93</sup> 71 FR 61558-9.

<sup>94</sup> Personal communication from Service, September 11, 2007.

<sup>95</sup> Joe Wandke, President of the Stevenson School, Public Comments RE: Proposed Designation of Critical Habitat for *Piperia yadonii* (Yadon's piperia), December 18, 2006, p. 3.

<sup>96</sup> *Ibid*, pp. 4-5.

<sup>97</sup> Thornton, Robert of Nossaman, Gunther, Knox & Elliott, LLP, Public Comment RE: Proposed Designation of Critical Habitat for *Piperia yadonii* (Yadon's piperia), and Draft Economic Analysis of Critical Habitat Designation for Yadon's Piperia, September 6, 2007, p. 4.

habitat areas under the California Coastal Act.<sup>98</sup> Additionally, the County of Monterey (County) often considers the option of not approving development in environmentally sensitive habitat areas.<sup>99</sup> The California Coastal Commission and County determine whether or not an area is an environmentally sensitive habitat area based on their own surveys and reports; determination of an environmentally sensitive habitat area is typically not influenced by the designation of critical habitat.<sup>100,101</sup> If the Stevenson School is unable to develop the Forested Area, the alternatives according to the Stevenson School are bussing students to an alternative field, or eliminating some sports programs.<sup>102</sup> Absent more information, it is assumed that this alternative would be employed for the duration of the twenty year time frame of this analysis.

It is also possible that the County and the California Coastal Commission will allow the Stevenson School to proceed with the development of its athletic field. The County does not always disapprove of development within environmentally sensitive habitat areas. The outcome of the Stevenson Schools permitting process with the County could involve, for example, establishing a conservation area, donating money to a conservation organization, transplanting piperia plants or reducing or moving the development instead of not allowing the development.<sup>103</sup> In the past, the County and California Coastal Commission have approved development in environmentally sensitive habitat areas. See table 10 below for examples.

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<sup>98</sup> California Public Resources Code Section 30240, accessed at: <http://law.justia.com/california/codes/prc/30240-30244.html>, on September 7, 2007. This code states, “Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.”

<sup>99</sup> Electronic communication from Assistant Planner, Monterey County RMA-Planning Department, July 6, 2007.

<sup>100</sup> Electronic communication from Interim Assistant Director of Planning, Monterey County Planning Department, August 30, 2007.

<sup>101</sup> Communication with Coastal Planner, California Coastal Commission, September 7, 2007.

<sup>102</sup> Joe Wandke, President of the Stevenson School, Public Comments RE: Proposed Designation of Critical Habitat for *Piperia yadonii* (Yadon’s piperia), December 18, 2006, pp. 4-5.

<sup>103</sup> Electronic communication from Assistant Planner, Monterey County RMA-Planning Department, July 6, 2007.

**Table 10: Past Projects Approved in the Del Monte Forest Area**

Year	Applicant	Project Description	Permitting Agency	Project Impacts	Conclusion
1993	J. Lohr Properties	78.4 acre subdivision; amend County Land Use Plan (LUP)	California Coastal Commission	<ul style="list-style-type: none"> <li>Change zoning and land use categories in LUP</li> </ul>	California Coastal Commission approved all amendments as submitted
			County of Monterey	<ul style="list-style-type: none"> <li>Removal of landmark pine and other Monterey pine trees</li> </ul>	No significant impacts identified in FEIR which could not be avoided or reduced to insignificant level
1994	Pebble Beach Co.	Construction of fire facility, parking lot, access roads, and related utilities	Planning Commission, County of Monterey	<ul style="list-style-type: none"> <li>Removal of 22 Monterey pine trees</li> <li>With conditions in Forest Management Plan and Biotic Survey, resulting impact on plant life is beneficial, not adverse.</li> </ul>	Planning Commission adopted Negative Declaration, subject to conditions of approval
1997	Forest Golf Properties, Inc.	Expansion of golf driving range and grading, and tree removal	Planning Commission, County of Monterey	<ul style="list-style-type: none"> <li>0.62 acre expansion and grading</li> <li>Removal of 79 Monterey pine trees</li> <li>Yadon's piperia and Hickman's onion not found during site review</li> </ul>	Planning Commission adopted Negative Declaration, subject to conditions of approval
2003	Community Hospital of the Monterey Peninsula	Construction of addition to hospital	California Coastal Commission	<ul style="list-style-type: none"> <li>Conversion of 0.75 acres of Monterey pine forest to urban use</li> <li>Relocation of existing scenic easements</li> <li>Remove 19 trees</li> </ul>	Approved with certain special conditions of approval

Sources: (1) California Coastal Commission, May 28, 1993.

(2) Planning Commission, County of Monterey, State of California, September 14, 1994.

(3) Planning Commission, County of Monterey, State of California, February 12, 1997.

(4) California Coastal Commission, December 10, 2003.

Additionally, the Stevenson School may require a permit from the US Army Corps of Engineers (ACOE) to comply with section 404 of the Clean Water Act because the Stevenson School property contains drainages on the border that are considered waters of the United States.<sup>104,105</sup> If the Stevenson School designs its athletic field in such a way that it would impact the drainages, Federal nexus resulting from the ACOE permitting of the activity would require a section 7 consultation with the Service regarding piperia. The consultation would result in administrative costs to the Stevenson School of approximately \$5,579 (present value at a three percent discount rate).<sup>106</sup>

<sup>104</sup> Thornton, Robert of Nossaman, Gunther, Knox & Elliott, LLP, Public Comment RE: Proposed Designation of Critical Habitat for *Piperia yadonii* (Yadon's piperia), and Draft Economic Analysis of Critical Habitat Designation for Yadon's Piperia, September 6, 2007, p. 4.

<sup>105</sup> Personal communication from Diane Steeck, Ecologist, U.S. Fish and Wildlife Service, September 17, 2007.

<sup>106</sup> Administrative cost based on estimates from Industrial Economics, Inc. (IEc), received August 9, 2007. IEc analysis based on data from the Federal Government Schedule Rates, Office of Personnel Management, 2006, and a review of consultation records from several Service field offices across the country conducted in 2002.

The consultation may also result in recommendations for project modifications that would contribute additional impacts to the School. If the Service determines in its biological opinion that the project would not jeopardize the species or adversely modify the critical habitat, then the Service would not recommend project modifications and the School would incur no impacts related to the presence of the piperia and critical habitat on its land. However, if the project may jeopardize the species or adversely modify critical habitat, then the Service would make recommendations for project modifications. The Service issues jeopardy opinions if a project will affect a sizable number of the species, relative to the number of species throughout its range that will continue to exist. Likewise, the Service issues an adverse modification opinion if the project may affect a large amount of critical habitat, relative to the amount of critical habitat that still exists in other areas. Likewise, the Service issues an adverse modification opinion if the project will impact a large amount of critical habitat, relative the amount of critical habitat that still exists in other areas.<sup>107</sup>

It is difficult to accurately quantify the outcome of a potential consultation on this project for the following reasons:

- Uncertainty regarding whether or not the County and the California Coastal Commission will approve the project;
- Lack of information concerning the project design;
- Uncertainty regarding whether, in the case consultation occurs, the Service would arrive at a jeopardy or adverse modification opinion due to the specific design of the project; and
- Uncertainty in the types of project modifications that the Service may recommend through section 7 consultation.

As a result of the multiple layers of uncertainty, the economic impacts to the Stevenson School are presented as a broad range, with the lower end assuming the athletic field is permitted and constructed and the upper end assuming that the County or Coastal Commission does not permit development of the athletic field. If the Stevenson School is allowed to develop the athletic field, it is assumed that there will be no economic impact to the Stevenson school other than the administrative costs associated with time and effort spent on section 7 consultation.

At the upper end of the range, impacts could be as high as the disutility cost of transporting student athletes to the alternative field during school hours plus the cost of purchasing more busses and fuel, and hiring more drivers. In addition, the Stevenson School may lose other benefits associated with the athletic field; however, those benefits are unknown and too hypothetical to quantify. If the student athletes are transported to the alternative field, the total cost to the Stevenson School could be as high as the figure shown in table 11 below.<sup>108</sup>

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<sup>107</sup> Personal communication from Diane Steeck, Ecologist, U.S. Fish and Wildlife Service, September 17, 2007.

<sup>108</sup> A standard equation for calculating the annual disutility cost of additional transportation was used: (hourly opportunity cost of time)x(hours in transit)x(number of people)x(days of additional transit per year). Values for this calculation were provided by the Business Manager of the Stevenson School. The

**Table 11: Estimated Economic Impacts to Stevenson School, Unit 6a**

Threat	Management Action	Past Impact	Future Impacts					
			Undiscounted Dollars		Present Value (3%)		Present Value (7%)	
			Low	High	Low	High	Low	High
Loss of option to develop "Forested Area" into athletic field in the future	Administrative cost of Section 7 Consultation	\$0	\$0	\$12,310,963	\$0	\$9,214,150	\$0	\$6,624,591
			\$7,500	\$0	\$5,579	\$0	\$3,973	\$0
<b>Total</b>		<b>\$0</b>	<b>\$7,500</b>	<b>\$12,310,963</b>	<b>\$5,579</b>	<b>\$9,214,150</b>	<b>\$3,973</b>	<b>\$6,624,591</b>
<b>Annualized Impact</b>					<b>\$364</b>	<b>\$601,297</b>	<b>\$350</b>	<b>\$584,406</b>

Notes:

(1) 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).

*The Del Monte Forest Foundation*

Del Monte Forest Foundation (DMFF) owns 81 acres in unit 6a, including the SFB Morse Botanical Reserve and the Huckleberry Hill Natural Reserve. Del Monte Forest Foundation also owns 23 acres in unit 6c, all of unit 6d (12 acres), and 29 acres in unit 6e.

The DMFF has encouraged research on its land that will serve to better understand piperia ecology and how to optimally manage piperia habitat. Although the DMFF has allowed researchers access to its lands, the DMFF has not funded any of these studies. The DMFF has only contributed a small amount of funds to a survey effort that was conducted by the Pebble Beach Company approximately 2 years ago for its DMF / PDP. The DMFF estimates that it contributed approximately \$1,000 to the survey effort.<sup>109</sup>

The threats identified by the Service in this unit are: adverse effects from adjacent existing and future development, including the loss of adjacent forest canopy, increased trampling, potential hydrologic changes, overspray of pesticides, the introduction of pathogens or disease, mowing, and the introduction and spread of invasive plant species; herbivory from continued high or growing deer populations; and increased growth of understory vegetation due to exclusion of wildfire.<sup>110</sup> The Service notes that the loss of

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field is used 183 days each year, about 70 students use the field each day, the transit time to and from the alternative field is about 1.75 hours per day, and the opportunity cost of students' time is \$25 per hour. Opportunity cost of the student's time is measured as the hourly average cost of Stevenson School tuition. This way of measuring opportunity cost reflects the fact that student athletes would be commuting to an alternate field during hours they would normally be on campus and free to participate in other activities. The one-time cost of purchasing two busses is \$220,000. The annual cost of hiring drivers is \$12,810. The annual cost of fuel for the busses is \$21,960.

<sup>109</sup> Personal communication from Forester, Staub Forestry and Environmental Consultants, January 23, 2007.

<sup>110</sup> 71 FR 61558.

adjacent forest canopy and the introduction of pathogens and disease cannot be avoided; no actions are identified to address these threats.<sup>111</sup>

Because the understory ecology may vary dramatically across the various subunits in unit 6, the Service recommends monitoring each unit for understory growth caused by the exclusion of wildfire, but not taking any actions until the specific understory dynamics are better understood.<sup>112</sup> To control herbivory, the Service recommends monitoring the areas of proposed critical habitat, then installing herbivory-prevention cages if necessary.

Because the piperia’s lifecycle and specific habitat needs are not well understood, the DMFF has not taken actions to actively manage habitat for the piperia in particular. However, the DMFF does actively manage its open space lands. Its current efforts involve maintaining trails to keep pedestrians from trampling in environmentally sensitive habitat areas; controlling stormwater and pesticide runoff from adjacent development; controlling invasive plant species, especially where they are significantly contributing to understory growth; monitoring their lands for herbivory patterns and other purposes; and paying in-house biologists and botanists to conduct surveys and identify sensitive plant species before the start of projects that involve vegetation removal and mowing.

The DMFF’s current open space active management efforts are essentially already controlling the threats the Service identified in lands owned by the DMFF. The DMFF is in charge of maintaining the habitat in its parcels owned in fee title; maintenance of scenic easements is the responsibility of the owner. The current annual budget for open space active management is \$80,000, which is used to manage all lands in parcels owned in fee title. Approximately 63% of DMFF parcels owned in fee title are within the areas of proposed critical habitat, as shown in the table below.

<b>DMFF Parcels Owned in Fee Title</b>	<b>Corresponding PCH Unit</b>	<b>Approximate Acreage</b>
SFB Morse Botanical Reserve	Unit 6A	84
Indian Village	Unit 6C	21
Crocker Grove	Unit 6D	13
Navajo Tract and Navajo North	Unit 6E	26
<b>Total DMFF Parcels Owned in Fee Title within PCH</b>		<b>143</b>
<b>Total DMFF Parcels Owned in Fee Title</b>		<b>229</b>
<b>Percentage of Parcels Owned in Fee Title within PCH</b>		<b>63%</b>

Source:  
Del Monte Forest Foundation website at: <http://www.delmonteforestfoundation.org/Properties.html>, site accessed March 2, 2007.

<sup>111</sup> Personal communication from Diane Steeck, Ecologist, U.S. Fish and Wildlife Service, January 11, 2007.

<sup>112</sup> Electronic communication with Diane Steeck, Ecologist, U.S. Fish and Wildlife Service, January 11, 2007.

Approximately 63% of the annual budget for open space active management (\$50,011) is aiding in the conservation of the piperia and its habitat.<sup>113</sup>

**Table 13: Estimated Economic Impacts to Del Monte Forest Foundation, Units 6a, 6c, 6d, 6e**

		Past Impacts			Future Impacts		
Threat	Management Action	Undiscounted Dollars	Present Value (3%)	Present Value (7%)	Undiscounted Dollars	Present Value (3%)	Present Value (7%)
Adverse effects from adjacent existing and future development:		\$1,000	\$1,061	\$1,145	\$1,000,218	\$744,036	\$529,816
Increased trampling	Maintain trails and direct people towards those trails	\$0	\$0	\$0	included in cost above		
Potential hydrologic changes	Control stormwater runoff	\$0	\$0	\$0	included in cost above		
Overspray of pesticides	Control pesticide runoff.	\$0	\$0	\$0	included in cost above		
Mowing	Mow when piperia dormant; reduce impacts to piperia	\$0	\$0	\$0	included in cost above		
Introduction and spread of invasive plants	Conduct regular invasive species removal projects	\$0	\$0	\$0	included in cost above		
Herbivory	Monitor. If necessary, install cages around piperia plants	\$0	\$0	\$0	included in cost above		
Increased understory growth due to exclusion of wildfire	Monitor. No action needed until threat better understood	\$0	\$0	\$0	included in cost above		
<b>Total</b>		<b>\$1,000</b>	<b>\$1,061</b>	<b>\$1,145</b>	<b>\$1,000,218</b>	<b>\$744,036</b>	<b>\$529,816</b>
<b>Annualized Impact</b>					<b>\$48,554</b>	<b>\$46,739</b>	

Notes:

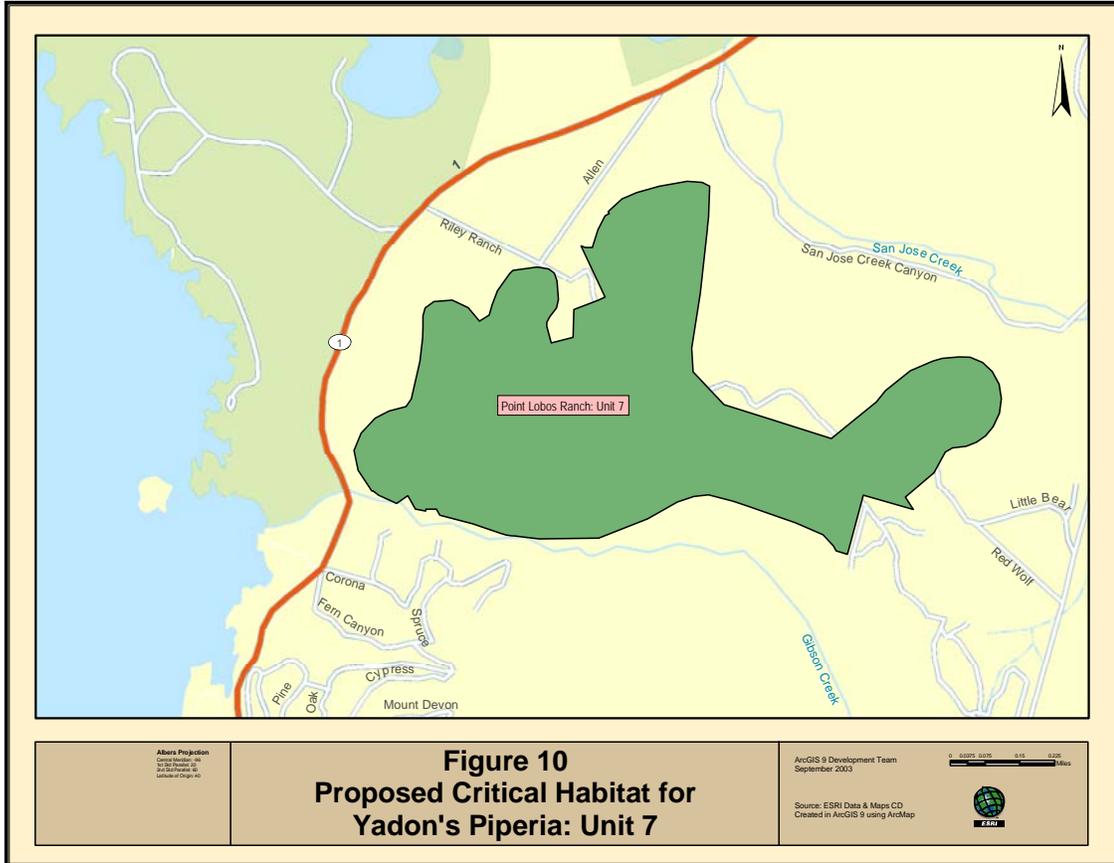
- (1) All threats are managed through the open space management budget, therefore the total cost is presented once for all threats.
- (2) Guidance provided by the OMB specifies the use of a real rate of seven percent. In addition, OMB recommends sensitivity analysis using other discount rates such as 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).

<sup>113</sup> Personal communication from Forester, Staub Forestry and Environmental Consultants, January 23, 2007.

### V.GUnit 7: Point Lobos

Threats that may require special management in this unit are the growth and spread of invasive plant species, such as French broom, and erosion. Use of herbicides should be controlled to avoid or minimize effects to the species. Access by park visitors may need to be managed to avoid trampling in Monterey pine forest populations.<sup>114</sup>

Loss of habitat from residential development is no longer a threat in this unit because private lands were not proposed for critical habitat designation in this unit.



This unit consists of 228 acres of land owned by the California State Department of Parks and Recreation, and 97 acres that were owned by the Big Sur Land Trust, but have recently been added to the State Parks system.

The California State Department of Parks and Recreation (State Parks) has been controlling nonnative invasive plant species in this unit. The invasives removal process occasionally involves the use of herbicides. State Parks trains its personnel to identify and avoid the piperia when removing invasive plants manually or with herbicides. The State Parks invasive plant removal efforts cost \$5,000-\$10,000 annually depending on

<sup>114</sup> 71 FR 61559.

whether or not volunteer inmate labor or hired labor is used. The cost of training the personnel to recognize and avoid the piperia during invasive species removal is about \$500 per year.<sup>115</sup>

The Big Sur Land Trust made minimal efforts on the land it owned to control French broom and Jubata grass. Past impacts, including staff and equipment, since the time of listing are approximately \$1,000.<sup>116</sup>

In 2003, a survey of the area found that the piperia was threatened by sediment runoff from an unpaved road within the area of proposed critical habitat.<sup>117</sup> Erosion is no longer considered a threat to the piperia by State Parks, because the road documented in the 2003 survey has since been paved over. Therefore, erosion is not currently managed by State Parks.<sup>118</sup> However, the piperia may be threatened by erosion and sedimentation from altered drainage patterns and piles of road-side sediment that resulted from the paving of the road.<sup>119</sup>

Monitoring will be needed to characterize the erosion and sedimentation problem. The cost of annual monitoring to characterize the erosion problem would be about \$200 per year.<sup>120</sup> If the monitoring efforts find erosion or sedimentation is indeed a threat, the cost of controlling it could be approximately \$10,000 over the next 20 years to implement best management practices along the road.<sup>121</sup>

Access by park visitors is currently restricted by State Parks. No public access is allowed in the area where the piperia grows.<sup>122</sup> The Big Sur Land Trust did not allow open public access in the area proposed to be critical habitat when it owned the land.<sup>123</sup> The Service has stated that no management actions need to be taken to control this threat at this time.<sup>124</sup>

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<sup>115</sup> Personal communication from staff, California Department of Parks and Recreation, December 6 and December 15, 2006.

<sup>116</sup> Personal communication from staff, Big Sur Land Trust, December 14, 2006.

<sup>117</sup> Graff et al, California Native Species Field Survey Forms, June 15, 2003.

<sup>118</sup> Personal communication from staff, California Department of Parks and Recreation, December 6 and December 15, 2006.

<sup>119</sup> Personal communication from staff, Big Sur Land Trust, December 14, 2006.

<sup>120</sup> Personal communication from staff, California Department of Parks and Recreation, December 15, 2006.

<sup>121</sup> Personal communication from staff at California Department of Parks and Recreation, April 23, 2007. Confirmed by Diane Steeck, Ecologist, U.S. Fish and Wildlife Service, April 30, 2007.

<sup>122</sup> Personal communication from staff, California Department of Parks and Recreation, December 6, 2006.

<sup>123</sup> Personal communication from staff, Big Sur Land Trust, December 14, 2006.

<sup>124</sup> Electronic communication from Diane Steeck, Ecologist, U.S. Fish and Wildlife Service, December 12, 2006.

**Table 14: Estimated Economic Impacts to California State Department of Parks and Recreation, Unit 7**

		Past Impacts			Future Impacts		
Threat	Management Action	Undiscounted Dollars	Present Value (3%)	Present Value (7%)	Undiscounted Dollars	Present Value (3%)	Present Value (7%)
The growth and spread of invasive plant species	Remove invasive species from piperia habitat	\$61,000	\$69,838	\$83,707	\$150,000	\$111,581	\$79,455
Use of herbicides when removing invasive species	Train personnel to use herbicides carefully	\$4,000	\$4,580	\$5,489	\$10,000	\$7,439	\$5,297
Erosion	Monitor	\$0	\$0	\$0	\$4,000	\$2,975	\$2,119
	If necessary, control erosion	\$0	\$0	\$0	<i>\$10,000</i>	<i>\$7,439</i>	<i>\$5,297</i>
Park visitors trailing in Monterey Pine forest	None. Determined no longer a threat	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total</b>		<b>\$65,000</b>	<b>\$74,418</b>	<b>\$89,196</b>	<b>\$174,000</b>	<b>\$129,434</b>	<b>\$92,168</b>
<b>Annualized Impact</b>					<b>\$8,447</b>	<b>\$8,131</b>	

Notes:

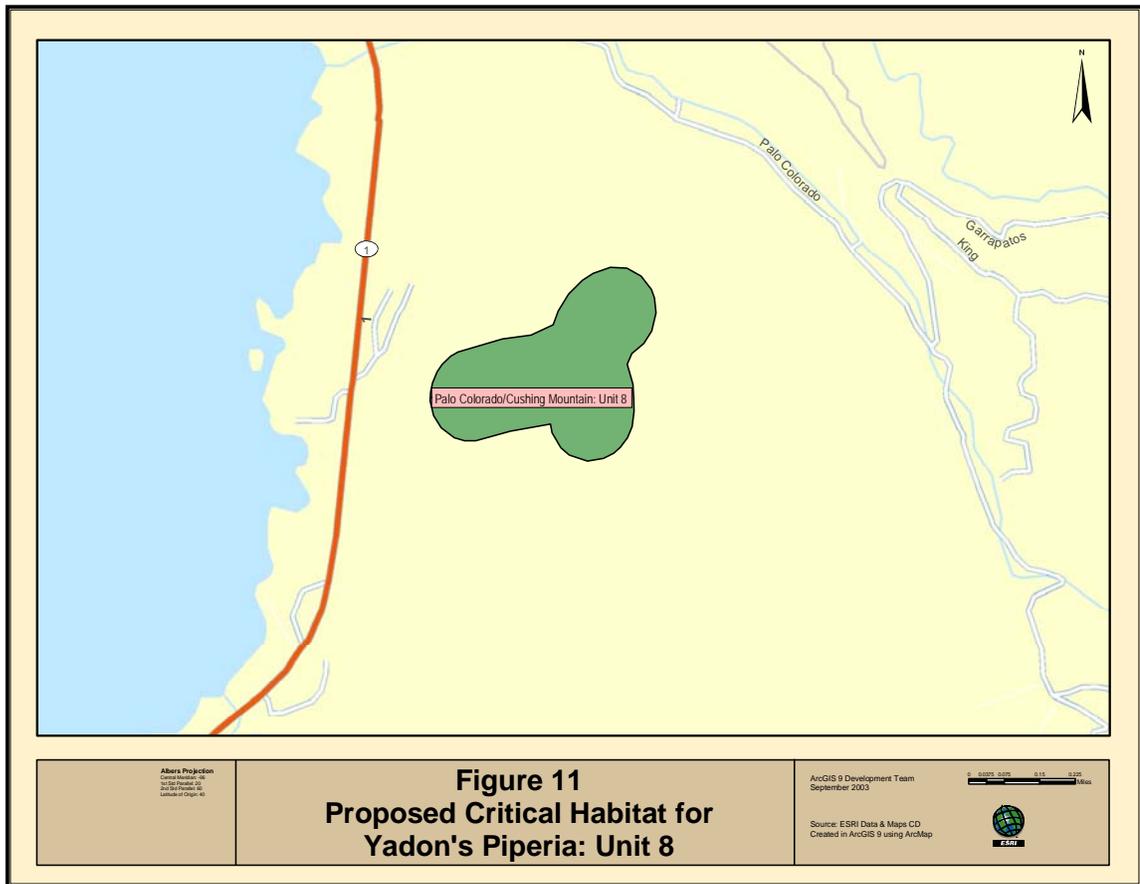
(1) Italicized costs are costs that will be incurred only if necessary after monitoring and further research.

(2) 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).

### V.HUnit 8: Palo Colorado

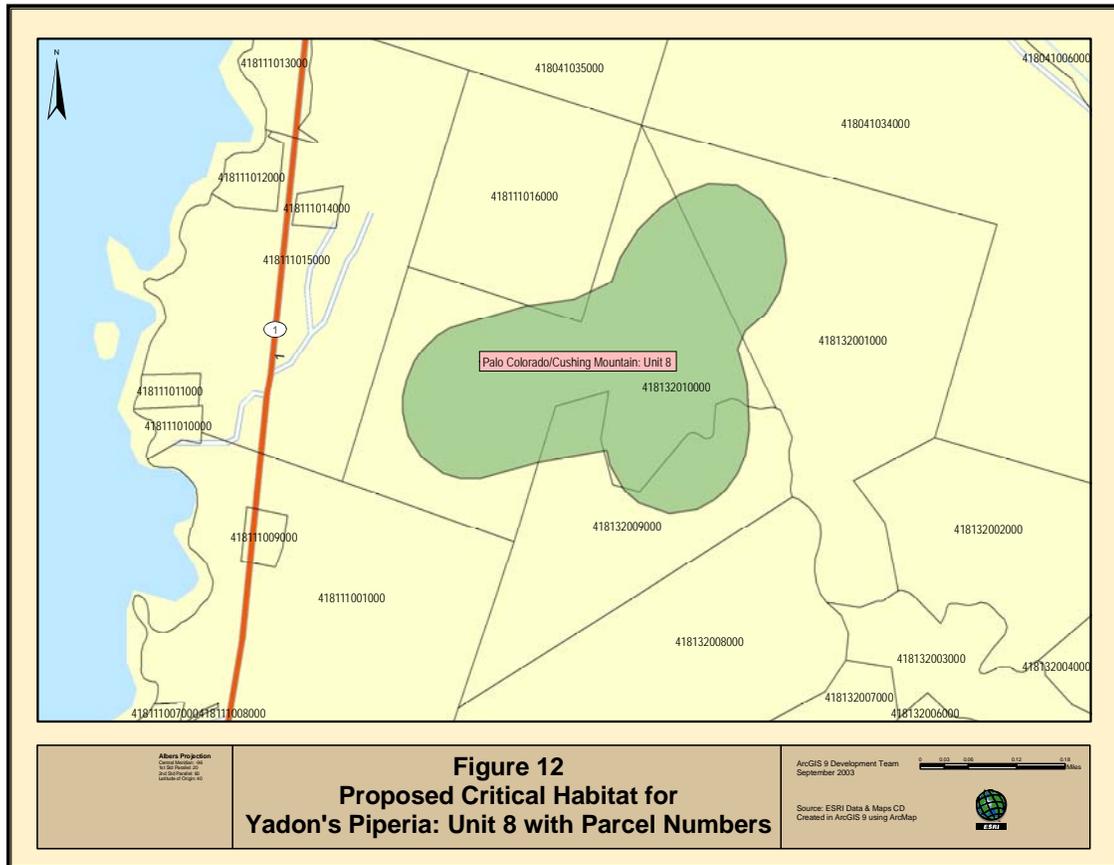
Threats that may require special management in this unit are habitat fragmentation and habitat degradation from road and trail grading and from future development, such as the introduction and spread of nonnative plants, removal of native vegetation, erosion, and hydrologic changes.<sup>125</sup>

<sup>125</sup> 71 FR 61559.



This unit consists of 73 acres of private land on the Big Sur coast.<sup>126</sup> The parcels of private land are displayed in the map below.

<sup>126</sup> *Ibid.*



There are 4 parcels that overlap this unit. Three parcels are owned by the same entity, together comprising over 72 acres of the proposed critical habitat unit. The fourth parcel, which is in the northwest corner of the unit and only overlaps the unit by less than one acre, is owned by a different entity. According to the Monterey County Planning and Building Department, all 4 parcels are zoned “Watershed and Scenic Conservation” with a zoning density of 40 acres per parcel (WSC/40).<sup>127</sup>

In February of 2005, the Monterey County Planning and Building Department approved a request for an after-the-fact permit for a water system to serve five parcels, three of which are parcels 418132001000, 418132009000, and 418132010000 in the proposed critical habitat. The other two parcels included in the request for a permit for a water system (418132008000 and 418132002000) are located southeast of the area of proposed critical habitat. As of the writing of this report, no mitigation measures have been placed on this permit; mitigation measures may be placed on the project during the final review stage.<sup>128</sup>

<sup>127</sup> Electronic communication from Assistant Planner, Monterey County RMA-Planning Department, December 19 and 27, 2006.

<sup>128</sup> *Ibid.*

Lost surplus from development opportunities is still too hypothetical to estimate because no other building permit applications have been submitted to the Monterey County Planning and Building Department for these 4 parcels. Aside from the potential impact of measures to conserve the piperia, no other economic impacts are estimated for this unit.

Special management may be needed to control the threats in this subunit identified in the proposed rule.<sup>129</sup> However, it is unlikely that private landowners will undertake any special management actions in the future as there is no regulatory mechanism to compel them to do so, and they have not voluntarily undertaken these management actions in the past.

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<sup>129</sup> The Service cannot require private landowners to take actions to conserve the species. However, if the private land owners are interested in reducing threats to piperia, the Service would make recommendations on how to best manage the land for conservation purposes.

## **Appendix A: Incremental Analysis of Critical Habitat Designation for the Yadon's Piperia**

This appendix estimates the potential incremental impacts of critical habitat designation for the piperia. It does so by attempting to isolate those direct and indirect impacts that are expected to be triggered specifically by the critical habitat designation. That is, the incremental conservation efforts and associated impacts included in this appendix would not be expected to occur absent the designation of critical habitat for the species.

As described in section A.3 of this appendix, the incremental impacts of critical habitat designation for the piperia are estimated to be as high as \$2.6 million (present value at a three percent discount rate). These incremental impacts are associated with costs above and beyond those impacts expected to occur due to the listing of the species. All remaining impacts quantified in section V of this report are forecast to occur regardless of critical habitat designation for the piperia.

### **A.1 Background**

The U.S. Office of Management and Budget's (OMB) guidelines for conducting an economic analysis of regulations direct Federal agencies to measure the costs of a regulatory action against a baseline, which it defines as the "best assessment of the way the world would look absent the proposed action."<sup>1</sup> In other words, the baseline includes the existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat. Impacts that are incremental to that baseline (i.e., occurring over and above existing constraints) are attributable to the proposed regulation. Significant debate has occurred regarding whether assessing the impacts of the Service's proposed regulations using this baseline approach is appropriate in the context of critical habitat designations.

In 2001, the U.S. Tenth Circuit Court of Appeals instructed the Service to conduct a full analysis of all of the economic impacts of proposed critical habitat, regardless of whether those impacts are attributable coextensively to other causes.<sup>2</sup> Specifically, the court stated

"The statutory language is plain in requiring some kind of consideration of economic impact in the CHD phase. Although 50 C.F.R. 402.02 is not at issue here, the regulation's definition of the jeopardy standard as fully encompassing the adverse modification standard renders any purported economic analysis done utilizing the baseline approach virtually meaningless. We are compelled by the canons of statutory interpretation to give some effect to the congressional directive that economic impacts be considered at the time of critical habitat designation.... Because economic analysis done using the FWS's baseline model

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<sup>1</sup> OMB, "Circular A-4," September 17, 2003.

<sup>2</sup> *New Mexico Cattle Growers Assn v. United States Fish and Wildlife Service*, 248 F. 3d 1277 (10<sup>th</sup> Cir. 2001).

is rendered essentially without meaning by 50 C.F.R. § 402.02, we conclude Congress intended that the FWS conduct a full analysis of all of the economic impacts of a critical habitat designation, regardless of whether those impacts are attributable coextensively to other causes. Thus, we hold the baseline approach to economic analysis is not in accord with the language or intent of the ESA.”<sup>3</sup>

Since that decision, however, courts in other cases have held that an incremental analysis of impacts stemming solely from the critical habitat rulemaking is proper.<sup>4</sup> For example, in the March 2006 court order ruling that the August 2004 critical habitat rule for the Peirson's milk-vetch was arbitrary and capricious, the United States District Court for the Northern District of California stated,

“The Court is not persuaded by the reasoning of *New Mexico Cattle Growers*, and instead agrees with the reasoning and holding of *Cape Hatteras Access Preservation Alliance v. U.S. Dep’t of the Interior*, 344 F. Supp 2d 108 (D.D.C. 2004). That case also involved a challenge to the Service’s baseline approach and the court held that the baseline approach was both consistent with the language and purpose of the ESA and that it was a reasonable method for assessing the actual costs of a particular critical habitat designation *Id* at 130. ‘To find the true cost of a designation, the world with the designation must be compared to the world without it.’”<sup>5</sup>

In order to address the divergent opinions of the courts and provide the most complete information to decision-makers, this economic analysis reports both: a) the fully coextensive impacts associated with the proposed critical habitat designation (in Section VI of the report); and b) the impacts that are identified as incremental to the rulemaking, precipitated specifically by the designation of critical habitat for the species (in this appendix).

Until a new regulation is adopted to define “destruction or adverse modification,” incremental effects of critical habitat designation are determined using the Service's December 9, 2004 interim guidance on “Application of the ‘Destruction or Adverse Modification’ Standard Under Section 7(a)(2) of the Endangered Species Act” and information from the Service regarding what potential consultations and project modifications would be imposed as a result of critical habitat designation over and above those associated with the listing.<sup>6</sup> The following section describes the methods employed

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<sup>3</sup> *New Mexico Cattle Growers Assn v. United States Fish and Wildlife Service*, 248 F.3d 1277 (10<sup>th</sup> Cir. 2001).

<sup>4</sup> *Cape Hatteras Access Preservation Alliance v. Department of Interior*, 344 F. Supp. 2d 108 (D.D.C.); *CBD v. BLM*, 422 F. Supp. 2d 1115 (N.D. Cal. 2006).

<sup>5</sup> Center for Biological Diversity et al, Plaintiffs, v. Bureau of Land Management et al, Defendants and American Sand Association, et al, Defendant Intervenors. Order re: Cross Motions for Summary Judgment. Case 3:03-cv-02509 Document 174 Filed 03/14/2006. Pages 44-45.

<sup>6</sup> Director, U.S. Fish and Wildlife Service, Memorandum to Regional Directors and Manager of the California-Nevada Operations Office, Subject: Application of the “Destruction or Adverse Modification” Standard under Section 7(a)(2) of the Endangered Species Act, dated December 9, 2004.

to identify incremental impacts anticipated to result from the designation of critical habitat.

## **A.2 Framework for the Incremental Analysis**

This section provides a description of the methodology used to determine potential economic impacts stemming from the proposed designation of critical habitat for the piperia. The analysis evaluates impacts in a “with critical habitat designation” versus a “without critical habitat designation” framework, measuring the net change in economic activity. The “without critical habitat designation” scenario, which represents the baseline for this incremental analysis, includes all protection already afforded the species under State, local, and Federal laws, existing conservation plans, and the listing of the species under the Act. The focus of this incremental analysis is to determine the impacts on land uses and activities from the designation of critical habitat that are above and beyond those impacts due to existing required or voluntary conservation efforts being undertaken due to other Federal, State, and local regulations or guidelines. The following sections describe the decision analysis regarding whether an impact should be considered incremental in detail.

### **A.2.1 Defining the Baseline**

The baseline for this incremental analysis is the existing state of regulation, prior to the designation of critical habitat that provides protection to the species under the Act, as well as under other Federal, State and local laws. 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. The administrative costs of consultations under the jeopardy standard, along with the impacts of project modifications resulting from these consultations, are considered baseline impacts.

In addition to impacts associated with section 7 of the Act, the baseline includes impacts of compliance with other Sections of the Act, as well as other Federal, State, and local laws that protect the species in the absence of critical habitat designation. If the Clean Water Act, for example, protects wetland habitat for the species, relevant impacts of Clean Water Act compliance are considered part of the baseline.

The baseline represents the best estimate of the “world without critical habitat,” and therefore considers a wide range of additional factors beyond the compliance costs of regulations that provide protection to the listed species. As recommended by OMB, the baseline incorporates, as appropriate, trends in market conditions, implementation of other regulations and policies by the Service and other government entities, and trends in other factors that have the potential to affect economic costs and benefits, such as the rate of regional economic growth in potentially affected industries.

When critical habitat is designated, section 7 requires Federal agencies to ensure that their actions will not result in the destruction or adverse modification of critical habitat

(in addition to considering whether the actions are likely to jeopardize the continued existence of the species). The added administrative costs of including consideration of critical habitat in section 7 consultations, and the additional impacts of implementing project modifications resulting from the protection of critical habitat are the direct compliance costs of designating critical habitat. These costs are not in the baseline, and are considered incremental impacts of the rulemaking.

### **A.2.2 Quantifying Incremental Economic Impacts**

The incremental impacts of the proposed critical habitat designation are a subset of the coextensive economic impacts quantified in Section V of this analysis. Incremental impacts may be the direct compliance costs associated with additional effort for forecast consultations, reinitiated consultations, new consultations occurring specifically because of the designation, and additional project modifications that would not have been required under the jeopardy standard. Additionally, incremental impacts may include indirect impacts resulting from reaction to the potential designation of critical habitat (e.g., developing habitat conservation plans (HCPs) specifically to avoid designation of critical habitat), triggering of additional requirements under State or local laws intended to protect sensitive habitat, and uncertainty and perceptual effects on markets.

#### Direct Impacts

The direct, incremental impacts of critical habitat designation stem from the consideration of the potential for destruction or adverse modification of critical habitat during section 7 consultations. The two categories of direct, incremental impacts of critical habitat designation are: 1) the administrative costs of conducting section 7 consultation; and 2) implementation of any project modifications requested by the Service through section 7 consultation to avoid, compensate for, or mitigate potential destruction or adverse modification of critical habitat.

#### Administrative Section 7 Consultation Costs

Parties involved in section 7 consultations include the Service, a Federal "action agency," and in some cases, a private entity involved in the project or land use activity. The action agency (i.e., the Federal nexus necessitating the consultation) serves as the liaison with the Service. While consultations are required for activities that involve a Federal nexus and may jeopardize the continued existence of the species regardless of whether critical habitat is designated, the designation may increase the effort for consultations in the case that the project or activity in question may adversely modify critical habitat.

In general, three different scenarios associated with the designation of critical habitat may trigger incremental administrative consultation costs:

**Additional effort to address adverse modification in a new consultation** - New consultations taking place after critical habitat designation may require additional effort to address critical habitat issues above and beyond the listing issues. In this

case, only the additional administrative effort required to consider critical habitat is considered an incremental impact of the designation.

**Re-initiation of consultation to address adverse modification** - Consultations that have already been completed on a project or activity may require re-initiation to address critical habitat. In this case, the costs of re-initiating the consultation, including all associated administrative and project modification costs are considered incremental impacts of the designation.

**Incremental consultation resulting entirely from critical habitat designation** - Critical habitat designation may trigger additional consultations that may not occur absent the designation (e.g., for an activity for which adverse modification may be an issue, while jeopardy is not, or consultations resulting from the new information about the potential presence of the species provided by the designation). Such consultations may, for example, be triggered in critical habitat areas that are not occupied by the species. All associated administrative and project modification costs of incremental consultations are considered incremental impacts of the designation.

The administrative costs of these consultations vary depending on the specifics of the project. One way to address this variability is to show a range of possible costs of consultation as it may not be possible to predict the outcome of each future consultation in terms of level of effort. Review of consultation records and discussions with Service field offices resulted in an estimated range of administrative costs of consultation as highlighted in table A-1.

**Table A-1: Range of Administrative Consultation Costs, 2006 Dollars**

<b>Consultation Type</b>	<b>Service</b>	<b>Federal Agency</b>	<b>Third Party</b>	<b>Biological Assessment</b>
Informal	\$1,100 - \$3,400	\$1,500 - \$4,300	\$1,200 - \$2,900	\$0 - \$4,000
Formal	\$3,400 - \$6,700	\$4,300 - \$7,200	\$2,900 - \$4,100	\$4,000 - \$5,600

Note: Estimates reflect average hourly time required by staff.  
Source: IEC analysis of full administrative costs is based on data from the Federal Government Schedule Rates, Office of Personnel Management, 2006, and a review of consultation records from several Service field offices across the country conducted in 2002.

The above ranges in consultation costs represent effort required for all types of consultation, including those that considered both adverse modification and jeopardy, and are therefore not representative of the incremental administrative costs of consultation triggered specifically by critical habitat designation. To estimate the fraction of the administrative costs associated with consultation the following assumptions were applied. The costs of an incremental consultation (one only occurring because of the designation of critical habitat) are the greatest, as all costs associated with this consultation are included.

Re-initiation of a consultation is assumed to require approximately half the level of effort of the incremental consultation. This assumes that re-initiations are less time-consuming as the groundwork for the project has already been considered in terms of its effect on the species.

Efficiencies exist with considering both jeopardy and adverse modification at the same time (e.g., in staff time saved for project review and report writing), and therefore incremental administrative costs of considering adverse modification in consultations that will already be required to consider jeopardy result in the least incremental effort of these three consultation categories, roughly half that of a re-initiation.

The cost model in table A-2 presents the estimated incremental costs of consultation for each of the three categories of consultation described above. Importantly, the estimated costs represent the midpoint of the ranges in table A-1 to account for variability regarding levels of effect of specific consultation.<sup>7</sup>

**Table A-2: Estimated Administrative Costs of Consultation (Per Effort), 2006 Dollars**

<b>Consultation Type</b>	<b>Service</b>	<b>Federal Agency</b>	<b>Third Party</b>	<b>Biological Assessment</b>
<i>Incremental consultation resulting entirely from critical habitat designation</i>				
Informal	\$2,250	\$2,900	\$2,050	\$2,000
Formal	\$5,050	\$5,750	\$3,500	\$4,800
<i>Re-initiation of consultation to address adverse modification</i>				
Informal	\$1,120	\$1,450	\$1,020	\$1,000
Formal	\$2,520	\$2,870	\$1,750	\$2,400
<i>Additional effort to address adverse modification in a new consultation</i>				
Informal	\$560	\$725	\$510	\$500
Formal	\$1,260	\$1,430	\$875	\$1,200
Note: Estimates reflect average hourly time required by staff. Source: IEC analysis of full administrative costs is based on data from the Federal Government Schedule Rates, Office of Personnel Management, 2006, and a review of consultation records from several Service field offices across the country conducted in 2002.				

Section 7 Project Modification Impacts

Section 7 consultation considering critical habitat may also result in additional project modification recommendations specifically addressing potential destruction or adverse modification of critical habitat. For forecast consultations considering jeopardy and adverse modification, and for re-initiations of past consultations to consider critical habitat, economic impacts of project modifications undertaken to avoid, compensate for,

<sup>7</sup> Absent specific information on the probability that a consultation will be closer to the low or high end of the range, presenting the midpoint effectively assumes there is an even distribution of the consultation falling at any given point on the spectrum between the low-end cost and high-end cost.

or mitigate adverse modification are considered incremental impacts of critical habitat designation. For consultations that are forecast to occur specifically because of the designation (incremental consultations), impacts of all associated project modifications are assumed to be incremental impacts of the designation. This is summarized below.

**Additional effort to address adverse modification in a new consultation -**

Only project modifications associated solely with avoiding, compensating for, or mitigating adverse modification are considered incremental.

**Re-initiation of consultation to address adverse modification -** Only project modifications associated solely with avoiding, compensating for, or mitigating adverse modification are considered incremental.

**Incremental consultation resulting entirely from critical habitat designation -** Impacts of all project modifications are considered incremental.

Indirect Impacts

The designation of critical habitat may, under certain circumstances, affect actions that do not have a Federal nexus and thus are not subject to the provisions of section 7 under the Act. Indirect impacts are those unintended changes in economic behavior that may occur outside of the Act, through other Federal, State, or local actions, which are caused by the designation of critical habitat. This section identifies common types of indirect impacts that may be associated with the designation of critical habitat.

Habitat Conservation Plans

Under section 10(a)(1)(B) of the Act, a non-Federal entity (i.e., a landowner or local government) may develop an 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. The HCP intends to counterbalance potential harmful effects that a proposed activity may have on a species, while allowing the otherwise lawful activity to proceed. As such, the purpose of the habitat conservation planning process is to ensure that the effects of incidental take are adequately minimized and mitigated. Thus, HCPs are developed to ensure compliance with section 9 of the Act and to meet the requirements of section 10 of the Act.

HCPs are not required or necessarily recommended by a critical habitat designation. Some landowners, however, may voluntarily complete a HCP in response to the prospect of having their land designated as critical habitat. In this case, the effort involved in creating the HCP and undertaking associated conservation actions are considered an incremental effect of designation.

### Other State and Local Laws

Under certain circumstances, critical habitat designation 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 impacts would not have been triggered absent critical habitat designation, they are considered indirect, incremental impacts of the designation.

The California Environmental Quality Act (CEQA), for example, requires that lead agencies, public agencies responsible for project approval, consider the environmental effects of proposed projects that are considered discretionary in nature and not categorically or statutorily exempt. In some instances, critical habitat designation may trigger CEQA-related requirements. This is most likely to occur in areas where the critical habitat designation provides clearer information on the importance of particular areas as habitat for a listed species. In addition, applicants who were “categorically exempt” from preparing an Environmental Impact Report under CEQA may no longer be exempt once critical habitat is designated. In cases where the designation triggers the CEQA significance test or results in a reduction of categorically exempt activities, associated impacts are considered to be an indirect, incremental effect of the designation.

As an additional example, the California Coastal Act restricts development in an environmentally sensitive habitat area (ESHA). This code specifically states, “Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.”<sup>8</sup>

### Additional Indirect Impacts

In addition to the indirect effects of compliance with other laws or triggered by the designation, project proponents, land managers and landowners may face additional indirect impacts, including the following:

**Time Delays** - Both public and private entities may experience incremental time delays for projects and other activities due to requirements associated with the need to reinitiate the Section 7 consultation process and/or compliance with other laws triggered by the designation. To the extent that delays result from the designation, they are considered indirect, incremental impacts of the designation.

**Regulatory Uncertainty** - The Service conducts each section 7 consultation on a case-by-case basis and issues a biological opinion on formal consultations based on species-specific and site-specific information. As a result, government agencies and affiliated private parties who consult with the Service under section 7 may face uncertainty concerning whether project modifications will be recommended by the Service and what the nature of these modifications will be.

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<sup>8</sup> California Public Resources Code Section 30240, accessed at: <http://law.justia.com/california/codes/prc/30240-30244.html>, on September 7, 2007.

This uncertainty may diminish as consultations are completed and additional information becomes available on the effects of critical habitat on specific activities. Where information suggests that this type of regulatory uncertainty stemming from the designation may affect a project or economic behavior, associated impacts are considered indirect, incremental impacts of the designation.

**Stigma** - In some cases, the public may perceive that critical habitat designation may result in limitations on private property uses above and beyond those associated with anticipated project modifications and regulatory uncertainty described above. Public attitudes about the limits or restrictions that critical habitat may impose can cause real economic effects to property owners, regardless of whether such limits are actually imposed. All else equal, a property that is designated as critical habitat may have a lower market value than an identical property that is not within the boundaries of critical habitat due to perceived limitations or restrictions. As the public becomes aware of the true regulatory burden imposed by critical habitat, the impact of the designation on property markets may decrease. To the extent that potential stigma effects on markets are probable and identifiable, these impacts are considered indirect, incremental impacts of the designation.

### **A.3 Incremental Analysis of Critical Habitat for the Piperia**

Table A-3 summarizes the impacts that are considered to be incremental, according to the framework described above. Total incremental impacts of critical habitat designation are forecast to be \$2.6 million (present value at a three percent discount rate). These impacts would occur in units where the Pebble Beach Company is a landowner (4a, 4b, 5, 6a, 6b, 6c and 6e) and in the unit where the Stevenson School is a landowner (6a).

#### *Pebble Beach Company*

As explained in sections V.E and V.F above, if PBC receives approval for a project comparable to that initially approved by the County of Monterey in 2005, PBC has agreed to carry out the suite of mitigation measures identified for the piperia in the PBC DMF / PDP Final Environmental Impact Report (FEIR).<sup>9</sup> However, if PBC fails to gain governmental approvals for a preservation and development project during the next twenty years, PBC will still be required to implement the management components of a Memorandum of Understanding (MOU).<sup>10</sup> After critical habitat was proposed, PBC signed an MOU with the Service in September of 2007 to, “ensure the conservation of Yadon’s piperia on PBC’s lands by establishing the commitment of PBC to dedicate 511 acres (412 acres in the Del Monte Forest, 83 acres at Aguajito, and 16 acres at Old Capitol) of Yadon’s piperia habitat...and to implement certain Yadon’s piperia management measures with respect to such habitat and other areas.” As explained in the

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<sup>9</sup> Memorandum of Understanding between U.S. Fish and Wildlife Service, Ventura Field Office, and Pebble Beach Company, September 2007.

<sup>10</sup> *Ibid.*, p. 3.

MOU, PBC will permanently conserve and manage the areas mentioned above to mitigate for potential future development in other areas of the Del Monte Forest. According to the MOU, PBC and the Service agree that the 511 acres that will be conserved by PBC may be designated as critical habitat.<sup>11</sup>

The costs of implementing the management measures outlined in the MOU are considered incremental to the proposed critical habitat rule because, were it not for the proposed rule, the MOU would not have been drafted. It was the impending designation of critical habitat, in the context of Monterey County rescinding approval of PBC's project, which prompted PBC and the Service to create the MOU. Although PBC agrees to fund and implement the preservation and management components of the MOU in perpetuity,<sup>12</sup> this analysis evaluates impacts over a twenty year time horizon.

Thus, it is the cost of complying with the MOU, in the event that PBC does not receive approval for a project, which constitutes the upper range of incremental impacts to PBC. In the event that PBC gains governmental approvals for a project in the next twenty years, the incremental impact to PBC will be zero because PBC will carry out the measures in the FEIR, which are not attributable to the designation of critical habitat.

The piperia management measures in the MOU are:

- Control Invasive, Non-Native Species
- Monitor Non-Native Species Control
- Establish and Maintain Trails
- Install and Maintain Vehicle Barriers
- Control Runoff and Erosion
- Regulate (Seasonally) Mowing & Clearing Activities
- Remove Encampments
- Remove Debris
- Educate Landowners / Utility Workers / Golf Course Personnel
- Conduct Regular Patrols
- Support Research-Oriented Management
- Provide an Annual Report<sup>13</sup>

Pebble Beach Company will pursue these activities on its lands at the Aguajito site (83 acres), Old Capitol site (16 acres), and in the Del Monte Forest area (412 acres).<sup>14</sup> These areas are smaller than the areas covered in the FEIR. The total impacts to the PBC complying with these measures are shown in table A-3.<sup>15</sup>

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<sup>11</sup> *Ibid.*, p 1.

<sup>12</sup> *Ibid.*, p 3.

<sup>13</sup> *Ibid.*, Appendix C.

<sup>14</sup> *Ibid.* Appendix C and p 1.

<sup>15</sup> Source: Biological Consultant for the Pebble Beach Company, cost estimate provided via electronic communication, March 5, 2007. This estimate is based on the cost of management measures for the piperia that were provided by the PBC consultant for the larger area of proposed critical habitat.

### *The Stevenson School*

As explained in section V.F, the economic impacts to the Stevenson School are presented as a range, with the upper end of the range calculated under the assumption that the Stevenson School cannot develop the athletic field and the lower end of the range calculated under the assumption that the Stevenson School can develop the athletic field and thereby impacted by the administrative costs of section 7 consultation.

These impacts are attributed to the presence of the piperia in the Forested Area, as it is the presence of the piperia that may lead the County and California Coastal Commission to reject the proposed development.<sup>16</sup> Further, the section 7 consultation would occur regardless of critical habitat designation because the area is occupied and the Army Corps of Engineers (ACOE) would have to consult with the Service because the project may jeopardize a listed species. The incremental impacts are therefore only those expected to result from considering adverse modification in addition to jeopardy in the case that consultation occurs for the project (approximately \$1,335, present value at a three percent discount rate). Project modifications that may be placed on the project to address adverse modification could add additional costs to the Stevenson School.

It is possible that consultation may occur on the project if the athletic field is designed in such a way that requires ACOE permitting. In this case, the Service may request project modifications. However, absent information on the specific design of the project, the project modifications that may be recommended and whether they would be associated with jeopardy or adverse modification are uncertain. The only impacts that may be incremental to the designation of critical habitat are the modifications that may be placed on the project to address adverse modification. However, these project modifications are too hypothetical to quantify for the following reasons:

- There is a lack of information concerning the specific design of the project;
- Whether consultation would result in a potential jeopardy or adverse modification opinion; and
- What reasonable and prudent alternatives the Service may request to address either jeopardy or adverse modification in the biological opinion.

Based on known facts, the Stevenson School may bear incremental impacts as a result of the section 7 consultation.

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<sup>16</sup> Electronic communication from Interim Assistant Director of Planning, Monterey County Planning Department, August 30, 2007; Communication with Coastal Planner, California Coastal Commission, September 7, 2007.

<b>Table A-3: Estimated Future Incremental Impacts of Critical Habitat for the Yadon's Piperia</b>						
<b>Impacted Entity</b>	<b>Description of Coextensive Impact (Section V)</b>	<b>Baseline Impact (PV, 3%)</b>		<b>Incremental Impact (PV, 3%)</b>		<b>Reason</b>
		<b>Low</b>	<b>High</b>	<b>Low</b>	<b>High</b>	
Elkhorn Slough Foundation	Impacts of special management	\$0	\$31,212	\$0	\$0	ESF has its own land management standards
Private Landowners	Impacts of not developing	\$0	\$223,162	\$0	\$0	Reducing development impacts is due to County protection of environmentally sensitive habitat
Monterey County	Invasive species removal	\$0	\$185,968	\$0	\$0	County removes invasive plant species to fulfill its own mandate
CA Department of Transportation	Invasive species removal	\$0	\$2,638	\$0	\$0	Caltrans will conduct invasive species removal on its own
Pebble Beach Company	Impacts to PBC of implementing piperia management measures in conservation areas	\$0	\$5,514,973	\$0	\$2,610,797	At the high end, piperia management occurs because of the implementation of an approved FEIS and impacts are baseline. At the low end, an FEIS is not approved and the impacts of implementing the MOU are considered incremental as the reason for the development of the MOU (and associated mitigation measures) was the proposed designation of critical habitat.
Stevenson School	Loss of option to develop "Forested Area" into athletic field in the future or impact of section 7 consultation	\$4,244	\$9,214,150	\$0	\$1,335	At the high end, the County of Monterey and California Coastal Commission may not approve the athletic field development. That decision would be influenced by the presence of the piperia more than the proposed designation of critical habitat. At the low end, the athletic field would be developed. Section 7 consultation would be done regardless of critical habitat designation. A portion of the administrative cost of consultation is attributable to considering adverse modification.
Del Monte Forest Foundation	Impacts of special management	\$0	\$743,993	\$0	\$0	DMFF takes these actions to fulfill its own mandate
CA Department of Parks and Recreation	Impacts of special management	\$0	\$129,434	\$0	\$0	CDPR has its own land management standards
<b>Total</b>		<b>\$4,244</b>	<b>\$16,045,531</b>	<b>\$0</b>	<b>\$2,612,132</b>	

## Appendix B: Past Estimated Economic Impacts

This appendix summarizes past economic impacts. Past impacts stem from efforts to conserve the piperia in the areas of proposed critical habitat between the time it was listed in August 1998 and the present (2006). Past impacts were calculated by interviewing the affected entities within critical habitat to determine if any resources had been expended on management, consultation with the Service, or other activities intended to conserve the species, as well as the value of any lost economic opportunities attributable to listing of the piperia.

For a detailed account of past activities intended to conserve the species, and lost economic opportunities resulting from species conservation, see the discussion of economic impacts on each affected entity in section V of this report. A summary of past economic impacts is presented in the table below.

<b>Table B-1: Past Estimated Economic Impacts</b>		
<b>Entity</b>	<b>PCH Units</b>	<b>Past Cost (PV, 3%)</b>
Private Landowners	2b, 8	\$954,810
Elkhorn Slough Foundation	1a, 1b, 2a	\$140,519
CA Dept. of Parks and Recreation	7	\$74,418
Monterey County	2c	\$44,641
CA Dept. of Transportation	3b, 3c	\$7,892
Del Monte Forest Foundation	6a, 6c, 6d, 6e	\$1,061
Pebble Beach Company	4, 5, 6a, 6b, 6c, 6e	\$0
Stevenson School	6a	\$0
<b>Total</b>		<b>\$268,531</b>

## **Appendix C: Secondary Economic Effects**

This section of the report details the screening analysis of potential effects on the energy industry and small entities.

### **C.1 Impacts on the Energy Industry**

Pursuant to Executive Order 13211, Federal agencies are required to submit a summary of the potential effects of regulatory actions on the supply, distribution, and use of energy, assuming those actions meet certain criteria outlined by the OMB:<sup>1</sup>

- Reductions in crude oil supply in excess of 10,000 barrels per day;
- 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 kilowatt-hours per year or in excess of 500 megawatts of installed capacity;
- Increases in energy use required by the regulatory action that exceed any of 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.

Subunit 3a, in Vierra Canyon, consists of 17 acres of private land overlain by a Pacific Gas and Electric Company easement. PG&E has power lines and towers in the subunit and a road running through the subunit which it uses to access its towers. PG&E does not plan to build or develop this land any further.<sup>2</sup> Designation of critical habitat is not expected to lead to any adverse outcomes such as a reduction in electricity production or an increase in cost of energy production or distribution.

### **C.2 Impacts on Small Entities**

In accordance with Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) in 1996, 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). However, no regulatory flexibility analysis is required if the head of an agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the 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.<sup>3</sup>

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<sup>1</sup> U.S. Office of Management and Budget, "Memorandum for Heads of Executive Departments and Agencies, and Independent Regulatory Agencies," July 13, 2001.

<sup>2</sup> Electronic communication from Manager, Environmental Policy, Habitat & Species Protection, PG&E, January 4, 2007.

<sup>3</sup> EPA, "Revised Interim Guidance for EPA Rulewriters: Regulatory Flexibility Act as Amended by the Small Business Regulatory Enforcement Fairness Act," 29 March 1999, p.11.

To assist in this process, the following represents a screening level analysis of the potential for designation of critical habitat for the piperia to affect small entities. This analysis is based on the estimated incremental impacts of the proposed rulemaking. That is, this small business analysis relies on estimates of impacts expected to occur solely because of the designation of critical habitat for the piperia, above and beyond any conservation efforts associated with the listing of the species. As a result of the screening analysis, one small entity could potentially be affected by the proposed rule. The incremental impacts are those expected to result from considering adverse modification in addition to jeopardy in the event that consultation occurs. Total impacts are estimated to be \$1,335 (present value at a three percent discount rate).

The remainder of this appendix explains the screening level analysis in more detail. It first identifies the businesses, governments, and not-for-profit organizations that may experience impacts due to piperia conservation efforts within or adjacent to the potential critical habitat. Then, it identifies those entities that are likely to be small. Finally, it provides a detailed description of the specific type of impacts potentially affecting small entities.

### Identification of Potentially Affected Small Entities

This analysis estimates prospective economic impacts due to implementation of piperia conservation activities. Table C-1 lists each business, government, or organization potentially affected by critical habitat for the piperia. For a detailed discussion of the activities of each entity on land proposed as critical habitat, see section V of this report.

<b>Table C-1: Potentially Affected Businesses, Governments, or Organizations</b>	
<b>Potentially Affected Entities</b>	<b>Threats / Economic Activities</b>
Pebble Beach Company	<ul style="list-style-type: none"> <li>▪ Elimination or further fragmentation of habitat from adjacent existing and future development</li> <li>▪ The spread of invasive plant species</li> <li>▪ Habitat degradation by motorized vehicles and encampments</li> <li>▪ Debris dumping</li> <li>▪ Herbivory</li> <li>▪ Increased understory growth due to exclusion of wildfire</li> </ul>
The Stevenson School	<ul style="list-style-type: none"> <li>▪ Loss of option to develop the "Forested Area" into an athletic field</li> <li>▪ Administrative costs of Section 7 Consultation</li> </ul>

Table C-2 lists the Small Business Administration’s (SBA’s) standard defining “small” entities for each government, organization, or business potentially affected. Most of the total impact estimated in section V will be borne by private landowners. The County of Monterey and California State Departments are not considered “small” by SBA, because they are governments that serve populations exceeding 50,000. The “small” entities are discussed in greater detail below.

<b>Entity</b>	<b>SBA Size Standard</b>	<b>Meets SBA's Definition of a Small Entity?</b>
Monterey County Parks Department	Governments of cities, counties, towns, townships, villages, school districts, or special districts with a population of less than 50,000	No
Caltrans		No
California Department of Parks & Recreation		No
City of Pacific Grove		Yes
Elkhorn Slough Foundation	Not-for-profit enterprise that is independently owned and operated and not dominant in its field	Yes
Stevenson School		Yes
Del Monte Forest Foundation		Yes
Pebble Beach Company	Golf Courses and Country Clubs: \$6.5 million	No
PG&E	Electric Utility: 4 million megawatt hours of total electric output for preceding fiscal year	No
Private Landowners	Business that is independently owned and operated and not dominant in its field	No
<p>Notes:</p> <p>(1) The City of Pacific Grove, Elkhorn Slough Foundation, and Del Monte Forest Foundation are considered small entities for the purposes of this analysis. However, these entities are not expected to bear incremental impacts.</p> <p>(2) Individual private landowners are not considered small businesses for the purposes of this analysis.</p> <p>Sources:</p> <p>(1) SBA size standards for governments and not-for-profit enterprises taken from SBA, Office of Advocacy, <i>A Guide for Government Agencies: How to Comply with the Regulatory Flexibility Act</i>, May 2003, p. 12. Size standard for NAICS codes 221122 (Electric Power Distribution) and 713910 (Golf Courses and Country Clubs) taken from NAICS Association, "Small Business Size Standards - Matched to NAICS," at <a href="http://www.naics.com/sba_sizestandards.htm">http://www.naics.com/sba_sizestandards.htm</a>, December 21, 2006.</p> <p>(2) County population data obtained from U.S. Census Bureau: State and County QuickFacts, <a href="http://quickfacts.census.gov/qfd/states/06/06053.html">http://quickfacts.census.gov/qfd/states/06/06053.html</a>, December 21, 2006.</p>		

**Incremental Impacts on the Revenues of Potentially Affected Small Entities**

*The Stevenson School:* The economic impacts to the Stevenson School are presented as a range, with the upper end of the range calculated under the assumption that the Stevenson School cannot develop the athletic field and the lower end of the range calculated under the assumption that the Stevenson School can develop the athletic field and thereby impacted by the administrative costs of section 7 consultation.

These impacts are attributed to the presence of the piperia in the Forested Area, not to the proposed rule. The incremental impacts are therefore only those expected to result from considering adverse modification in addition to jeopardy in the case that consultation occurs for the project (\$1,335, present value at a three percent discount rate). Project modifications that may be placed on the project to address adverse modification could add additional costs to the Stevenson School. However, these project modifications are too hypothetical to quantify.<sup>4</sup>

<sup>4</sup> For additional explanation and citations, see section V.F and Appendix A.