



ECONOMIC ANALYSIS OF CRITICAL  
HABITAT DESIGNATION FOR THE BUENA  
VISTA LAKE SHREW

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prepared for:

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**LIST OF ACRONYMS AND ABBREVIATIONS**

Act	Endangered Species Act
BLM	U.S. Bureau of Land Management
CCP	Comprehensive Conservation Plan
CEQA	California Environmental Quality Act
City	City of Bakersfield
CWA	Clean Water Act
DOI	U.S. Department of the Interior
EPA	Environmental Protection Agency
GIS	Geographic Information System
HCP	Habitat Conservation Plan
IEc	Industrial Economics, Incorporated
KFWRA	Kern Fan Water Recharge Area
NAICS	North American Industry Classification System
NWR	National Wildlife Refuge
OMB	U.S. Office of Management and Budget
PG&E	Pacific Gas and Electric Company
Preserve	Coles Levee Ecosystem Preserve
RFA	Regulatory Flexibility Act
Refuge	Kern National Wildlife Refuge
Shrew	Buena Vista Lake Shrew
SBA	Small Business Administration
SBREFA	Small Business Regulatory Enforcement Fairness Act
Service	U.S. Fish and Wildlife Service
SoCalGas	Southern California Gas Company
USACE	US Army Corps of Engineers
VFHCP	Kern County Valley Floor Habitat Conservation Plan

## EXECUTIVE SUMMARY

1. The purpose of this report is to evaluate the potential economic impacts associated with the designation of critical habitat for the Buena Vista Lake shrew (*Sorex ornatus relictus*). This report was prepared by Industrial Economics, Incorporated (IEc), under contract to the U.S. Fish and Wildlife Service (Service).
2. The Service listed the shrew as endangered on March 6, 2002.<sup>1</sup> On August 19, 2004, the Service published a proposed rule, identifying 4,649 acres in five units as proposed critical habitat for the shrew.<sup>2</sup> A January 24, 2005 final rule ultimately excluded 98 percent of the area proposed for critical habitat designation, and thus, the Service designated only 84 acres of critical habitat.<sup>3</sup>
3. Under a settlement agreement in response to a challenge filed by the Center for Biological Diversity, the Service agreed to reconsider critical habitat designation for the shrew. Accordingly, on October 21, 2009, the Service proposed 4,649 acres, the same five units originally proposed for designation in 2004, as critical habitat for the shrew. The 2009 proposed rule is the subject of this report.
4. This analysis first describes existing plans and regulations that provide protection for the shrew and its habitat: for example, there are several Habitat Conservation Plans (HCPs) that cover the shrew including the Pacific Gas and Electric HCP. These are “baseline” protections accorded the shrew even absent the designation of critical habitat.
5. The discussion of the regulatory baseline provides context for the evaluation of economic impacts expected to result from critical habitat designation, which are the focus of this analysis. These “incremental” economic impacts are those not expected to occur absent the designation of critical habitat for the shrew. This information is intended to assist the Secretary of the U.S. Department of the Interior (DOI) in determining whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation.<sup>4</sup>

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<sup>1</sup> 2002 Final Listing Rule, 67 FR 10101.

<sup>2</sup> 2004 Proposed Critical Habitat Rule, 69 FR 51417.

<sup>3</sup> 2005 Final Critical Habitat Rule, 70 FR 3438.

<sup>4</sup> 16 U.S.C. §1533(b)(2).

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**OVERVIEW OF THE PROPOSED CRITICAL HABITAT**

6. The five proposed units, located on the Central Valley floor of Kern County, California, encompass riparian corridors, marsh edges, and other palustrine habitats. More than 57 percent of the proposed area is located on lands owned by the City of Bakersfield (Unit 3); 34 percent intersects privately-owned lands (Units 2, 4, and 5), and 8.3 percent occurs on U.S. Fish and Wildlife Service lands (specifically, Unit 1 lies within the Kern National Wildlife Refuge). The proposed critical habitat is organized in five units as shown in Exhibit ES-1.

**EXHIBIT ES-1. LANDOWNERSHIP WITHIN PROPOSED CRITICAL HABITAT BY UNIT**

UNIT NAME	SERVICE (ACRES)	CITY OF BAKERSFIELD (ACRES)	PRIVATE (ACRES)	TOTAL ACREAGE	PERCENT OF TOTAL
Unit 1: Kern National Wildlife Refuge <sup>a</sup>	386	0	0	386	8.3%
Unit 2: Goose Lake	0	0	1,278	1,278	27.5%
Unit 3: Kern Fan Recharge Area	0	2,687	0	2,687	57.7%
Unit 4: Coles Levee	0	0	214 <sup>b</sup>	214	4.6%
Unit 5: Kern Lake	0	0	89	89	1.9%
<b>Total</b>	<b>386</b>	<b>2,687</b>	<b>1,581</b>	<b>4,654</b>	<b>100%</b>

Note: Acreage estimates are derived from the proposed critical habitat GIS shape files provided by the Service on April 22, 2010 and differ slightly from those provided in the proposed rule. Specifically, our acreage estimates for Units 2, 3 and 5 are slightly different from the proposed rule, with a total difference of eight acres.

<sup>a</sup> Unit 1 is further divided into three Subunits (A, B, and C).

<sup>b</sup> A single private landowner, Aera Energy, LLC, owns the land within Unit 4. This area is managed as an ecological preserve.

7. Review of the proposed rule, consultation history, and existing conservation plans identified the following economic activities as potential threats to the shrew and its habitat within the boundaries of proposed critical habitat. We therefore focus this analysis of potential impacts of shrew conservation on these activities.
- (1) **Water management (availability and delivery).** Suitable moisture supplied by a shallow water table, irrigation, or proximity to permanent or semi-permanent water is one of the primary constituent elements of critical habitat for the shrew. The multiple water service districts and the Kern County Water Agency also rely on the Kern Valley water resources for water supply.
  - (2) **Agricultural production.** Land conversion, water withdrawal, and pesticide use for agriculture all contribute to degradation of shrew habitat.<sup>5</sup> Agriculture is one of two major economic bases in Kern County with Units 2 and 5 zoned for agricultural use.<sup>6</sup>

<sup>5</sup> 2004 Proposed Critical Habitat Rule, 69 FR 51421.

- (3) **Energy development.** Multiple energy companies have conducted section 7 consultations for pipeline projects within the Buena Vista Lake Basin, addressing impacts to many species located within the region, including the shrew.<sup>7</sup> Oil development is the second major economic base in Kern County.<sup>8</sup>

#### KEY FINDINGS

8. No significant economic impacts are likely to result from the designation of critical habitat. Incremental costs are limited to administrative efforts of new and reintiated consultations to consider adverse modification of critical habitat for the shrew. This result is attributed to the following key findings.
- **A significant level of baseline protection exists for the shrew.** Three conservation plans as well as various Federal and State regulations currently provide protections for the shrew and its habitat throughout the designation. Specifically, Units 1 and 3 are actively managed for the shrew under conservation plans, while Unit 4 is an ecological preserve. In units without existing baseline protection, local zoning largely precludes changes in land use, and economic activity that may affect the shrew is expected to be limited.
  - **Minimal economic activity on private lands.** Units 2, 4 and 5 are all located on private-owned land. Unit 4 is actively managed for species protection as an ecological preserve. Units 2 and 5 are zoned for exclusive agriculture use. This zoning is intended to prevent the conversion of agricultural lands to non-agricultural use. Potentially some private lands may be developed as solar energy projects, but no specific projects have been identified within areas proposed for designation. Therefore, no change in land use is anticipated over the next twenty years. In addition, the consultation history for Units 2 and 5 suggest little ongoing economic activity within the unit that may trigger section 7 consultation.
  - **The Service is unable to foresee a circumstance in which critical habitat would change the conservation efforts recommended for the shrew.** The Service notes that it potentially may request future changes to some existing management plans to address potential take or jeopardy issues. However, any conservation efforts that may result from section 7 consultation would be considered baseline because efforts to address potential jeopardy to the species are the same as those that would be recommended to address adverse modification of critical habitat. Specifically, the Service states that “project

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<sup>6</sup> County of Kern, Planning and Community Development Department, accessed at <http://www.co.kern.ca.us/planning/> on April 1, 2010.

<sup>7</sup> U.S. Fish and Wildlife Service Buena Vista Lake shrew consultation record, including: 81420-20080-F-0616 Big West Refinery Clean Fuels Project; 81420-2008-F-1447-1 Aera Energy, LLC; 81420-2008-F-0803 La Paloma Generating Plant; 1-1-06-F-0144 Berry Petroleum North Midway Sunset Development Project; and 1-1-04-F-0298 La Paloma Generating Plant.

<sup>8</sup> County of Kern, Planning and Community Development Department, accessed at <http://www.co.kern.ca.us/planning/> on April 1, 2010.

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descriptions that are modified to avoid impacts to individuals also minimize impacts to the designated critical habitat.”<sup>9</sup>

- **No economic benefits of critical habitat designation for the shrew.** This analysis does not anticipate that the designation of critical habitat will result in additional conservation for the shrew. As a result, no changes in economic activity or land management are expected to result from critical habitat designation. Absent any changes in land management or shrew conservation efforts, no incremental economic benefits are forecast to result from designation of critical habitat.
9. In total, incremental administrative efforts are estimated at \$133,000, or \$11,700 on an annualized basis (discounted at seven percent). Impacts are presented at both a three percent and seven percent discount rate in ES-2 below. The greatest impacts are expected to be concentrated in Unit 3, which is owned by the City of Bakersfield. Unit 3 is the largest unit in terms of land area, with the greatest level of expected economic activity. Impacts in Unit 3 are anticipated to be related to PG&E maintenance activities, City of Bakersfield projects, as well as pipeline, water supply, and other projects.

**EXHIBIT ES-2. ESTIMATED INCREMENTAL IMPACTS, BY HABITAT UNIT (2010\$)**

UNIT	DISCOUNTED AT 3%		DISCOUNTED AT 7%	
	PRESENT VALUE	ANNUALIZED	PRESENT VALUE	ANNUALIZED
1	\$27,600	\$1,800	\$20,800	\$1,840
2	\$23,200	\$1,510	\$16,500	\$1,460
3	\$123,000	\$8,020	\$89,300	\$7,880
4	\$8,820	\$576	\$6,340	\$560
5	\$0	\$0	\$0	\$0
<b>Total</b>	<b>\$183,000</b>	<b>\$11,900</b>	<b>\$133,000</b>	<b>\$11,700</b>

**ORGANIZATION OF THIS REPORT**

10. This report is organized into five chapters. Chapter 1 provides background on the proposed critical habitat rule. Chapter 2 discusses the framework employed in the analysis. Chapter 3 describes the baseline protections currently afforded the shrew and its habitat, while Chapter 4 discusses the potential incremental impacts of critical habitat designation for the shrew. Chapter 5 provides a brief discussion of potential benefits of the designation. Finally, three appendices highlight the distributional impacts, summarize

<sup>9</sup> U.S. Fish and Wildlife Service, Sacramento Field Office, “Comments on how the Economic Analysis Should Estimate Incremental Costs for the Buena Vista Lake Shrew Proposed Critical Habitat Designation,” April 19, 2010. See also Appendix C.

results at a three percent discount rate, and provide information from the Service related to the potential for changes in conservation following critical habitat designation.

## CHAPTER 1 | INTRODUCTION AND BACKGROUND

### 1.1 INTRODUCTION

11. This chapter provides an overview of the proposed critical habitat for the Buena Vista Lake shrew (*Sorex ornatusrelictus*). It includes a summary of past legal actions that relate to the current proposal, a description of the area proposed for designation, and a discussion of threats to the proposed critical habitat. We also describe the differences between this economic analysis of critical habitat designation (“2010 Economic Analysis”) and the previous economic analysis, which was developed concurrent with the 2004 proposed critical habitat rule (“2005 Economic Analysis”). The information contained in this chapter provides context for the analysis. All official definitions and proposed critical habitat boundaries are provided in the Proposed Rule.<sup>10</sup>

#### 1.1.1 PREVIOUS FEDERAL ACTIONS

12. The U.S. Fish and Wildlife Service (Service) listed the shrew as endangered on March 6, 2002.<sup>11</sup> On August 19, 2004, the Service published a proposed rule, identifying 4,649 acres in five units as proposed critical habitat for the shrew.<sup>12</sup> The January 24, 2005 final critical habitat rule excluded 98 percent of the proposed critical habitat area, ultimately designating 84 acres of privately owned land on the edge of Kern Lake as critical habitat.<sup>13</sup>
13. Under a settlement agreement in response to a complaint filed by the Center for Biological Diversity, the Service agreed to re-propose the “same geographic area as the August 19, 2004 (69 FR 51417) proposed designation.” Accordingly, the same 4,649 acres were re-proposed for critical habitat designation for the shrew on October 21, 2009.<sup>14</sup> This October 2009 proposed rule is the subject of this analysis.

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<sup>10</sup> 2009 Proposed Critical Habitat Rule, 74 FR 53999.

<sup>11</sup> 2002 Final Listing Rule, 67 FR 10101.

<sup>12</sup> 2004 Proposed Critical Habitat Rule, 69 FR 51417.

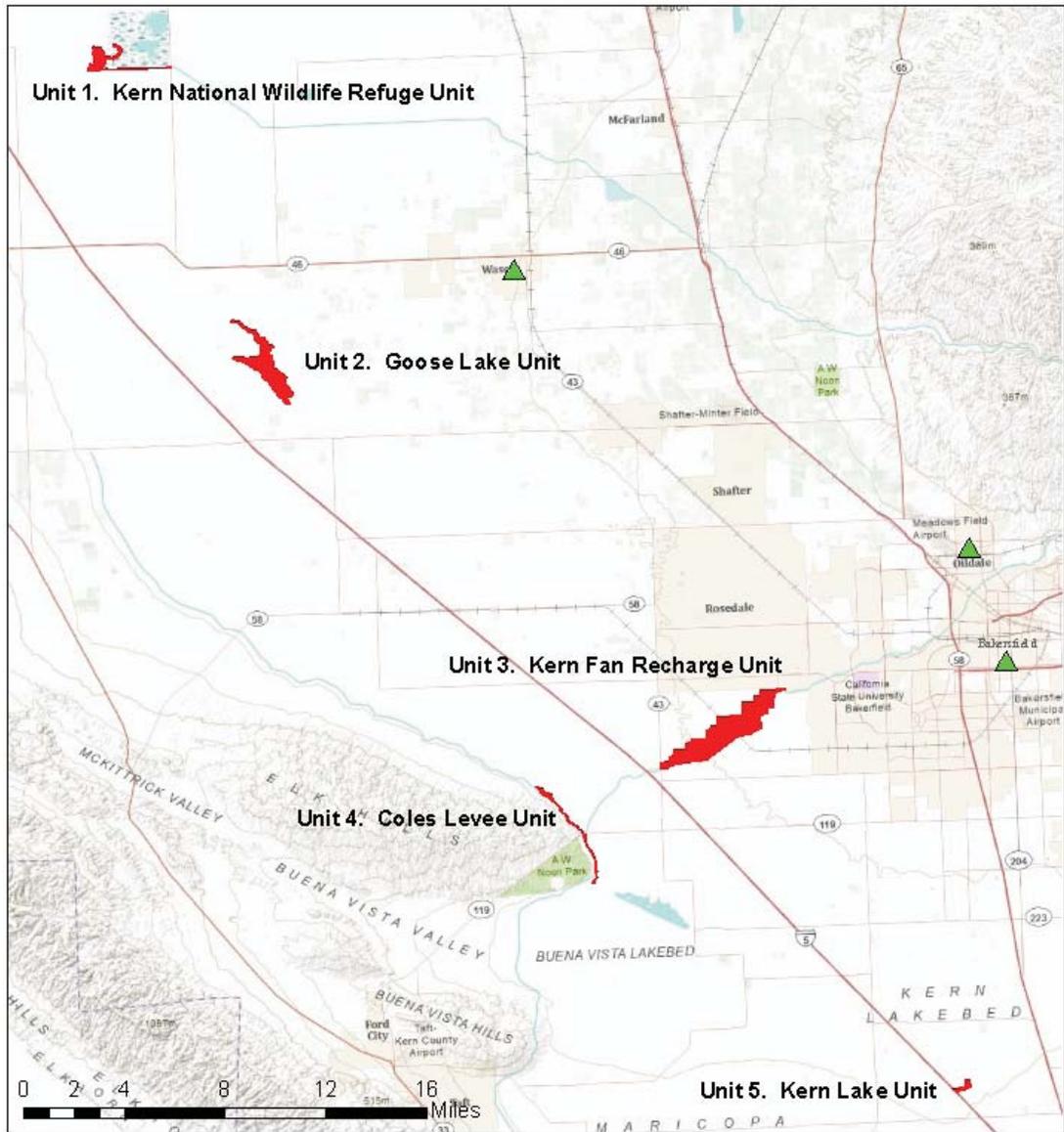
<sup>13</sup> 2005 Final Critical Habitat Rule, 70 FR 3438.

<sup>14</sup> 2009 Proposed Critical Habitat Rule, 74 FR 53999.

**1.1.2 PROPOSED REVISED CRITICAL HABITAT DESIGNATION**

14. The “study area” for this analysis is the 4,649 acres proposed for critical habitat designation. The five proposed units, located on the Central Valley floor of Kern County, California, encompass riparian corridors, marsh edges, and other palustrine habitats. Exhibits 1-1 and 1-2 provide a map of the proposed units within the context of the county and a satellite view of the landscape of the study area, respectively. As highlighted in Exhibit 1-3, more than 57 percent of the proposed area is located on lands owned by the City of Bakersfield (Unit 3); 34 percent intersects privately-owned lands (Units 2, 4, and 5), and 8.3 percent occurs on Service lands (specifically, Unit 1 lies within the Kern National Wildlife Refuge).

EXHIBIT 1-1. OVERVIEW OF BUENA VISTA LAKE SHREW PROPOSED CRITICAL HABITAT



Overview of Proposed Critical Habitat Areas

Legend

-  Cities
-  Proposed Shrew Critical Habitat



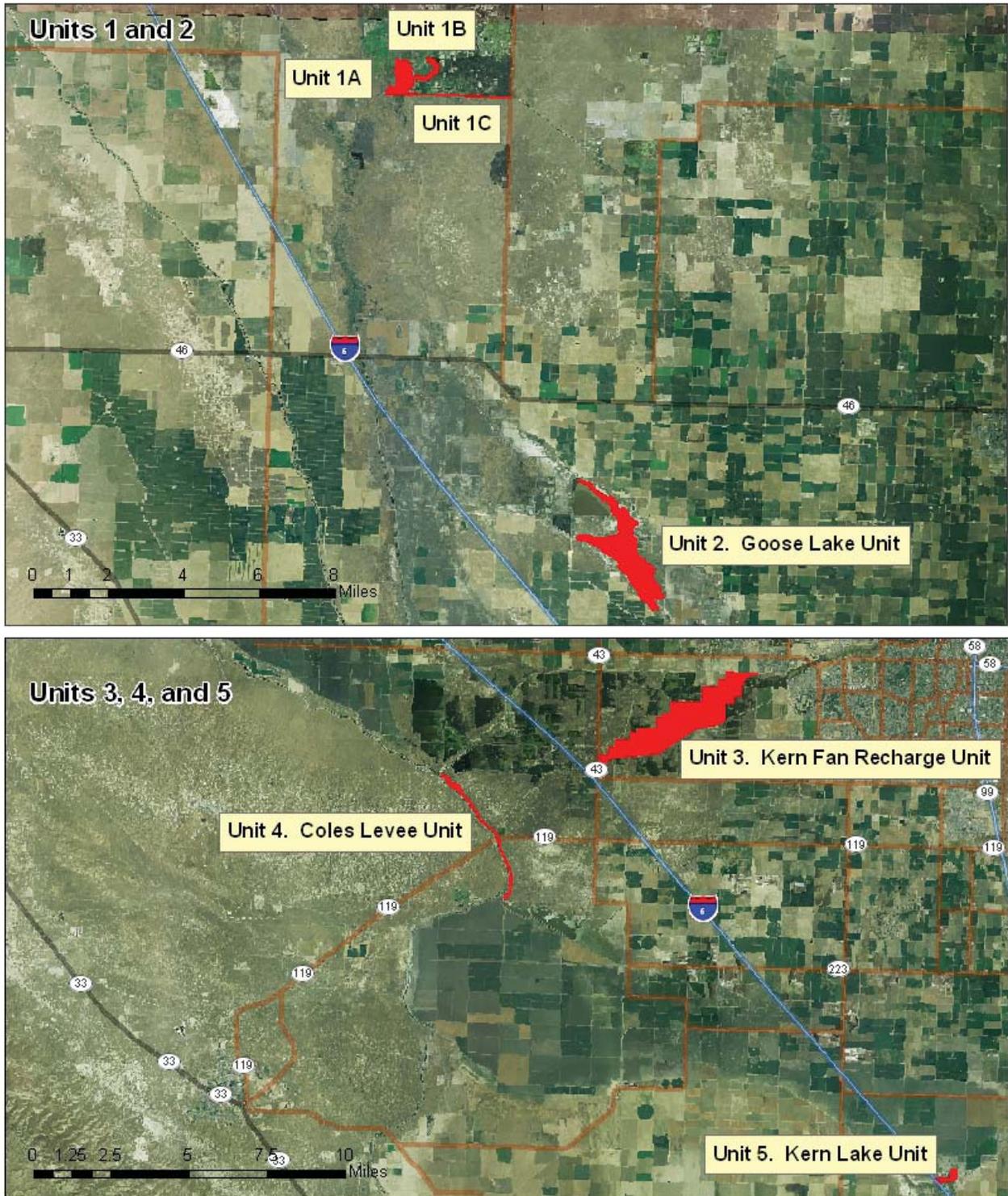
Projection: NAD\_1983\_UTM\_Zone\_10N  
 Sources:  
 1. ESRI, Inc.  
 2. US Fish and Wildlife Service

**IEc**

INDUSTRIAL ECONOMICS, INCORPORATED



EXHIBIT 1-2. SATELLITE VIEW OF PROPOSED CRITICAL HABITAT



Sources:  
1. ESRI, Inc.  
2. US Fish and Wildlife Service



**IEc**

INDUSTRIAL ECONOMICS, INCORPORATED

## EXHIBIT 1-3. LANDOWNERSHIP WITHIN PROPOSED CRITICAL HABITAT BY UNIT

UNIT NAME	SERVICE (ACRES)	CITY OF BAKERSFIELD (ACRES)	PRIVATE (ACRES)	TOTAL ACREAGE	PERCENT OF TOTAL
Unit 1: Kern National Wildlife Refuge (NWR) <sup>a</sup>	386	0	0	386	8.3%
Unit 2: Goose Lake	0	0	1,278	1,278	27.5%
Unit 3: Kern Fan Recharge Area	0	2,687	0	2,687	57.7%
Unit 4: Coles Levee	0	0	214 <sup>b</sup>	214	4.6%
Unit 5: Kern Lake	0	0	89	89	1.9%
<b>Total</b>	<b>386</b>	<b>2,687</b>	<b>1,581</b>	<b>4,654</b>	<b>100%</b>

Note: Acreage estimates are derived from the proposed critical habitat GIS shape files provided by the Service on April 22, 2010 and differ slightly from those provided in the proposed rule. Specifically, our acreage estimates for Units 2, 3 and 5 are slightly different from the proposed rule, with a total difference of eight acres.

<sup>a</sup> Unit 1 is further divided into three Subunits (A, B, and C) as identified in Exhibit 1-2.

<sup>b</sup> A single private landowner, Aera Energy, LLC, owns the land within Unit 4. This area is managed as an ecological preserve.

## 1.2 ECONOMIC ACTIVITIES CONSIDERED IN THIS ANALYSIS

15. Review of the proposed rule, consultation history, and existing conservation plans identified the following economic activities as potential threats to the shrew and its habitat within the study area.

- (1) **Water management (availability and delivery).** Suitable moisture supplied by a shallow water table, irrigation, or proximity to permanent or semi-permanent water is one of the primary constituent elements of critical habitat for the shrew. The multiple water service districts and the Kern County Water Agency also rely on the Kern Valley water resources for water supply.
- (2) **Agricultural production.** Land conversion, water withdrawal, and pesticide use for agriculture all contribute to degradation of shrew habitat.<sup>15</sup> Agriculture is one of two major economic bases in Kern County. Land within proposed critical habitat Units 2 and 5 is currently zoned for agricultural use.<sup>16</sup>
- (3) **Energy development.** Multiple energy companies have engaged the Service in section 7 consultations for pipeline projects within the Buena Vista Lake Basin,

<sup>15</sup> 2004 Proposed Critical Habitat Rule, 69 FR 51421.

<sup>16</sup> County of Kern, Planning and Community Development Department, accessed at <http://www.co.kern.ca.us/planning/> on April 1, 2010.

addressing potential impacts to multiple species located within the region, including the shrew.<sup>17</sup> Oil development is the second major economic base in Kern County.<sup>18</sup>

16. The revised proposed rule also identifies natural perturbations, such as flooding or droughts, as potential threats to the shrew and its habitat.<sup>19</sup> Due to their unpredictable nature and the lack of section 7 consultation history addressing them, this analysis does not focus on these threats.
17. Chapter 3 discusses the ongoing management of these species and habitat threats within the study area. We expect this ongoing management of these threats will continue in the foreseeable future regardless of the critical habitat designation. Thus, this represents the baseline for our analysis.
18. Chapters 4 of this report evaluates potential changes in conservation for the shrew following critical habitat designation. In other words, Chapter 4 focuses on the incremental impacts of critical habitat designation for the shrew.
19. The study area is primarily undeveloped land that is either: 1) managed for conservation; or 2) otherwise subject to limited land use activities. Furthermore, the land use activities that do occur within the proposed critical habitat area are managed such that they incorporate a significant level of baseline protection for the shrew. Specifically, three conservation plans currently provide protections for the shrew and its habitat, as follows:
  - Three of the five proposed units, representing approximately 71 percent of proposed critical habitat, incorporate shrew conservation in applicable land management plans.
    - Unit 1 overlaps the Kern and Pixley National Wildlife Refuge, which is subject to a Comprehensive Conservation Plan (CCP) addressing the shrew.
    - Unit 3 is subject to the City of Bakersfield Shrew Management Plan.
    - Unit 4 is currently owned entirely by Aera Energy, LLC, which manages a portion of the unit as an ecological preserve.
  - The remaining two units, Units 2 and 5, occur entirely on private lands. Minimal economic activity occurs in these units. These units are zoned for exclusive agriculture, and neither unit has been the subject of a section 7 consultation for the shrew despite the fact that Unit 5 was previously designated as critical habitat for the shrew.
  - The Pacific Gas and Electric Habitat Conservation Plan (HCP) prescribes shrew conservation associated with the company's regular maintenance and small pipeline construction projects occurring across the entire study area.

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<sup>17</sup> U.S. Fish and Wildlife Service Buena Vista Lake shrew consultation record, including: 81420-20080-F-0616 Big West Refinery Clean Fuels Project; 81420-2008-F-1447-1 Aera Energy, LLC; 81420-2008-F-0803 La Paloma Generating Plant; 1-1-06-F-0144 Berry Petroleum North Midway Sunset Development Project; and 1-1-04-F-0298 La Paloma Generating Plant.

<sup>18</sup> County of Kern, Planning and Community Development Department, accessed at <http://www.co.kern.ca.us/planning/> on April 1, 2010.

<sup>19</sup> 2004 Proposed Critical Habitat Rule, 69 FR 51422.

The specific species and habitat conservation associated with these land management plans is described in Chapter 3.

**1.3 DIFFERENCES BETWEEN THE 2005 ECONOMIC ANALYSIS AND THIS 2010 ECONOMIC ANALYSIS**

20. While the geographic scope is the same for the 2005 Economic Analysis and this 2010 Economic Analysis, the reports differ in terms of the framework applied to estimate impacts. The 2005 Economic Analysis quantified impacts of all shrew conservation in the areas proposed as critical habitat, including conservation efforts undertaken due to baseline regulations or conservation plans (e.g., the Federal listing of the shrew, or due to existing conservation plans). This 2010 Economic Analysis, however, only quantifies impacts resulting incrementally from critical habitat designation. The difference in analytic framework is described further in Chapter 2.

**1.4 ORGANIZATION OF THE REPORT**

21. The remainder of this report proceeds through four additional chapters. Chapter 2 discusses the framework employed in the analysis. Chapters 3 and 4 describe the baseline protections currently afforded the shrew and its habitat, and the incremental impacts of critical habitat designation for the shrew, respectively. Chapter 5 discusses potential benefits of critical habitat designation for the shrew. In addition, the report includes three appendices: Appendix A, which considers potential impacts on small entities and the energy industry; Appendix B, which provides information on the sensitivity of the economic impact estimates to alternative discount rates; and Appendix C, which provides the Service's incremental effects memorandum to IEc.
- **Chapter 2** – Framework for the Analysis
  - **Chapter 3** – Baseline Conservation for the Buena Vista Lake Shrew within Proposed Critical Habitat
  - **Chapter 4** – Incremental Impacts of Critical Habitat Designation for the Buena Vista Lake Shrew
  - **Chapter 5** – Potential Benefits of Critical Habitat Designation for the Buena Vista Lake Shrew
  - **Appendix A** – Small Business and Energy Impacts Analyses
  - **Appendix B** – Sensitivity of Results to Discount Rate Assumption
  - **Appendix C** – Information from the U.S. Fish and Wildlife Service Regarding Potential Changes in Conservation for the Buena Vista Lake Shrew Following Designation of Critical Habitat

## CHAPTER 2 | FRAMEWORK FOR THE ANALYSIS

22. The purpose of this report is to estimate the economic impact of actions taken to protect the shrew and its habitat. This analysis examines the impacts of restricting or modifying specific land uses or activities for the benefit of the species and its habitat within the proposed critical habitat area. This analysis employs "without critical habitat" and "with critical habitat" scenarios. The "without critical habitat" scenario represents the baseline for the analysis, considering protections otherwise accorded the shrew; for example, under the Federal listing and other Federal, State, and local regulations. The "with critical habitat" scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts are those not expected to occur absent the designation of critical habitat for the shrew. The analysis qualitatively discusses baseline impacts (Chapter 3), and then forecasts incremental impacts likely to occur after the proposed critical habitat is finalized (Chapter 4).
23. This information is intended to assist the Secretary of the DOI in determining whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation.<sup>20</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>21</sup>
24. This chapter describes the framework for this analysis. First, we discuss the differences in framework between the 2005 and 2010 Economic Analyses, then describe case law that led to the selection of the framework applied in this report. Next, we describe in economic terms the general categories of economic effects that are the focus of the impact analysis, including a discussion of both efficiency and distributional effects. This chapter then defines the analytic framework used to measure these impacts in the context of critical habitat regulation and the consideration of benefits. It concludes with a presentation of the information sources relied upon in the analysis.
25. The 2009 proposed rule identifies units of critical habitat that coincide with those previously evaluated for the 2004 proposed rule.<sup>22</sup> However, this analysis applies a

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<sup>20</sup> 16 U.S.C. §1533(b)(2).

<sup>21</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. §5601 *et seq.*; and Pub Law No. 104-121.

<sup>22</sup> Northwest Economics Associates, "Economic Analysis of Critical Habitat Designation for the Buena Vista Lake Shrew," prepared for the U.S. Fish and Wildlife Service, January 6, 2005.

fundamentally different analytical approach from that applied in the 2005 Economic Analysis. Exhibit 2-1 summarizes how this analysis reflects new elements and analytical approaches that the Service has provided or adopted since the 2004 proposed rule.

**EXHIBIT 2-1. DIFFERENCES IN ANALYTICAL APPROACH BETWEEN THE 2005 AND CURRENT (2010) ECONOMIC ANALYSES**

CHANGE IN ANALYTICAL APPROACH
<ul style="list-style-type: none"> <li>• The 2010 Economic Analysis distinguishes the <i>incremental</i> costs of designation from baseline costs whereas the 2005 Economic Analysis evaluated all “co-extensive” of all shrew conservation collectively. That is, the impacts estimated in the 2005 Economic Analysis capture costs of shrew conservation regardless of whether they resulted specifically from critical habitat designation.</li> <li>• This 2010 Economic Analysis instead characterizes all potential future shrew conservation as either baseline (i.e., expected to occur absent the designation of critical habitat) or incremental (i.e., expected to occur as a result of critical habitat designation). We qualitatively discuss baseline shrew conservation and focus the quantitative analysis on the potential incremental impacts of the designation. The Service provided guidance regarding how it intends to manage shrew conservation in the case that critical habitat is designated, as described in Section 2.3.2 of this report.</li> <li>• This analysis considers and estimates the impacts of the rule as currently proposed and as if the existing 2005 critical habitat designation does not exist. In other words, this analysis considers and estimates the impacts associated with designating areas as critical habitat versus not designating these areas. This analysis is intended to assist the Secretary of the DOI in determining whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation. These particular areas include those already designated as critical habitat under the 2005 designation and subject to re-examination by the Secretary. As a result, costs incurred as a result of the 2005 designation are not separately documented in this analysis.</li> </ul>

**2.1 BACKGROUND**

26. The U.S. Office of Management and Budget’s (OMB) guidelines for conducting 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>23</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

<sup>23</sup> OMB, “Circular A-4,” September 17, 2003, available at <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/circulars/a004/a-4.pdf>.

whether assessing the impacts of the Service’s proposed regulations using this baseline approach is appropriate in the context of critical habitat designations.

27. 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 co-extensively to other causes.<sup>24</sup> Specifically, the court stated,

“The statutory language is plain in requiring some kind of consideration of economic impact in the CHD [critical habitat designation] 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 [Fish and Wildlife Service’s] baseline model 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 co-extensively to other causes. Thus, we hold the baseline approach to economic analysis is not in accord with the language or intent of the ESA [Endangered Species Act].”<sup>25</sup>

28. 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>26</sup> For example, in the March 2006 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

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<sup>24</sup> *New Mexico Cattle Growers Assn v. United States Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001).

<sup>25</sup> *Ibid.*

<sup>26</sup> *Cape Hatteras Access Preservation Alliance v. Department of Interior*, 344 F. Supp. 2d 108 (D.D.C.); *Center for Biological Diversity v. United States Bureau of Land Management*, 422 F. Supp. 2d 1115 (N.D. Cal. 2006).

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designation, the world with the designation must be compared to the world without it.”<sup>27</sup>

29. In order to address the divergent opinions of the courts and provide the most complete information to decision-makers, this economic analysis:
  - a. Describes the baseline protections afforded the shrew absent critical habitat designation (Chapter 3); and
  - b. Monetizes the potential incremental impacts precipitated specifically by the designation of critical habitat for the species (Chapter 4).
  
30. 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 may be imposed as a result of critical habitat designation over and above those associated with the listing.<sup>28</sup> Specifically, in *Gifford Pinchot Task Force v. United States Fish and Wildlife Service*, the Ninth Circuit invalidated the Service’s regulation defining destruction or adverse modification of critical habitat, and the Service no longer relies on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat.<sup>29</sup> Under the statutory provisions of the Act, the Service determines destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional to serve its intended conservation role for the species. A detailed description of the methodology used to define baseline and incremental impacts is provided later in this Chapter.

## 2.2 CATEGORIES OF POTENTIAL ECONOMIC EFFECTS OF SPECIES CONSERVATION

31. This economic analysis considers both the economic efficiency and distributional effects that may result from efforts to protect the shrew and its habitat (hereinafter referred to collectively as “shrew conservation efforts”). Economic efficiency effects generally reflect “opportunity costs” associated with the commitment of resources required to accomplish species and habitat conservation. For example, if the set of activities that may take place on a parcel of land is limited as a result of the designation or the presence of the species, and thus the market value of the land is reduced, this reduction in value represents one measure of opportunity cost or change in economic efficiency. Similarly,

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<sup>27</sup> *Center for Biological Diversity et al, Plaintiffs, v. United States 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>28</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.

<sup>29</sup> *Gifford Pinchot Task Force v. United States Fish and Wildlife Service*, No. 03-35279 (9th Circuit 2004).

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the costs incurred by a Federal action agency to consult with the Service under section 7 represent opportunity costs of shrew conservation efforts.

32. 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 potential effects of conservation efforts on small entities and the energy industry. This information may be used by decision-makers to assess whether the effects of species conservation efforts unduly burden a particular group or economic sector. For example, while conservation efforts may have a small impact relative to the national economy, individuals employed in a particular sector of the regional economy may experience relatively greater impacts.

### **2.3 ANALYTIC FRAMEWORK AND SCOPE OF THE ANALYSIS**

33. This analysis: 1) identifies those economic activities most likely to threaten the shrew and its habitat; 2) describes the baseline regulation protection for the species; and 3) monetizes the incremental economic impacts to avoid adverse modification of the proposed critical habitat area. This section provides a description of the methodology used to separately identify baseline protections from the incremental impacts stemming from the proposed designation of critical habitat for the shrew. This evaluation of impacts in a "with critical habitat designation" versus a "without critical habitat designation" framework effectively measures the net change in economic activity associated with the proposed rulemaking.

#### **2.3.1 IDENTIFYING BASELINE IMPACTS**

34. The baseline for this analysis is the existing state of regulation, prior to the designation of critical habitat, which provides protection to the species under Act, as well as under other Federal, State and local laws and guidelines. This "without critical habitat designation" scenario also 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.
35. Baseline protections include sections 7, 9, and 10 of the Act, and economic impacts resulting from these protections to the extent that they are expected to occur absent the designation of critical habitat for the species. This analysis describes these baseline regulations, and where possible, provides examples of the potential magnitude of the costs of these baseline protections. The primary focus, however, is not on baseline costs, since these will not be affected by the proposed regulation. Instead, the focus of this analysis is on monetizing the incremental impacts forecast to result from the proposed critical habitat designation.

### CALCULATING PRESENT VALUE AND ANNUALIZED IMPACTS

This analysis compares economic impacts incurred in different time periods in present value terms. The present value represents the value of a payment or stream of payments in common dollar terms. That is, it is the sum of a series of past or future cash flows expressed in today's dollars. Translation of economic impacts of past or future costs to present value terms requires the following: a) past or projected future costs of critical habitat designation; and b) the specific years in which these impacts have been or are expected to be incurred. With these data, the present value of the past or future stream of impacts ( $PV_c$ ) from year  $t$  to  $T$  is measured in 2010 dollars according to the following standard formula:<sup>a</sup>

$$PV_c = \sum_t^T \frac{C_t}{(1+r)^{t-2010}}$$

$C_t$  = cost of shrew critical habitat conservation efforts in year  $t$

$r$  = discount rate<sup>b</sup>

Impacts for each activity in each unit are also expressed as annualized values. Annualized values are calculated to provide comparison of impacts across activities with varying forecast periods ( $T$ ). For this analysis, most activities employ a forecast period of 20 years, 2011 through 2030. Annualized future impacts ( $APV_c$ ) are calculated by the following standard formula:

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

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

<sup>a</sup> To derive the present value of future impacts,  $t$  is 2011 and  $T$  is 2030.

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

- Section 7 of Act, absent critical habitat designation, 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. Consultations under the jeopardy standard result in administrative costs, as well as impacts of conservation efforts resulting from consideration of this standard.
- 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, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."<sup>30</sup> The economic impacts associated with this section manifest themselves in sections 7 and 10.
- 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 a listed animal species in order to meet the conditions for issuance of an incidental take permit in connection with a land or water use activity or project.<sup>31</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 avoided or minimized. The development and implementation of HCPs is considered a baseline protection for the species and habitat unless the HCP is determined to be precipitated by the designation of critical habitat, or the designation influences stipulated conservation efforts under HCPs.

Enforcement actions taken in response to violations of the Endangered Species Act are not included in this analysis.

36. The protection of listed species and habitat is not limited to the Act. Other Federal agencies, as well as State and local governments, may also seek to protect the natural resources under their jurisdiction. If compliance with the Clean Water Act or State environmental quality laws, for example, protects habitat for the species, such protective efforts are considered to be baseline protections and costs associated with these efforts are categorized accordingly. Of note, however, is that such efforts may not be considered baseline in the case that they would not have been triggered absent the designation of critical habitat. In these cases, they are considered incremental impacts and are discussed below.

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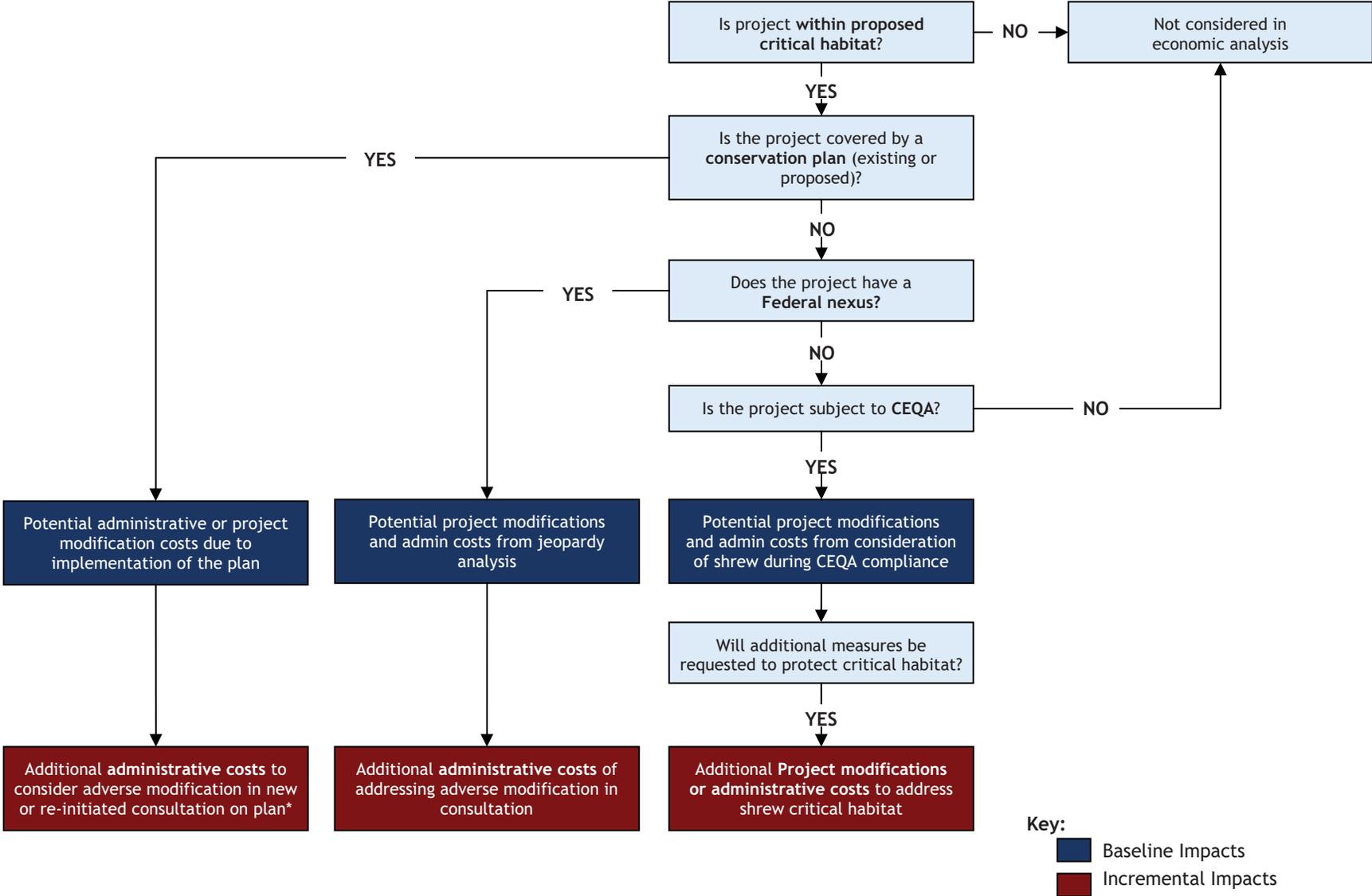
<sup>30</sup> 16 U.S.C. 1532.

<sup>31</sup> U.S. Fish and Wildlife Service, "Endangered Species and Habitat Conservation Planning," August 6, 2002, accessed at <http://endangered.fws.gov/hcp/>.

**2.3.2 IDENTIFYING INCREMENTAL IMPACTS**

37. This analysis quantifies the potential incremental impacts of this rulemaking. The focus of the 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 resulting from existing required or voluntary conservation efforts being undertaken due to other Federal, State, and local regulations or guidelines.
38. 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 conservation efforts (i.e., reasonable and prudent alternatives) 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. Exhibit 2-2 depicts the decision analysis regarding whether an impact should be considered incremental.
39. Incremental impacts may be the direct compliance costs associated with additional effort for consultations, reinitiated consultations, new consultations occurring specifically because of the designation, and additional conservation efforts that would not have been requested under the jeopardy standard. Additionally, incremental impacts may include indirect impacts resulting from reaction to the potential designation of critical habitat (e.g., implementing shrew conservation in an effort 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.

EXHIBIT 2-2. FRAMEWORK FOR DETERMINING BASELINE AND INCREMENTAL IMPACTS



Direct Impacts

40. 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 conservation efforts requested by the Service through section 7 consultation to avoid potential destruction or adverse modification of critical habitat.
41. Section 7(a)(2) of the Act requires Federal agencies to consult with the Service whenever activities that they undertake, authorize, permit, or fund may affect a listed species or designated critical habitat. In some cases, consultations will involve the Service and another Federal agency only, such as the U.S. Army Corps of Engineers. Often, they will also include a third party involved in projects that involve a permitted entity, such as the recipient of a Clean Water Act section 404 permit.
42. During a consultation, the Service, the Action agency, and the entity applying for Federal funding or permitting (if applicable) communicate in an effort to minimize potential adverse effects to the species and/or to the proposed critical habitat. Communication between these parties may occur via written letters, phone calls, in-person meetings, or any combination of these. The duration and complexity of these interactions depends on a number of variables, including the type of consultation, the species, the activity of concern, and the potential effects to the species and designated critical habitat associated with the proposed activity, the Federal agency, and whether there is a private applicant involved.
43. Section 7 consultations with the Service may be either informal or formal. *Informal consultations* consist of discussions between the Service, the Action agency, and the applicant concerning an action that may affect a listed species or its designated critical habitat, and are designed to identify and resolve potential concerns at an early stage in the planning process. By contrast, a *formal consultation* is required if the Action agency determines that its proposed action may or will adversely affect the listed species or designated critical habitat in ways that cannot be resolved through informal consultation. The formal consultation process results in the Service's determination in its Biological Opinion of whether the action is likely to jeopardize a species or adversely modify critical habitat, and recommendations to minimize those impacts. Regardless of the type of consultation or proposed project, section 7 consultations can require substantial administrative effort on the part of all participants.

Administrative Section 7 Consultation Costs

44. 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 affect a 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. Administrative efforts for consultation may therefore result in both baseline and incremental impacts.

45. In general, three different scenarios associated with the designation of critical habitat may trigger incremental administrative consultation costs: 1) additional effort to address adverse modification in a new consultation, 2) re-initiation of a past consultation to address adverse modification, and 3) incremental consultation resulting entirely from critical habitat designation.

#### Section 7 Conservation Effort Impacts

46. Section 7 consultation considering critical habitat may also result in additional conservation effort recommendations specifically addressing potential destruction or adverse modification of critical habitat. For future consultations considering jeopardy and adverse modification, and for re-initiations of past consultations to consider critical habitat, the economic impacts of conservation efforts undertaken to avoid 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 conservation efforts are assumed to be incremental impacts of the designation.

#### Indirect Impacts

47. 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, and that are caused by the designation of critical habitat. For example:
- **Triggering 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, such as the California Environmental Quality Act (CEQA). In cases where these impacts would not have been triggered absent critical habitat designation, they are considered indirect, incremental impacts of the designation.
  - **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 or Stigma** - Government agencies and affiliated private parties who consult with the Service under section 7 may face uncertainty concerning whether reasonable and prudent alternatives will be recommended by the Service and what the nature of these alternatives will be. 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. 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 conservation efforts 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. As the public becomes aware of the true regulatory burden imposed by critical habitat, the impact of the designation on property markets may decrease.

### 2.3.3 BENEFITS

48. Under Executive Order 12866, OMB directs Federal agencies to provide an assessment of both the social costs and benefits of proposed regulatory actions.<sup>32</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>33</sup>
49. In the context of critical habitat, the primary purpose of the rulemaking (i.e., the direct benefit) is the potential to enhance conservation of the species. The published economics literature has documented that social welfare benefits can result from the conservation and recovery of endangered and threatened species. In its guidance for implementing Executive Order 12866, OMB acknowledges that it may not be feasible to monetize, or even quantify, the benefits of environmental regulations due to either an absence of defensible, relevant studies or a lack of resources on the implementing agency's part to conduct new research.<sup>34</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.*
50. 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

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<sup>32</sup> Executive Order 12866, Regulatory Planning and Review, September 30, 1993.

<sup>33</sup> U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/circulars/a004/a-4.pdf>

<sup>34</sup> *Ibid.*

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.

#### **2.3.4 GEOGRAPHIC SCOPE OF THE ANALYSIS**

51. Economic impacts of shrew conservation are considered across the entire area proposed for revised critical habitat designation, as defined in Chapter 2. Results are presented by proposed critical habitat unit.

#### **2.3.5 ANALYTIC TIME FRAME**

52. Ideally, the time frame of this analysis would be based on the expected time period over which the critical habitat regulation is expected to be in place. Specifically, the analysis would forecast impacts of implementing this rule through species recovery (i.e., when the rule is no longer required). However, absent specific information on the expected time frame for recovery of the shrew, this analysis forecasts impacts over a "reasonably foreseeable" time frame. Based on available data, this analysis considers economic impacts to activities from 2011 (expected year of final critical habitat designation) through 2030.

#### **2.4 INFORMATION SOURCES**

53. The primary sources of information for this report are communications with, and data provided by, personnel from the Service, local governments and other stakeholders. In addition, this analysis relies upon the Service's section 7 consultation records and existing habitat management and conservation plans that consider the shrew. Data on baseline land use were obtained from regional planning authorities. Finally, this analysis also relies on still pertinent information and data from the economic analysis prepared in support of the 2005 critical habitat rule.<sup>35</sup> A complete list of references is provided at the end of this document.

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<sup>35</sup> Northwest Economics Associates, "Economic Analysis of Critical Habitat Designation for the Buena Vista Lake Shrew," prepared for the U.S. Fish and Wildlife Service, January 6, 2005.

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### CHAPTER 3 | BASELINE CONSERVATION FOR THE BUENA VISTA LAKE SHREW WITHIN PROPOSED CRITICAL HABITAT

54. This chapter discusses the baseline state of shrew conservation absent designation of critical habitat. The species and habitat protections described in this chapter result from implementation of the Endangered Species Act (“the Act”), as well as other Federal, State and local regulations and conservation plans. The chapter begins by providing an overview of the various conservation and management plans, including HCPs that provide protection specifically for the shrew. We then discuss shrew protections that result from the listing of the species and the implementation of the Act, such as section 7 consultation on US Army Corps (USACE) activities. Section 3.9 summarizes the key sources of uncertainty in this analysis.
55. This chapter provides a qualitative discussion of these baseline protections to provide context for the incremental analysis in Chapter 4. Specifically, this chapter discusses the current state of conservation for the shrew, while Chapter 4 focuses on how shrew conservation may change as a result of critical habitat designation.
56. Exhibit 3-1 frames our discussion of baseline protections by summarizing the various plans and regulations that currently provide protection for the shrew. The sections that follow provide a more detailed discussion, describing the specific conservation efforts associated with each.

#### KEY ISSUES AND CONCLUSIONS OF THE BASELINE ANALYSIS

- A significant level of baseline protection exists for the shrew, addressing a broad range of habitat threats. Three conservation plans as well as various Federal and State regulations currently provide protections for the shrew and its habitat.
- Three of the five proposed units are managed for shrew conservation. Unit 1 overlaps the Kern and Pixley National Wildlife Refuge, which is subject to a Comprehensive Conservation Plan considering shrew conservation. Unit 3 is covered by the City of Bakersfield Shrew Management Plan, intended to address shrew and habitat conservation needs. In addition, a portion of Unit 4 is currently managed as an ecological preserve by Aera Energy, LLC, the sole landowner of the unit.
- The remaining two units, Units 2 and 5, occur entirely on private lands subject to minimal economic activity. These units are zoned for exclusive agriculture, and neither unit has been the subject of a section 7 consultation for the shrew despite the fact that Unit 5 was previously designated as critical habitat for the shrew.
- The Pacific Gas and Electric Habitat Conservation Plan prescribes shrew conservation associated with the company’s regular utility maintenance activities and small pipeline construction projects occurring across the entire study area.

## EXHIBIT 3-1. SHREW HABITAT CONSERVATION PROVIDED BY EXISTING PLANS AND REGULATIONS

BASELINE PROTECTION	TYPE	COVERAGE
Pacific Gas and Electric Company San Joaquin Valley Operation & Maintenance Program Habitat Conservation Plan	Habitat Conservation Plan	<ul style="list-style-type: none"> <li>• PG&amp;E operation &amp; maintenance activities only</li> <li>• Units 1, 3, and 4</li> </ul>
Kern and Pixley National Wildlife Refuge (Refuge) Comprehensive Conservation Plan	Comprehensive Conservation Plan	<ul style="list-style-type: none"> <li>• All activities taking place within the Refuge</li> <li>• Unit 1</li> </ul>
City of Bakersfield Shrew Management Plan	Species Management Plan	<ul style="list-style-type: none"> <li>• All activities taking place with the Kern Fan Recharge Area</li> <li>• Unit 3</li> </ul>
Coles Levee Ecosystem Preserve	Conservation Easement Agreement	<ul style="list-style-type: none"> <li>• All activities taking place within the Preserve</li> <li>• Unit 4</li> </ul>
Clean Water Act	Federal Regulation	<ul style="list-style-type: none"> <li>• Activities affecting waters of the United States</li> <li>• All five proposed units</li> </ul>
California Environmental Quality Act (CEQA)	State Regulation	<ul style="list-style-type: none"> <li>• Activities subject to state or local review</li> <li>• All five proposed units</li> </ul>
Endangered Species Act	Endangered Species Act listing provisions	<ul style="list-style-type: none"> <li>• Broad range of activities licensed, permitted, or funded by a Federal agency (e.g., Bureau of Reclamation, Environmental Protection Agency)</li> <li>• All five proposed units</li> </ul>

57. The conservation efforts and baseline protections described in the following sections are intended to address potential threats to the shrew and its habitat. These threats include:

- **Water management (availability and delivery).** One of the shrew's primary constituent elements is the presence of suitable moisture. The Kern National Wildlife Refuge, the City of Bakersfield, the Clean Water Act, and various section 7 consultations outline conservation efforts for the shrew related to water projects in habitat areas.<sup>36</sup>
- **Agricultural production.** Land conversion, water withdrawal, and pesticide use for agriculture may contribute to degradation of shrew habitat.<sup>37</sup> Agricultural activity is

<sup>36</sup> See, for example, Service, *Consultation on the Interim Renewal of Water Service Contracts with Westlands Water District, California Department of Fish and Game, and the Cities of Avenal, Coalinga, and Huron*, December 18, 2007, 81420-2008-F-0538. Service, *Biological Opinion on US Bureau of Reclamation Long Term Contract Renewal of Division and Cross Valley Unit Contracts*, January 19, 2001, File Number 1-1-01-F-0027.

<sup>37</sup> 2004 Proposed Critical Habitat Rule, 69 FR 51421. Note, pesticide use in critical habitat and surrounding areas may be limited by a Stipulated Injunction issued by the U.S. District Court for the Northern District of California on October 20, 2006. Specifically, the stipulated injunction imposes no-use buffer zones around upland and aquatic habitat and disallows the use of 66 pesticide active ingredients within those habitats and buffer zones (60 feet to 200 feet for ground and aerial applications, respectively). As part of the stipulated injunction, the U.S. Environmental Protection Agency (EPA) is required

minimal, if present, in Units 1, 3, and 4 because of how these units are zoned and managed. In Units 2 and 5, agricultural operations are ongoing, and no changes in land use are expected based on current zoning of the units for extensive agriculture. Agricultural operations on these private lands have not been subject to section 7 consultation for the shrew in the past as they have not relied on Federal funding or involved Federal permitting to necessitate consultation.

- **Energy development.** Energy development may pose a threat to the shrew through ground disturbance. Identified energy development, transmission, and distribution activities located within the proposed units are largely managed under the Pacific Gas and Electric Habitat Conservation Plan (HCP). The City of Bakersfield Shrew Management Plan as well as the Coles Levee Ecological Preserve manage for other energy projects taking place within and adjacent to Units 3 and 4.

### 3.1. PACIFIC GAS AND ELECTRIC COMPANY SAN JOAQUIN VALLEY OPERATION AND MAINTENANCE PROGRAM HABITAT CONSERVATION PLAN

58. The Pacific Gas and Electric Company (PG&E) San Joaquin Valley Operation and Maintenance Program Habitat Conservation Plan was developed in 2006. The shrew is one of 23 animal and 42 plant species covered by the HCP. The HCP classifies the shrew as a “biologically susceptible” wildlife covered species, and maps “occupied habitat” for the shrew based on California Natural Diversity Database Records, which includes known locations and adjacent suitable land cover. This occupied habitat is “very similar” in area to the proposed designation.<sup>38</sup>
59. The perimeter of the HCP’s planning area encompasses 12.1 million acres, including Western Kern County below 3,000 feet elevation. All five proposed units are located within this larger planning area; however, the HCP also more narrowly defines a “focus area” of 276,360 acres. This focus area includes: (1) PG&E’s existing gas and electrical transmission and distribution line facilities; (2) lands in PG&E easements, including right-of-ways for the gas and electric transmission- and distribution-line facilities; (3) right-of-way access areas; (4) approximately 1,110 miles of line-facility expansions; and (5) approximately 1,350 acres to be preserved as compensation.
60. The species and habitat conservation resulting from implementation of this HCP is therefore focused within these 276,360 acres.<sup>39</sup> Three of the five proposed units overlap this focus area. The portions of the three units that fall outside of PG&E’s focus area are not anticipated to be subject to PG&E projects.

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to prepare effects determinations for each pesticide active ingredient and initiate consultation with the Service. Stipulated Injunction available at: <http://www.epa.gov/espp/litstatus/stipulated-injunction.pdf>.

<sup>38</sup> Email communication from Robert Knutson, Pacific Gas and Electric, on August 2, 2010.

<sup>39</sup> Written communication from Karen Leyse, Sacramento Fish and Wildlife Office, Fish and Wildlife Service, July 21, 2010.

61. PG&E activities covered by the HCP that occur within shrew habitat require avoidance and minimization measures. First, PG&E conducts field surveys to identify and map suitable habitat for the shrew. When activities are scheduled to occur near these areas, shrew conservation efforts prescribed include:

- Staking and flagging an exclusion zone of 100 feet around all suitable habitat;
- Minimizing the use of mechanical equipment;
- Minimizing the area of ground disturbance; and
- The presence of an on-site biological monitor where there is a known presence of shrews near the worksite and where direct mortality may occur.

If ground disturbance cannot be avoided, PG&E confers with the Service before implementing the activity, using a prescribed “Confer Process.” This process involves the discussion of survey results, alternative avoidance and minimization measures, whether impacts will be temporary or permanent, and whether compensatory mitigation is appropriate. If impacts are found to be unavoidable, a mitigation ratio of 3:1 is applied for permanent loss of habitat, and 0.5:1 for temporary loss of habitat.<sup>40</sup>

62. PG&E is actively conducting projects under the terms of the HCP, and has mapped shrew habitat areas identifying approximately 4,650 acres.<sup>41</sup> Accordingly, shrew conservation efforts and mitigation are being implemented for PG&E operation and maintenance activities occurring within the proposed designation.

### **3.2 KERN NATIONAL WILDLIFE REFUGE COMPREHENSIVE CONSERVATION PLAN**

63. The Kern National Wildlife Refuge (Refuge) was established by the Service in 1958 as part of a group of refuges across California’s Central Valley and San Francisco Bay region. The purpose of these refuges at the time was to provide wintering habitat for migratory waterfowl and other waterbirds along the Pacific Flyway. In 1974, the Refuge acquired 631 acres of upland habitat specifically for the “preservation, conservation, and management for the benefits of listed threatened and endangered species.”<sup>42</sup> Current land use activities within the preserve include waterfowl hunting, hiking, wildlife viewing and education, and photography.<sup>43</sup>

64. The Refuge encompasses all 386 acres of proposed critical habitat in Unit 1 (including all three subunits). While the focus of the Refuge is primarily on “creating and maintaining

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<sup>40</sup> Pacific Gas & Electric Company, “Final Environmental Impact Statement/Environmental Impact Report,” December 2006.

<sup>41</sup> Personal communication from Robert Knutson, Pacific Gas and Electric, on July 9, 2010.

<sup>42</sup> U.S. Fish and Wildlife Service. Kern and Pixley National Wildlife Refuges: Final Comprehensive Conservation Plan. February 2005.

<sup>43</sup> U.S. Fish and Wildlife Service. Kern National Wildlife Refuge. <http://www.natureali.org/KNWRvisitors.htm>

quality wetland habitat for migratory birds,” the area is also managed to provide conservation for riparian and upland species. The Refuge currently manages for shrew conservation through the Kern and Pixley National Wildlife Refuge Comprehensive Conservation Plan (CCP).

65. The shrew has special species status under the CCP. Special species status is assigned to all species that are, “Federally listed and proposed listed species; Bird Species of Conservation Concern at the Regional (U.S. Fish and Wildlife Service Pacific Region) or more local Bird Conservation Region (Coastal California Bird Conservation Region) scale; and State listed species.”<sup>44</sup> Species assigned special status “represent conservation priorities for the Service and other Federal agencies, and are to be specifically considered during planning and when actions are proposed on Federal lands.”<sup>45</sup>
66. The Refuge currently implements conservation efforts for two known shrew occurrences.<sup>46</sup> These two occurrences encompass the three subunits proposed for designation within the Refuge. Shrew conservation efforts include:
- Purposefully leaving the riparian cover intact;
  - Leaving the leaf litter undisturbed in which the shrew is known to burrow under;
  - Prohibiting burning or spraying of herbicides near the shrew habitat;
  - Prohibiting airplane pesticide spraying;
  - Requiring all pesticide spraying in and around the habitat to be done by hand;
  - Keeping the slough that encompasses the shrew habitat dry through November 1<sup>st</sup> to limit the use of adulticides;<sup>47</sup> and
  - Generally leaving the entire area undisturbed.<sup>48</sup>
67. The Refuge regularly undertakes intra-Service section 7 consultations. For example, the Refuge is currently in the planning stages for a project that will transport water through a canal that forms part of shrew habitat to wetlands on the other side of the Refuge. Work for this project is expected to disturb the bottom of the slough during the dry season when the shrew is most likely to be within the project area. Because this canal project is

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<sup>44</sup> U.S. Fish and Wildlife Service. Kern and Pixley National Wildlife Refuges: Final Comprehensive Conservation Plan. Pg. 44 February 2005.

<sup>45</sup> U.S. Fish and Wildlife Service. Kern and Pixley National Wildlife Refuges: Final Comprehensive Conservation Plan. Pg. 44 February 2005.

<sup>46</sup> A third shrew population may exist within the Refuge; however, the location of this population has not been documented. As a result, it is not included in the proposed designation, and not considered here. Personal communication with David Hardt, Kern National Wildlife Refuge, July 1, 2010.

<sup>47</sup> Adulticides are specifically designed to kill adult mosquitoes and not their larvae.

<sup>48</sup> Personal communication with David Hardt, Kern National Wildlife Refuge, July 1, 2010. U.S. Fish and Wildlife Service. Kern and Pixley National Wildlife Refuges: Final Comprehensive Conservation Plan. February 2005.

expected to disturb shrew habitat, the Refuge staff anticipates a formal section 7 consultation, and is determining ways to best minimize impacts to the shrew.<sup>49</sup>

68. In summary, the Refuge is actively managed for species conservation, and all activities taking place within the Refuge are governed under the CCP. As described above, the Refuge has implemented conservation efforts for the shrew since before it was listed as an endangered species.<sup>50</sup>

### 3.3 CITY OF BAKERSFIELD SHREW MANAGEMENT PLAN

69. The City of Bakersfield (City) owns all 2,687 acres included in proposed Unit 3. This area is located entirely within the 2,800 acre Kern Fan Water Recharge Area (KFWRA). The KFWRA site has been owned by the City since 1977, and is operated for purposes of providing “flood control, natural lands and wildlife habitat conservation, limited access public uses, water conservation and mineral production.”<sup>51</sup> Lands at the site have three main uses:

- Approximately 1,500 acres are made up of 13 spreading basins. The City manages these basins to spread floodwaters from the Kern River and the State Water Project to prevent downstream flooding and to allow for the recharge of underground aquifers. Because groundwater is the primary source of water for the area, the ability to recharge underground aquifers is important to the City.
- An additional 760 acres make up the primary floodplain for the Kern River.
- The remaining acres are used in a variety of ways. For example, they contain a paved bike trail, access roads, levees and top roads, the Kern River canal, and oil drilling. The site also contains railroad tracks for the Union Pacific Railroad.<sup>52</sup>

70. The City’s Metropolitan Bakersfield HCP covers areas adjacent to Unit 3, but does not directly provide protection for the shrew. The HCP was developed in 1994, before the Federal listing of the species. Consequently, the HCP does not prescribe specific management for the shrew nor cover the proposed critical habitat area.<sup>53</sup> The HCP will expire in August 2014. To date, the City has not considered expanding the area covered by this plan or including protections for the shrew as part of the renewal of the HCP.<sup>54</sup>

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<sup>49</sup> Personal communication with David Hardt, Kern National Wildlife Refuge, July 1, 2010.

<sup>50</sup> Personal communication with David Hardt, Kern National Wildlife Refuge, July 1, 2010.

<sup>51</sup> City of Bakersfield Water Resources Department, *2800 Acres*, Land and Water Management Report, 2004.

<sup>52</sup> Live Oak Associates, Inc., Buena Vista Lake Shrew Habitat Management Plan for the Kern Fan Water Recharge Site, December 10, 2004.

<sup>53</sup> Note, the shrew is listed as a species of “special concern.” However, no specific conservation efforts are identified for the species. Metropolitan Bakersfield Habitat Conservation Plan Steering Committee, “Metropolitan Bakersfield Habitat Conservation Plan,” April 1994.

<sup>54</sup> Personal communication with the City of Bakersfield on July 22, 2010.

71. In response to the 2004 proposed critical habitat designation, the City developed a special management plan specifically to protect the shrew in this area. The plan outlines specific measures that provide protection to the shrew and/or its habitat that the City was already undertaking at the site prior to plan development, including:
- **Limited Public Access.** Other than the public bike trail, the site is off limits to the public, and securely protected by fences and locked gates. The City believes that “the ordinances that the City has in affect for the site and the limiting of public access assures that habitat occurring on the site for [the shrew] is not adversely affected by anthropogenic factors.”<sup>55</sup>
  - **Termination of Livestock Grazing.** The City ceased livestock grazing at the site upon purchase. This has allowed for the recovery of wetland and riparian vegetation, thereby protecting shrew habitat.<sup>56</sup>
  - **Open Space Designation.** Under the City’s general plan, the entire area is zoned as “Open Space.” Pursuant to that zoning, the City has maintained the site in its natural state to the extent possible. These efforts have included maintaining natural vegetation where possible, as well as protecting against future agricultural and urban development.<sup>57</sup>
  - **Surveying.** The City conducts pre-activity surveys before undertaking any development, operation, or maintenance activities that may affect special status species.<sup>58</sup>
  - **Water-Spreading Activities.** The primary function of the KFWRA site is to spread waters for flood control and groundwater recharge. The City believes this water spreading benefits the shrew by “increasing the amount of wetland and riparian habitat within and adjacent to the Kern River channel and the spreading basins.”<sup>59</sup>
72. Under this plan, the City also proposes to undertake additional management for the shrew by prioritizing certain basins within the site. While the amount of water entering the KFWRA site is largely weather-dependent, the City is able to control the order in which areas receive available waters. By filling certain basins before others, the City believes it may enhance shrew habitat by maximizing flows to those areas. Exhibit 3-2 provides an overview map of the basins at the site.

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<sup>55</sup> Live Oak Associates, Inc., Buena Vista Lake Shrew Habitat Management Plan for the Kern Fan Water Recharge Site, December 10, 2004.

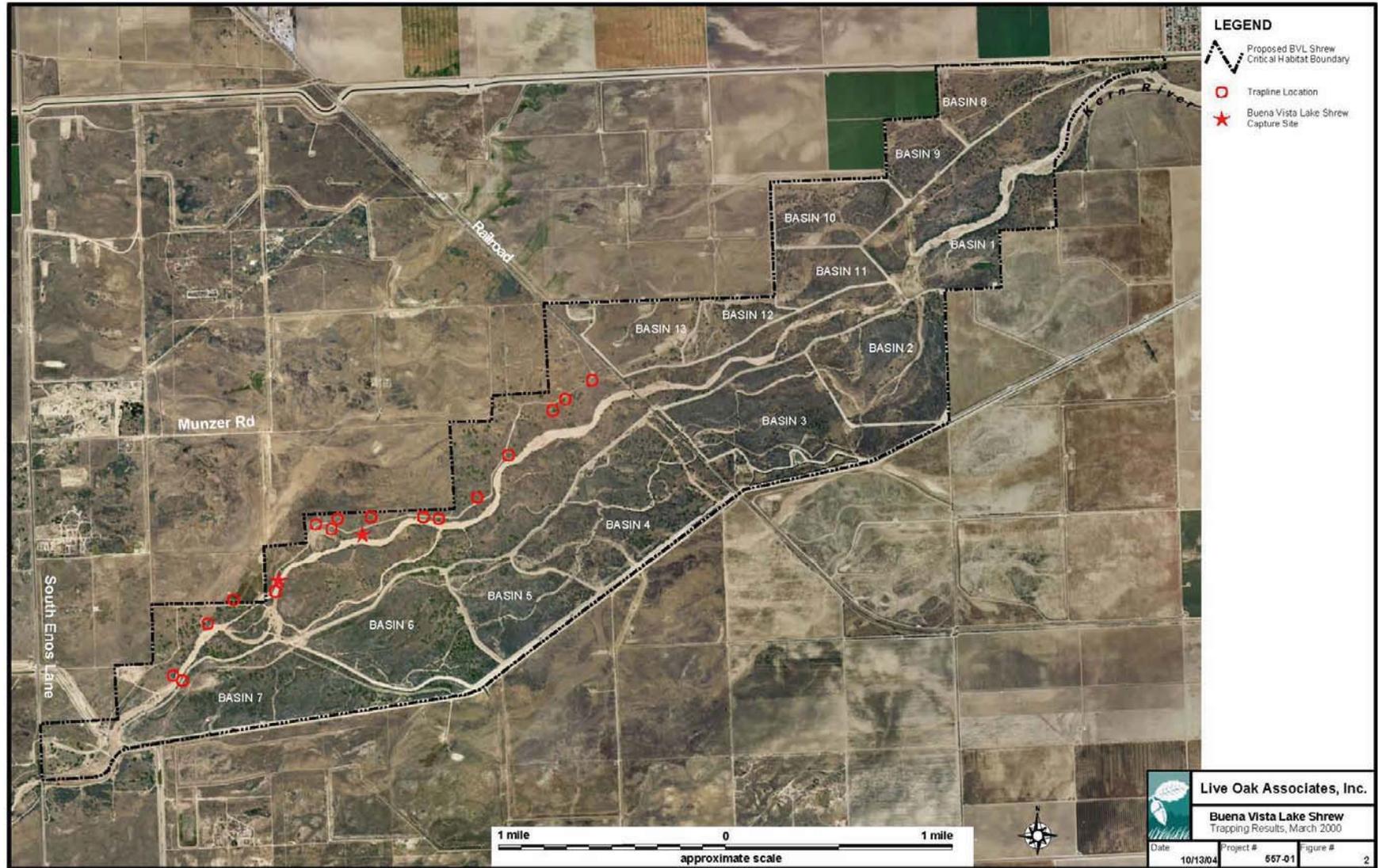
<sup>56</sup> Ibid.

<sup>57</sup> Ibid.

<sup>58</sup> Ibid.

<sup>59</sup> Ibid.

EXHIBIT 3-2. OVERVIEW OF KFWRA SITE BASINS



73. The plan outlines “Priority 1,” “Priority 2,” and “Excluded Areas.” Priority 1 areas consist of Basins 1, 2, 3, 9, 10, and 11, to be filled in that order as water is available. Priority 2 areas include Basins 4, 7, 11, and 12. Excluded areas represent the remaining basins. The City notes that assessment surveys of the Excluded Areas determined that these areas do not provide potential habitat for the shrew because they do not support the vegetation or moisture regime PCEs. Based on annual monitoring results, the City plans to adapt its management of the site, and the filling of the basins, as necessary.<sup>60</sup>
74. The City has been actively managing the site pursuant to this plan since 2005. In Years 1 and 2, the City experienced above-average flows, and was able to fill all of the basins, including the Excluded Areas. In Years 3 through 5, the area experienced below average flows, and no spreading took place. The basins have been dry since February 2007.<sup>61</sup> The Service is currently undertaking review of the City’s shrew management plan and may request changes. The specific changes, if any, are uncertain at this time.<sup>62</sup> This issue is discussed in greater detail in Chapter 4.
75. The City has identified certain future projects that may take place within or may affect the proposed critical habitat unit. In particular, the Thomas Roads Improvement Program (TRIP) intends to construct a new six lane road in the vicinity of the KFWRA. The current estimated cost of the project is \$10.8 million, but the City believes the project as currently planned may affect proposed critical habitat areas. The City has suggested three possible alternatives:<sup>63</sup>
- 1) **Complete Avoidance.** Under this alternative, the City would construct an arch bridge around the critical habitat area at an estimated cost of \$103.6 million. The City considers this alternative to be cost prohibitive.
  - 2) **Minimal Impact.** Under this alternative, the TRIP program would construct a 3,740 foot low profile viaduct. This alternative would cost approximately \$47 million more than current plans.
  - 3) **Realignment.** Under this alternative, the road would be re-aligned so that it crossed the KFWRA at the narrowest possible point. The alternative would still involve construction of bridge structure at a cost of approximately \$12 million, and may affect nearby subdivisions.

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<sup>60</sup> Live Oak Associates, Inc., Buena Vista Lake Shrew Habitat Management Plan for the Kern Fan Water Recharge Site, December 10, 2004.

<sup>61</sup> Live Oak Associates, Inc., Buena Vista Lake Shrew Year 1 Habitat Monitoring Kern Fan Water Recharge Site, September 27, 2005. Live Oak Associates, Inc., Buena Vista Lake Shrew Year 2 Habitat Monitoring Kern Fan Water Recharge Site, December 28, 2006. Live Oak Associates, Inc., Buena Vista Lake Shrew Year 3 Habitat Monitoring Kern Fan Water Recharge Site, December 19, 2007. Live Oak Associates, Inc., Buena Vista Lake Shrew Year 4 Habitat Monitoring Kern Fan Water Recharge Site, January 9, 2009. Live Oak Associates, Inc., Buena Vista Lake Shrew Year 5 Habitat Monitoring Kern Fan Water Recharge Site, January 7, 2009.

<sup>62</sup> Personal communication with Karen Leyse, Sacramento Fish and Wildlife Office, Fish and Wildlife Service, August 16, 2010.

<sup>63</sup> Letter from Art R. Chianello, City of Bakersfield Water Resources Department, November 17, 2010.

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76. The Service has not yet received specific plans for this project, and a preferred alternative has not been identified.<sup>64</sup>
77. The City also has plans to implement a project to increase flows in the Kern River. As part of this project, the City plans to capture and retain downstream flows within the KFWRA basins. The City believes that the designation of critical habitat may preclude the implementation of this project, limiting the City's ability to spread or store water within the critical habitat area. If this happens, the City may have to seek replacement water supplies rather than using groundwater.<sup>65</sup> The Service has not identified any conservation recommendations for this project given that project is still in the planning stages and the Service has not reviewed project plans.<sup>66</sup>
78. The City expressed concerns about residential development, which has moved closer to proposed critical habitat areas in recent years. However, under its revised management plan, the City proposes to continue the open space designation within the Unit 3 lands.<sup>67</sup> If the City continues to enforce this designation, it would limit future residential and commercial development in proposed critical habitat area. In summary, the City of Bakersfield Shrew Management Plan covers the entirety of the proposed designation in Unit 3. Under the terms of the plan, the City is actively undertaking conservation for the shrew within Unit 3. In addition, current zoning and the area's open space designation under the City's General Plan limit the potential for future residential and commercial development within the proposed unit.

#### **3.4 COLES LEVEE ECOSYSTEM PRESERVE**

79. Unit 4 is located entirely within the Coles Levee Ecosystem Preserve (Preserve). A HCP that formerly covered the Preserve was allowed to expire when the land was acquired by Aera Energy, LLC in 1998. It has not been renewed by the current owners. Aera Energy does, however, continue to manage a portion of the unit as an ecological preserve.<sup>68</sup>
80. The proposed critical habitat is located in a slough within an area of the Preserve where Preserve managers implement conservation for several species, including the shrew. In particular, the Preserve maintains specific water levels in the Artificial Pond specifically for the redwing blackbird. The Preserve manager believes this management action also benefits the shrew.<sup>69</sup>

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<sup>64</sup> Written communication from the Service, Sacramento Field Office, January 24, 2011.

<sup>65</sup> Letter from Art R. Chianello, City of Bakersfield Water Resources Department, November 17, 2010.

<sup>66</sup> Written communication from the Service, Sacramento Field Office, January 24, 2011.

<sup>67</sup> Letter from Art R. Chianello, City of Bakersfield Water Resources Department, November 17, 2010.

<sup>68</sup> Email communication from Mark Poe, Environmental Health and Safety Advisor, Aera Energy, on September 10, 2010.

<sup>69</sup> Personal communication from Mark Poe, Environmental Health and Safety Advisor, Aera Energy, on August 19, 2010.

81. While parts of the preserve are operated as an active oil field, this activity is confined to three wells within the proposed critical habitat. These wells are managed under a Conservation Easement Agreement.<sup>70</sup> This conservation agreement was not designed for shrew conservation, and it is between Central Resources, Inc., which leases the area from Aera Energy, and the California Department of Fish and Game. The Service is not a party to the agreement. The agreement does, however, prescribe certain “measures [that] shall apply to threatened and endangered species and other species of concern located on the Property,” and that may provide some baseline protection for the shrew. These conservation efforts include:<sup>71</sup>
- Operate facilities and equipment so as to prevent harm to wildlife, including use of screens or other covers on drains, barrels, and pits in the ground.
  - Conduct surveys for protected and sensitive species prior to actions which may disturb the land surface.
  - Inspect all steep-walled trenches or excavations to prevent wildlife entrapment.
  - Restrict all construction equipment, staging areas, materials, and personnel to the surveyed project site or previously disturbed off-site areas.
82. As the entirety of the proposed critical habitat area is managed as an ecological preserve, economic activity other than the three oil wells is limited. Further, Aera Energy, LLC implements general conservation practices in the management of the oil wells and the Preserve that are similar to those recommended by the Service through section 7 consultation for other activities.<sup>72</sup>

### 3.5 CLEAN WATER ACT

83. The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States. It gives the Environmental Protection Agency (EPA) the authority to implement pollution control programs such as setting wastewater standards for industry. The CWA also continued requirements to set water quality standards for all contaminants in surface waters. Sections 401, 402, and 404 of the CWA may offer protection to the shrew by enhancing water quality, and preventing or limiting the discharge of dredge or fill materials. In particular, Section 404 of the Clean Water Act requires parties to obtain a permit from the US Army Corps of Engineers (USACE) prior to discharging dredge or fill material into “waters of the United States.”<sup>73</sup> This permitting process represents a Federal nexus for purposes of section 7 consultation.

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<sup>70</sup> Email communication from Mark Poe, Environmental Health and Safety Advisor, Aera Energy, on September 10, 2010.

<sup>71</sup> Letter from Central Resources, Inc. to Aera Energy, LLC dated September 22, 2003.

<sup>72</sup> See also conservation efforts summarized in Exhibit 3-3. Section 7 consultation # 1-1-04-F-0131, 1-1-04-F-0298, 1-1-03-CP-3009, 1-1-05-I-3008, and 1-1-01-F-0027.

<sup>73</sup> U.S. Code. Title 33, 1344.

84. Since 2002, the Service has conducted four informal section 7 consultations for the shrew with USACE. These consultations have considered potential impacts to shrew that may result from pipeline construction and removal, construction of a boat launching facility, and a bridge project. Shrew conservation efforts outlined in these informal consultations included:
- Restricting construction equipment to the existing paved access road and the previous graded areas;<sup>74</sup>
  - Conducting pre-construction surveys;<sup>75</sup>
  - Having a biological monitor present is equipment is used in the undisturbed area;<sup>76</sup> and
  - Implementation of avoidance measures along the pipeline removal route to avoid and minimize the likelihood of direct mortality to the shrew.<sup>77</sup>

Similar shrew conservation efforts will likely be recommended for future USACE projects that may occur within the designation, including any pipeline construction or removal, or other in-water work.

85. In addition to the projects noted above, USACE manages the Isabella Dam for purposes of flood control. Located upstream on the Kern River, Isabella Dam was constructed in 1953 to protect the City of Bakersfield from flooding. USACE's primary responsibility at the dam is to ensure water releases do not exceed 8,000 cubic feet per second (cfs), a level intended to prevent downstream flooding. It does not manage water releases for purposes of downstream water banking or species conservation. The USACE only becomes involved in the water release process if necessary for purposes of flood control.<sup>78</sup>
86. USACE has not undertaken section 7 consultation for shrew related to its activities at Isabella Dam.<sup>79</sup> Review of the water control procedures and discussion with the Kern River Water Master, determined that the USACE does not believe that flood management activities at Isabella Dam affect the shrew or its habitat.<sup>80,81</sup>

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<sup>74</sup> Service, Section 7 Consultation # 1-1-03-I-1117.

<sup>75</sup> Ibid.

<sup>76</sup> Ibid.

<sup>77</sup> Service, Section 7 Consultation # 1-1-05-I-0151.

<sup>78</sup> The Kern River Water Master manages those releases. Personal communication with Mitch Stewart, Army Corps of Engineers, Environmental Planning Department. June 10, 2010.

<sup>79</sup> USACE has undergone section 7 consultation on its operations at Lake Isabella for the southwestern willow flycatcher. Written communication from the Service, December 16, 2010.

<sup>80</sup> Established under the 1962 Kern River Water rights and Storage Agreement, the Kern River Water Master represents the water districts affected by the operation of Lake Isabella Dam. The Water Master works with USACE, coordinates the diversion of imported water supplies into the Kern River Service Area, and monitors development and environmental

### 3.6 OTHER BASELINE PROTECTIONS

87. This section discusses additional baseline protections, including the status of the shrew as a listed species under the Act. We also describe additional conservation plans that may address the shrew in the future that are currently in draft form.
88. Since 2002, the Service has conducted 33 section 7 consultations for the shrew. These consultations consider a range of economic activities, including energy development, restoration, and water supply. Exhibit 3-3 summarizes shrew conservation efforts recommended by the Service through these past consultations.
89. Two additional HCPs that would address shrew conservation across the proposed critical habitat are currently under development. As they are not final, the level of baseline protection provided the shrew absent critical habitat designation due to future implementation of these plans is uncertain.<sup>82</sup>
90. Each of the plans has a broad geographic scope, and, if finalized, would cover significant portions of the designation. Moreover, both plans deal with energy production and development, one of Kern County's primary industries and a key activity occurring within proposed critical habitat. Therefore, both conservation plans, if finalized, may play key roles in determining conservation for the shrew going forward. The following discussion characterizes each plan and outlines shrew conservation efforts that may be recommended if the plans are finalized.

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activities within the Kern River watershed. See City of Bakersfield Water Resources Department, *The Kern River Purchase*, December 2003, accessed at: <http://www.bakersfieldcity.us/cityservices/water/pdfs/kernriverpur.pdf>.

<sup>81</sup> Personal communication with Mitch Stewart, Army Corps of Engineers, Environmental Planning Department. June 10, 2010.

<sup>82</sup> U.S. Fish and Wildlife Service, Sacramento Field Office, "Comments on how the Economic Analysis Should Estimate incremental Costs for the Buena Vista Lake Shrew Proposed Critical Habitat Designation," April 19, 2010.

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## EXHIBIT 3-3. SUMMARY OF SHREW CONSULTATION HISTORY

ACTIVITY	FEDERAL AGENCIES AND THIRD PARTIES	CONSERVATION EFFORTS
Oil and Gas and Other Energy Development	<ul style="list-style-type: none"> <li>▪ Bureau of Reclamation</li> <li>▪ Environmental Protection Agency</li> <li>▪ Bureau of Land Management</li> <li>▪ EOTT Energy Corp. under a Kern Water Bank Master Permit administered by the Service</li> <li>Plains All American Pipeline, L.P. under a programmatic biological opinion</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pre-activity surveys, and environmental compliance monitoring during construction;</li> <li>▪ Conservation of riparian scrub habitat to compensate for temporary disturbance;</li> <li>▪ The pipeline route, access roads, and storage and parking areas are sited to avoid sensitive resources whenever possible;</li> <li>▪ All wetland areas have been completely avoided;</li> <li>▪ Pipelines crossing streams or dry creek beds under the jurisdiction of the Army Corp of Engineers are designed so that they are buried below the scour depth for each waterway;</li> <li>▪ Use of rodenticides and herbicides will be minimized.</li> </ul>
Habitat Restoration	<ul style="list-style-type: none"> <li>▪ Migratory Bird Conservation Commission under a North American Wetlands Conservation Act grant</li> </ul>	<ul style="list-style-type: none"> <li>▪ Limit earth-moving activities to the non-breeding season;</li> <li>▪ Stop construction two hours before sunset;</li> <li>▪ Dewater areas prior to earthmoving construction activities to discourage shrews from coming into construction area;</li> <li>▪ Remove any remaining ponds after dewatering;</li> <li>▪ “First flood-up and draw-down following construction [...] shall be done gradually, in a manner which minimizes siltation and turbidity effects.”</li> </ul>
Water Supplies	<ul style="list-style-type: none"> <li>▪ Bureau of Reclamation</li> <li>▪ Environmental Protection Agency</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Bureau of Reclamation has been working with the Service to initiate recovery efforts for riparian species including the shrew;</li> <li>▪ Central Valley Project water may be applied only to lands located within the permitted place of use boundaries;</li> <li>▪ No new construction or modification of existing facilities is to occur in order to complete the proposed actions;</li> <li>▪ “No native or untilled land (fallowed for three consecutive years or more) may be cultivated with this water without a survey for the presence of a federally-listed or proposed threatened and/or endangered species.” The intent of this measure is to allow for complete ESA coordination and consultation with the Service.</li> </ul>
<p><b>Note:</b> Other section 7 consultations included consideration for shrew, but no conservation efforts were recommended because either the project area did not include suitable shrew habitat or insufficient information was provided for the Service to assess potential impacts.</p> <p><b>Source:</b> Consultation history provided by the Service on March 8, 2010. Section 7 consultation # 1-1-04-F-0131, 1-1-04-F-0298, 1-1-03-CP-3009, 1-1-05-I-3008, and 1-1-01-F-0027.</p>		

- Southern California Gas Company San Joaquin Valley Conservation Plan
91. The San Joaquin Valley HCP is in a draft phase. Southern California Gas Company (SoCal Gas) currently operates under a section 7 programmatic biological opinion. This programmatic opinion was granted for a term of ten years, expiring in 2008. In 2008, SoCal Gas applied for an extension; however, the original sponsor of the biological

opinion, the U.S. Bureau of Land Management (BLM), requested a Habitat Conservation Plan in place of the biological opinion.<sup>83</sup> SoCal Gas entered into a Memorandum of Agreement with the Service to draft an HCP within five years. Through the BLM, the company has been working with the Service to develop an interim programmatic biological opinion to cover its activities while the HCP is being drafted. Though a draft of the HCP itself has not yet been received by the Service, the HCP would supersede the interim programmatic biological opinion once adopted.<sup>84</sup>

92. If adopted, the HCP would address shrew conservation across all five critical habitat units. Similar to the existing PG&E HCP, however, the conservation efforts would apply only to SoCal Gas facilities and projects. Covered activities would include operation and maintenance for existing pipelines, as well as limited new construction projects.<sup>85</sup>
93. Conservation efforts for the shrew may include temporary fencing along the boundaries of the work area and limiting work to daylight hours.<sup>86</sup> Other efforts to protect the shrew or its habitat may include horizontal directional drilling, pre-construction surveys, and habitat suitability assessments.<sup>87</sup>

#### Kern County Valley Floor Habitat Conservation Plan (VFHCP)

94. The Kern County Valley Floor HCP has been in development for the past 19 years. Kern County has been working in collaboration with the oil and gas industry, agricultural water districts, and various local jurisdictions. The plan would cover multiple economic activities, including urban development, oil and gas development and other related activities, water district activities, and country road maintenance. If implemented, the program area would include four of the five critical habitat units (Units 1, 2, 4, and 5). Unit 3 is not currently planned for inclusion in the HCP as the City of Bakersfield maintains a special management plan for the shrew in that area.<sup>88</sup>
95. The current draft plan considers conservation for 14 plants and 11 animal species, including the shrew. Conservation efforts for the shrew under the KCVHCP may include acquisition of 960 acres of habitat, use of best management practices by both oil and gas

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<sup>83</sup> Personal communication with Don Houston, Southern California Gas Company, July 8, 2010.

<sup>84</sup> Written communication from Karen Leyse, Sacramento Fish and Wildlife Office, Fish and Wildlife Service, November 4, 2010. Written communication from Karen Leyse, Sacramento Fish and Wildlife Office, Fish and Wildlife Service, March 11, 2011.

<sup>85</sup> Personal communication with Don Houston, Southern California Gas Company, July 8, 2010.

<sup>86</sup> SoCal Gas's "San Joaquin Valley Conservation Plan also identifies avoidance of known or potential burrows or, if avoidance is impossible, hand excavation, or gentle excavation using construction equipment under the direct supervision of an agency-approved biologist shall occur until it is certain that burrows are not occupied as a potential conservation effort for the shrew. Based on discussions with the Service, this conservation effort is not likely to be recommended in the future. Southern California Gas Company, *San Joaquin Valley Conservation Plan*, October 2007. Written communication from Karen Leyse, Sacramento Fish and Wildlife Office, Fish and Wildlife Service, November 4, 2010.

<sup>87</sup> Personal communication with Don Houston, Southern California Gas Company, July 8, 2010.

<sup>88</sup> Kern County Planning Department, "First Public Draft: Kern County Valley Floor Habitat Conservation Plan," December 2006.

companies and water districts, and implementation of pre-disturbance surveys.<sup>89</sup> Conservation efforts may vary, however, depending on the level of conservation already in place in the project area. Coverage under the plan would not extend to economic activities already covered by other HCPs. For example, the plan would not cover PG&E activities occurring within the program area as though activities are managed according to PG&E's HCP.

### **3.7 CALIFORNIA ENVIRONMENTAL QUALITY ACT**

96. CEQA requires the identification of the environmental effects of proposed projects that have the potential to harm sensitive species or habitat (state- or federally-listed). CEQA requires State and local agencies (“the lead agency”) to determine whether a proposed project would have a “significant” impact on the environment and, for any such impacts identified, determine whether feasible mitigation measures or feasible alternatives will reduce the impact to a less-than-significant level.
97. Under CEQA, the lead agency typically requires projects that may impact sensitive species or habitat to undertake a biological assessment by a qualified biologist to determine the potential for impacts to all rare, threatened and endangered species. Therefore, CEQA requirements already provide baseline protection for the shrew by requiring environmental review for projects that may impact shrew.
98. However, the types of projects that may trigger CEQA review by the local planning department generally are limited by the conservation plans described above, or are not occurring within the proposed designation. Therefore, the level of baseline protection afforded to shrew by CEQA is likely to be minimal. This is discussed in greater detail in Chapter 4.

### **3.8 BASELINE PROTECTIONS ON PRIVATELY OWNED LANDS (UNITS 2 AND 5)**

99. The preceding sections describe existing baseline protections for the shrew. The entirety of Units 1, 3, and 4 already are actively managed for shrew conservation. The Clean Water Act, and listing status of the species (covering other activities with a Federal nexus) also provide baseline protection to the shrew throughout the proposed designation.
100. In the remaining privately owned units (Units 2 and 5), few economic activities or projects are occurring that may present a conservation threat to the shrew or its habitat.<sup>90</sup> All 1,278 acres of proposed critical habitat in Unit 2 are on privately-owned land. The entire area is zoned for exclusive agriculture. Similarly, all 89 acres of proposed critical habitat in Unit 5 are located on privately-owned land, and are zoned exclusively for

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<sup>89</sup> Personal communication with Kern County Planning Director, Ted James, May 26, 2010.

<sup>90</sup> While both units are located within the general PG&E HCP “planning area,” there are no PG&E gas or electric transmission and distribution facilities located within the proposed units. Email communication from Robert Knutson, Pacific Gas and Electric, dated September 8, 2010.

agriculture.<sup>91</sup> The exclusive agriculture zoning is intended “to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to nonagricultural uses.”<sup>92</sup>

101. In addition, with the exception of nine acres, all lands within Units 2 and 5 are enrolled in Kern County’s Agricultural Preserve Program.<sup>93</sup> Agricultural Preserve lands are administered under land use contracts that are renewed on an annual basis after an initial ten year term. Under these contracts, the land must be used for the production of agricultural commodities or commercial livestock grazing.<sup>94</sup>
102. Historically, these units have been associated with relatively few landowners and limited to agricultural land use. Conversations with County planning agencies indicate that this is not expected to change in the foreseeable future.<sup>95</sup> Moreover, current activities occurring within these units have not resulted in section 7 consultation, suggesting a limited level of economic activity with a Federal nexus.<sup>96</sup> In particular, Unit 5 was designated as critical habitat for the shrew in 2005, however no section 7 consultations have occurred since that time. Given the lack of a Federal nexus and units’ current zoning, we do not anticipate these units will be subject to economic activities and associated section 7 consultation in the foreseeable future.
103. The potential exists for future solar energy development to occur within Units 2 and 5 over the next twenty years. A number of solar projects are under review to be sited on agricultural lands near the proposed critical habitat, including the enXco Goose Lake Solar project near Unit 2. These projects are still in the initial review, processing, and scoping stages, but may range in size from 40 to 176 acres and produce between 6 and 20 megawatts of electricity.<sup>97</sup> Due to the growing demand for such projects, solar developers may propose projects in the proposed critical habitat area in the future. Currently, however, no solar projects have been proposed in Units 2 and 5.

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<sup>91</sup> Kern County Zoning. [GIS Shapefile]. Kern County, California. County of Kern Development Services Agency. Updated March 2010.

<sup>92</sup> Kern County Planning Department, 2010 Proposed Zoning Ordinance Updates, accessed at: <http://www.co.kern.ca.us/planning/pdfs/KCZOMar09.pdf> on September 9, 2010.

<sup>93</sup> Kern County Assessor, *Property Search*, accessed at: <http://www.recorder.co.kern.ca.us/propertysearch/index.php> on February 10, 2011.

<sup>94</sup> Kern County Planning Department, *Agricultural Preserve Program*, accessed at: <http://www.co.kern.ca.us/planning/pdfs/FORM81.pdf> on February 9, 2011.

<sup>95</sup> Personal communication with Kern County Planning Director, Ted James, May 26, 2010.

<sup>96</sup> One section 7 consultation related to a habitat restoration project did take place in the vicinity of Unit 2. U.S. Fish and Wildlife Service, Sacramento Field Office, “Comments on how the Economic Analysis Should Estimate incremental Costs for the Buena Vista Lake Shrew Proposed Critical Habitat Designation,” April 19, 2010.

<sup>97</sup> Kern County Planning Department, *Notice of Preparation of a Draft Environmental Impact Report*, March 8, 2010.

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104. In the event that solar projects occur in proposed critical habitat, the Service expects that these projects will be subject to section 7 consultation.<sup>98</sup> The potential for critical habitat to affect the outcome of these consultations is discussed in Chapter 4.

### 3.9 SOURCES OF UNCERTAINTY

105. The future land uses and associated baseline shrew conservation associated with the various plans and regulations discussed in this chapter are subject to the following key uncertainties:
- **Future management of Unit 4.** Aera Energy LLC undertakes conservation efforts in Unit 4 under the terms of a conservation easement agreement. The agreement is not intended specifically for shrew protection. Because the Service is not a party to the agreement, there is uncertainty about whether Aera Energy will continue to implement its plan and conservation efforts for the shrew. Future management of the area may change if the Service undertakes a review of Aera Energy's plan, or if permitting for this unit changes.
  - **Location and extent of solar developments.** As discussed in this chapter, there are no current plans to develop solar projects in areas proposed for critical habitat. However, surrounding areas have been targeted by solar developers. If the demand for solar energy increases, critical habitat areas may become subject to solar development, resulting in changes to conservation activities in these areas.
  - **Potential changes in zoning.** The analysis does not identify any future projects on private lands beyond those covered by existing baseline protections. If zoning of these lands changes in the future, economic activity within these units may change. If new projects are identified, shrew conservation may change. This potential is discussed in greater detail in Chapter 4.
  - **Outcome of draft plans.** The Kern County Valley Floor HCP and the San Joaquin Valley HCP are still in draft form, and it is uncertain if and when they will be finalized. Because of the large-scale geographic scope and the activities covered under these plans, both conservation plans, if finalized, may play key roles in determining conservation for the shrew going forward. Until these plans are finalized, the final framework for conservation activities remains uncertain.

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<sup>98</sup> Written communication from the Service, Sacramento Field Office, January 24, 2011.

## CHAPTER 4 | INCREMENTAL IMPACTS OF CRITICAL HABITAT DESIGNATION FOR THE BUENA VISTA LAKE SHREW

106. This chapter evaluates the potential for critical habitat designation to result in additional (“incremental”) conservation for the shrew. We first provide a summary of the results of the incremental analysis. Next, Section 4.1 describes the estimated incremental administrative costs per consultation effort. Section 4.2 discusses, by proposed critical habitat unit, forecast consultations and projects subject to Service review with respect to shrew conservation. Section 4.3 provides more information on land use activities on private lands within the study area. Section 4.4 then contemplates the potential for indirect impacts to occur under the California Environmental Quality Act (CEQA). We conclude by describing potential sources of uncertainty related to our analysis of incremental impacts.
107. The key conclusion of this analysis is that the Service is unable to foresee a circumstance in which critical habitat would change the outcome of section 7 consultation regarding shrew and its habitat, or conservation efforts that the Service would recommend for the shrew. As discussed in the following sections, the Service notes that it may request future changes to some existing management plans to address potential take or jeopardy issues. However, any conservation efforts that may result from section 7 consultations on projects or management plans would be recommended regardless of critical habitat designation because, in the case of the shrew, “project descriptions that are modified to avoid impacts to individuals also minimize impacts to the designated critical habitat.”<sup>98</sup>

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<sup>98</sup> U.S. Fish and Wildlife Service, Sacramento Field Office, “Comments on how the Economic Analysis Should Estimate Incremental Costs for the Buena Vista Lake Shrew Proposed Critical Habitat Designation,” April 19, 2010. See also Appendix C.

#### KEY ISSUES AND CONCLUSIONS OF THE INCREMENTAL ANALYSIS

Incremental impacts resulting from critical habitat designation for the shrew are limited to additional administrative efforts for section 7 consultation. This result is predicated on the following conclusions.

- **Conservation measures recommended via section 7 consultation to address potential jeopardy are the same as those that would be recommended to address potential adverse modification.** In the case of shrew critical habitat, the Service has determined that the conservation efforts recommended via section 7 consultation to address potential jeopardy to the species would also avoid potential adverse modification of critical habitat.
- **Significant baseline shrew conservation is forecast to occur within the study area regardless of critical habitat designation.** Chapter 3 outlines the baseline protections for the shrew. In particular, the entirety of Units 1 and 3 are subject to existing management plans that incorporate shrew conservation, while Unit 4 is managed as an ecological preserve for a number of species, including the shrew. Thus, for these units and land use activities, shrew conservation efforts will be implemented regardless of critical habitat designation.
- **Minimal land use activity is occurring in areas not covered by existing conservation plans (Units 2 and 5).** Economic activities occurring on privately owned lands within the proposed designation are not managed under existing conservation plans. Each of these units is zoned for agricultural use, and section 7 consultation regarding the shrew has not occurred within the unit. We anticipate it is unlikely that future activities in these units will result in section 7 consultation regarding the shrew.
- **Limited economic activity that may trigger CEQA.** In California, the designation of critical habitat has the potential to change how local agencies implement CEQA. Specifically, projects occurring within designated critical habitat may be subject to additional levels of review. Proposed critical habitat areas are already managed such that they preclude the types of economic activities that may trigger CEQA, however. In particular, Units 1, 3, and 4 are protected from future agricultural and urban development by existing conservation plans, zoning, and management. Limited economic activity is ongoing in Units 2 and 5, and no future projects subject to CEQA review are forecast. Therefore, critical habitat designation is not expected to trigger indirect, incremental impacts resulting from additional CEQA compliance requirements.

108. Exhibit 4-1 summarizes the activities we expect will experience additional effort for review due to the designation of critical habitat. Exhibit 4-2 provides a summary of the results. The present value of total incremental costs of critical habitat designation is \$133,000 assuming a seven percent real discount rate. This figure represents an annualized impact of approximately \$11,700. As described above, these costs represent additional administrative effort as part of future section 7 consultations. We do not expect the designation will result in additional conservation efforts for the shrew.

## EXHIBIT 4-1. FUTURE ACTIVITIES POTENTIALLY AFFECTED BY CRITICAL HABITAT DESIGNATION

UNIT #	FEDERAL ACTION AGENCY OR OTHER PARTY	DESCRIPTION OF ACTIVITY	# OF FUTURE SECTION 7 CONSULTATIONS OR PLAN REVIEW EFFORTS	FORECAST YEAR(S) OF CONSULTATION
1	Kern National Wildlife Refuge <sup>a</sup>	Large-scale restoration or channel maintenance work that disturbs habitat areas.	1 Formal every 10 years	2011, 2021
		Smaller-scale general Refuge management activities	1 Informal every two years	2011, 2013, 2015, 2017, 2019, 2021, 2023, 2025, 2027, 2029
3	City of Bakersfield <sup>b</sup>	Service review of shrew management plan	1 Formal	2012
		West Beltway Project	1 Formal	Between 2011 and 2030
		Kern River Downstream Flows Project	1 Formal	Between 2011 and 2030
Multiple Units	Pacific Gas and Electric <sup>c</sup>	Conferences with the Service for PG&E activities taking place within critical habitat	1 Informal every three to five years	2011, 2014, 2017, 2020, 2023, 2026, 2029
	US Army Corps of Engineers	Pipeline removal or construction, construction of boat launches, or other in-water construction	1 Informal every two years	2011-2030
	Multiple	Forecast consultations associated with energy development, invasive species, restoration, and water supplies	1 Formal every year	2011-2030
		Forecast consultations associated with transportation, energy development, agriculture, and water supplies	1 Informal and 1 Technical Assistance every two years	2011-2030

**Note:** A more complete description of these consultations is provided in the following sections.

<sup>a</sup> Consultations forecast for the Refuge are internal Service consultations as the Federal action agency undertaking consultation is the Service.

<sup>b</sup> The Service's review of the City of Bakersfield's shrew management plan is not expected to be conducted through section 7 consultation, as no Federal nexus exists. However, we anticipate the incremental level of effort to review this plan and discuss shrew conservation needs with the City is equivalent to that of the incremental effort to consider critical habitat as part of a formal section 7 consultation.

<sup>c</sup> Regular review of activities covered by PG&E's HCP occurs according to a Confer Process, as described later in this chapter. We anticipate the incremental effort to consider critical habitat as part of these Confer Processes is similar to the incremental effort of an informal consultation.

**EXHIBIT 4-2. TOTAL ESTIMATED INCREMENTAL IMPACTS BY UNIT (\$2010, DISCOUNTED AT SEVEN PERCENT)**

UNIT	UNIT NAME	PRESENT VALUE	ANNUALIZED
1	Kern National Wildlife Refuge	\$20,800	\$1,840
2	Goose Lake	\$16,500	\$1,460
3	Kern Fan Recharge Area	\$89,300	\$7,880
4	Coles Levee	\$6,340	\$560
5	Kern Lake	\$0	\$0
<b>Total</b>		<b>\$133,000</b>	<b>\$11,700</b>

**4.1 ADMINISTRATIVE COSTS OF SECTION 7 CONSULTATION**

109. Exhibit 4-3 summarizes incremental administrative consultation costs per effort. These costs represent time and effort of all parties to the consultation to consider the potential for the proposed project to result in adverse modification of critical habitat. The first category includes the full cost to consider both jeopardy and adverse modification for consultations precipitated by critical habitat designation. The full costs are considered incremental for these consultations because the consultation would not have occurred (and, therefore, the costs incurred) but for the designation of critical habitat. The second category considers incremental costs associated with a re-initiated consultation. In this case, the consultation is precipitated by critical habitat designation but is less costly than the previous category. This is due to the groundwork of the previously completed consultation regarding the same project. The final category considers the incremental effort to consider critical habitat designation as part of a future section 7 consultation that considers both adverse modification and jeopardy. This category is the least costly as efficiencies exist when considering both jeopardy and adverse modification at the same time (e.g., in staff time for project review and report writing).

**EXHIBIT 4-3. INCREMENTAL ADMINISTRATIVE CONSULTATIONS COSTS (\$2010)**

CONSULTATION TYPE	SERVICE	FEDERAL AGENCY	THIRD PARTY	BIOLOGICAL ASSESSMENT	TOTAL COSTS
<b>NEW CONSULTATION RESULTING ENTIRELY FROM CRITICAL HABITAT DESIGNATION (TOTAL COST OF A CONSULTATION CONSIDERING BOTH JEOPARDY AND ADVERSE MODIFICATION)</b>					
Informal	\$2,450	\$3,100	\$2,050 <sup>a</sup>	\$2,000	\$9,500
Formal	\$5,500	\$6,200	\$3,500	\$4,800	\$20,000
<b>RE-INITIATION OF CONSULTATION TO ADDRESS ADVERSE MODIFICATION</b>					
Informal	\$1,230	\$1,550	\$1,030	\$1,000	\$4,750
Formal	\$2,750	\$3,100	\$1,750	\$2,400	\$10,000
<b>ADDITIONAL EFFORT TO ADDRESS ADVERSE MODIFICATION IN A NEW CONSULTATION (ADDITIVE WITH BASELINE COSTS ABOVE OF CONSIDERING JEOPARDY)</b>					
Technical Assistance	\$143	n/a	\$263	n/a	\$405
Informal	\$613	\$775	\$513 <sup>a</sup>	\$500	\$2,380
Formal	\$1,380	\$1,550	\$875 <sup>a</sup>	\$1,200	\$5,000
Source: IEC analysis of full administrative costs is based on data from the Federal Government Schedule Rates, Office of Personnel Management, 2010, and a review of consultation records from several Service field offices across the country conducted in 2002.					
Notes:					
Estimates are rounded to three significant digits and may not sum due to rounding.					
Estimates reflect average hourly time required by staff.					
<sup>a</sup> PG&E estimates their time required to review projects within critical habitat as discussed in Section 4.2.1 would be \$3,000 per effort, resulting in a total cost of about \$10,550 per effort. Email communication from Robert Knutson, Pacific Gas and Electric, on August 2, 2010.					
<sup>b</sup> Internal Service consultations at Kern NWR do not include a third party and therefore do not include the third party costs. Thus, total consultation costs per effort in Unit 1 (Kern NWR) are \$1,870 for an informal and \$4,130 for a formal consultation.					

**4.2 FORECAST CONSULTATIONS AND PROJECTS SUBJECT TO LAKE SHREW CONSERVATION**

110. This section discusses by unit each of the forecast activities and projects expected to experience incremental costs of shrew conservation due to the designation of critical habitat. This includes future consultations, as well as expected review of management plans or projects that require administrative effort outside of section 7.
111. To project the type, location, and frequency of future consultations, ideally we would develop an estimate of the total number of projects that may undergo section 7 consultation based on project and land use planning schedules provided by landowners and project managers. As discussed in the following sections, forecast consultations for PG&E and Kern National Wildlife Refuge activities were provided by the respective stakeholders based on their best assessment of projected activity over the next twenty years.
112. For the remaining units and related economic activities, specific project and land use plans were not available. In these cases, we reference the section 7 consultation history as an indicator of the potential frequency and distribution of projects across the proposed

critical habitat area. We also considered whether available data indicate that these activity levels would likely increase or decrease in the foreseeable future.<sup>99</sup> However, the current zoning and management of proposed critical habitat areas does not suggest a future increase in economic activity within the proposed critical habitat units. Specifically, Units 1 and 4 are managed as a wildlife refuge and ecological preserve, respectively. Unit 3 is zoned as open space, which precludes agricultural and urban development. The extensive agriculture zoning of Units 2 and 5 is also intended to prevent the conversion of these lands to nonagricultural uses. Thus, the nature of land use and management in the region indicates that the level of economic activities is unlikely to measurably change in the foreseeable future. In the case that development pressure, or economic activity increases in the region, this analysis underestimates the administrative costs of consultation due to critical habitat designation for the shrew.

#### 4.2.1 MULTIPLE UNITS: PG&E HCP

113. As discussed in Chapter 3, the PG&E HCP provides baseline protection for the shrew by requiring certain avoidance and minimization measures. In addition, if ground disturbance is found to be unavoidable, PG&E is to confer with the Service prior to undertaking any work, using a prescribed “Confer Process.” Similar to the section 7 process, the Confer Process involves the discussion of survey results, alternative avoidance and minimization measures, whether impacts will be temporary or permanent, and if compensatory mitigation is appropriate.<sup>100</sup>
114. PG&E anticipates that the designation of critical habitat will increase the number of times the company must confer with the Service under the terms of the HCP. The HCP requires PG&E confer with the Service prior to undertaking any “minor construction” activity or other “medium” or “large” activity within designated critical habitat. In the absence of critical habitat, PG&E is only required to confer with the Service in the event that ground disturbance cannot be avoided.<sup>101</sup>
115. The number of additional conferences that may be triggered by critical habitat is dependent on number of factors. In particular, the number depends on the extent to which PG&E’s operation and maintenance activities occur within critical habitat, the rate at which PG&E facilities require maintenance, and the need for facility modifications to increase production capacity. Accordingly, while it is difficult to estimate precisely, PG&E projects the potential for one additional conference every three to five years. Absent specific information on when and where these activities will occur, and because PG&E has operations and facilities located in three of the proposed critical habitat units, the analysis assumes one conference every three years and distributes the potential

<sup>99</sup> For example, population projections indicate that the City of Bakersfield is growing rapidly, increasing its population 31 percent between 2000 and 2009. Growing population may result in an increased number of projects as more infrastructure is needed (e.g., roads, bridges, housing, etc.). U.S. Census Bureau, Population Finder. <http://factfinder.census.gov/>.

<sup>100</sup> Pacific Gas & Electric Company, “Final Environmental Impact Statement/Environmental Impact Report,” December 2006.

<sup>101</sup> PG&E estimates conference costs of approximately \$3,000 per conference. Email communication from Robert Knutson, Pacific Gas and Electric, on August 2, 2010. Written communication from Karen Leyse, Sacramento Fish and Wildlife Office, Fish and Wildlife Service, July 21, 2010.

impacts of these conferences across the three units proportional to the area of proposed critical habitat.<sup>102</sup> In effect, this assumes an equal probability of future PG&E activity across Units 1, 3, and 4.

116. Based on information provided by PG&E, a conference is assumed to require a similar level of effort as an informal section 7 consultation.<sup>103</sup> These conferences are assumed to be fully incremental because they would result from new information provided by the critical habitat designation and would not occur absent the designation of critical habitat in these areas. Therefore, the full cost to PG&E and the Service of undertaking these conferences is considered incremental. As described in Exhibit 4-3, the cost per effort to the Service and PG&E is estimated to be approximately \$10,550 (see note “a” in Exhibit 4-3). Total incremental costs under the PG&E HCP are estimated to be \$40,700 over the next 20 years.
117. PG&E does not anticipate that these conferences will result in additional conservation efforts being undertaken for the shrew. That is, the company would undertake shrew conservation efforts within project areas under the terms of its HCP regardless of critical habitat designation. The designation of critical habitat is expected to affect only the frequency with which the company confers with the Service.<sup>104</sup>

#### 4.2.2 UNIT 1: KERN NATIONAL WILDLIFE REFUGE

118. Refuge Managers do not anticipate that designation of critical habitat for the shrew will result in any changes to current shrew management strategies within the Kern National Wildlife Refuge in Unit 1.<sup>105</sup> Therefore, this analysis forecasts only incremental, administrative costs associated with considering adverse modifications as an additional component of the forecasted formal and informal consultations.
119. The Refuge anticipates having to conduct two formal consultations for the shrew over the next twenty years (one every ten years) and ten informal consultations over the next twenty years (one every other year).<sup>106</sup> The formal consultation is expected to be related to channel maintenance work, or other large-scale riparian restoration that may disturb shrew habitat areas. Informal consultations are anticipated to consider other smaller-scale Refuge activities or projects. As no third parties are included in the Service’s internal consultations at the Refuge, total incremental per consultation costs are \$1,870 for an informal and \$4,130 for a formal consultation (see note “b” in Exhibit 4-3). In total, incremental administrative impacts are forecast to be \$16,000 over the next 20 years.

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<sup>102</sup> PG&E has electric distribution lines in Unit 1, electric transmission and distribution facilities in Unit 4, and gas and electric transmission and distribution facilities in Unit 3. PG&E does not have gas or electric facilities within Units 2 or 5. Email communication from Robert Knutson, Pacific Gas and Electric, on September 8, 2010.

<sup>103</sup> Email communication from Robert Knutson, Pacific Gas and Electric, on August 2, 2010.

<sup>104</sup> Personal communication with Robert Knutson, Pacific Gas and Electric on July 9, 2010. Email communication from Robert Knutson, Pacific Gas and Electric, on August 2, 2010.

<sup>105</sup> Personal communication with David Hardt, Kern National Wildlife Refuge, July 1, 2010.

<sup>106</sup> Personal communication with David Hardt, Kern National Wildlife Refuge, July 1, 2010.

#### 4.2.3 UNIT 3: CITY OF BAKERSFIELD SHREW MANAGEMENT PLAN

120. As discussed in Chapter 3, the City of Bakersfield maintains a special management plan to protect the shrew and its habitat within Unit 3. The Service expects to undertake a review of this management plan to determine whether this plan provides adequate management for the species and its habitat. This review may result in recommendations for changes to shrew conservation prescribed in this plan. The City anticipates that the revised management plan will “involve increased monitoring and management responsibilities, additional assurances with regard to funding, preservation of the site as open space, and future implementation of the [management plan], and species monitoring and recovery.”<sup>107</sup> While the Service has not undertaken review of the plan yet, the Service does not anticipate that critical habitat designation will have any implications on the outcome of this review. That is, the Service expects any recommendations with respect to shrew conservation will be made regardless of the designation of critical habitat.<sup>108</sup>
121. This reasoning is due to the Service’s position that conservation efforts “taken to avoid impacts to individual shrews are also expected to minimize impacts to critical habitat.”<sup>109</sup> Any conservation efforts recommended to avoid affecting the shrew are therefore also expected to be sufficient to avoid adverse modification of its habitat.
122. We assume the level of effort the Service and City will undertake to review this plan will be equivalent to a formal consultation. We therefore quantify incremental administrative costs equivalent to incremental costs to consider critical habitat as part of formal section 7 consultation, as described in Exhibit 4-3. Thus, the Service’s review of this plan (assumed to occur in 2012) will result in a present value incremental impact of \$4,370 to the Service and City, assuming a seven percent real discount rate over twenty years.
123. We also assume that the City will undertake formal section 7 consultation on the Thomas Roads Improvement Program West Beltway project, and the Kern River downstream flows project. As plans for these projects have not yet been finalized and construction dates are not established, we assume two formal section 7 consultations will occur within the next 20 years for these projects.<sup>110</sup> Therefore, total impacts associated with City of Bakersfield activities, including review of the management plan and section 7 consultation on two future projects, are estimated at \$9,660 in present value terms, assuming a seven percent real discount rate over twenty years.

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<sup>107</sup> Letter from Art R. Chianello, City of Bakersfield Water Resources Department, November 17, 2010.

<sup>108</sup> Personal communication with US Fish and Wildlife Service, Sacramento Field Office, on August 16, 2010.

<sup>109</sup> U.S. Fish and Wildlife Service, Sacramento Field Office, “Comments on how the Economic Analysis Should Estimate Incremental Costs for the Buena Vista Lake Shrew Proposed Critical Habitat Designation,” April 19, 2010.

<sup>110</sup> In other words, to quantify present value impacts we assume an equal probability of the consultations occurring in each year across the time frame of our analysis.

**4.2.4 UNIT 4: COLES LEVEE ECOSYSTEM PRESERVE**

124. Aera Energy manages a portion of Unit 4 as the Coles Levee Ecosystem Preserve. As described in Chapter 3, portions of the proposed critical habitat unit are managed for conservation and activities are unlikely to result in adverse effects on the shrew or its habitat. In addition, the three oil wells within the unit are managed under a Conservation Easement Agreement that prescribes measures to protect threatened and endangered species and other species of concern in the project area. Conservation efforts undertaken in the Preserve and under the easement agreement are outlined in greater detail in Chapter 3.
125. While the Service is not a party to this conservation agreement, Aera Energy does not expect any changes to its current shrew conservation efforts as a result of critical habitat designation.<sup>111</sup> Aera Energy has never conducted a section 7 consultation for the shrew; however, the types of conservation efforts outlined under its conservation easement agreement are similar to those recommended by the Service in section 7 consultations for the shrew. While the Service may review the conservation easement agreement in the future, the Service does not anticipate that critical habitat designation will have any implications on the outcome of this review. That is, the Service expects any recommendations with respect to shrew conservation will be made regardless of the designation of critical habitat.<sup>112</sup>
126. As the Preserve has not conducted any consultations for the shrew, and Aera Energy does not anticipate any changes in level of activity in the Preserve, no section 7 consultations considering the shrew and its habitat are likely to occur in the foreseeable future. Should future economic activity change such that the section 7 consultation does occur, the designation of critical habitat is not expected to result in any additional conservation efforts for the species.<sup>113</sup>

**4.2.5 MULTIPLE UNITS: WATER DELIVERY AND PIPELINE PROJECTS SUBJECT TO CLEAN WATER ACT PERMITTING OR OTHER FEDERAL NEXUS**

127. Since 2002, the Service has conducted four informal section 7 consultations for the shrew with the USACE regarding CWA permitting activities, as described in Chapter 3. These consultations have considered potential impacts to shrew that may result from pipeline construction and removal, construction of a boat launching facility, and a bridge project either within or affecting Units 3 and 4. The USACE has not engaged in any projects within the proposed critical habitat Units 1, 2 or 5.
128. Discussions with USACE indicated that the designation of critical habitat was unlikely to change the rate at which USACE conducts section 7 consultation (i.e., they already consult on projects within proposed critical habitat), or the location of projects that may require section 7 consultation (i.e., the area in which the USACE permits projects is not

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<sup>111</sup> Personal communication with Mark Poe, Environmental Health and Safety Advisor, Aera Energy, on August 19, 2010.

<sup>112</sup> Personal communication with US Fish and Wildlife Service, Sacramento Field Office, on February 2, 2010.

<sup>113</sup> Written communication from the Service, Sacramento Field Office, January 24, 2011.

likely to broaden).<sup>114</sup> We accordingly expect a total of ten informal section 7 consultations over the next twenty years for USACE CWA permitting activities in Units 3 and 4 of proposed critical habitat. Absent specific information on when and where these activities may occur, we assume the consultations occur within the 20 year time frame of the analysis, and distribute the impacts across Units 3 and 4 proportional to the area of the proposed critical habitat units.

129. These consultations will occur even absent critical habitat due to the listing of the species. The Service anticipates that any conservation recommendations made as part of these consultations would be made regardless of critical habitat designation to avoid jeopardy to the species. We therefore quantify only administrative costs associated with considering adverse modification as incremental costs of critical habitat designation. Incremental costs of administrative effort per consultation are described in Exhibit 4-3. The present value of total incremental administrative costs for the ten consultations is \$12,600 over twenty years, assuming a seven percent real discount rate.
130. One stakeholder questioned the potential for critical habitat to result in USACE incorporating the entirety of the proposed critical habitat area as part of its “jurisdictional waters,” or waters of the United States.<sup>115</sup> However, based on discussions with USACE, critical habitat would not change USACE’s approach to identifying waters of the United States, or its jurisdiction in these areas.<sup>116</sup>
131. In addition to the CWA permit consultations, consultations regarding the Buena Vista lake shrew have occurred on a number of activities, including pipeline construction and removal, the delivery of water supplies under California’s Central Valley Project, pesticide application for invasive species, and restoration activities. Exhibit 4-4 summarizes the section 7 consultation history for the species since its listing in 2002 outside of those activities described in the previous sections of this Chapter.
132. As described by the Service, conservation efforts “taken to avoid impacts to individual shrews are also expected to minimize impacts to critical habitat.”<sup>117</sup> By this reasoning, critical habitat will not generate recommendations for additional conservation efforts through section 7 consultation. Incremental impacts of critical habitat are therefore limited to administrative costs associated with considering adverse modification in future section 7 consultations and technical assistance efforts.

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<sup>114</sup> Personal communication with Paul Maniccia, US Army Corps of Engineers, on July 12, 2010.

<sup>115</sup> Personal communication with Kern County Planning Department, on May 27, 2010.

<sup>116</sup> Personal communication with Paul Maniccia, US Army Corps of Engineers, on July 12, 2010.

<sup>117</sup> U.S. Fish and Wildlife Service, Sacramento Field Office, “Comments on how the Economic Analysis Should Estimate incremental Costs for the Buena Vista Lake Shrew Proposed Critical Habitat Designation,” April 19, 2010.

**EXHIBIT 4-4. ADDITIONAL SHREW SECTION 7 CONSULTATIONS WITHIN OR AFFECTING PROPOSED CRITICAL HABITAT**

ACTIVITY	PARTIES	NUMBER OF CONSULTATIONS		
		FORMAL	INFORMAL	TECH. ASSIST.
Agriculture	<ul style="list-style-type: none"> <li>▪ Mid-Valley Ranch</li> </ul>	0	0	1
Oil and Gas and Other Energy Development	<ul style="list-style-type: none"> <li>▪ Bureau of Reclamation</li> <li>▪ Environmental Protection Agency</li> <li>▪ Bureau of Land Management (BLM)</li> <li>▪ Plains All American Pipeline, L.P. under a programmatic biological opinion sponsored by BLM</li> <li>▪ EOTT Energy Corp. under a Kern Water Bank Master Permit administered by the Service</li> </ul>	2	0	1
Invasive Species	<ul style="list-style-type: none"> <li>▪ California Dept. of Food and Agriculture through BLM</li> </ul>	1	0	0
Restoration	<ul style="list-style-type: none"> <li>▪ Migratory Bird Conservation Commission under a North American Wetlands Conservation Act grant</li> </ul>	1	0	0
Transportation	<ul style="list-style-type: none"> <li>▪ Federal Railroad Administration</li> </ul>	0	1	0
Water Supplies	<ul style="list-style-type: none"> <li>▪ Bureau of Reclamation</li> <li>▪ Environmental Protection Agency</li> </ul>	2	3	1
<b>Total</b>		<b>6</b>	<b>4</b>	<b>3</b>
<p><b>Note:</b> To the extent possible, the summary excludes consultations where the activity occurred outside of shrew habitat areas.</p> <p><b>Source:</b> Consultation history provided by the Service on March 8, 2010.</p>				

133. Existing land use plans, and interviews with local planning department and relevant landowners did not identify specific future projects within the critical habitat area. Furthermore, the rate of activities subject to section consultation over the past nine years did not identify particular trends (i.e., increasing or decreasing activity levels over time). We therefore assume the mix of economic activities and rate of section 7 consultation will be similar in the foreseeable future to the past ten years.
134. This analysis forecasts a total of 15 formal consultations, ten informal consultations, and eight technical assistance efforts over the next twenty years. Absent specific information on where these activities will occur, the analysis assumes that they will either occur in or affect Units 2, 3, and 4 based on the location of past consultations (other than the intra-service consultations discussed in Section 4.2.2, no projects or activities within Units 1 or 5 have been subject to section 7 consultation). We distribute these impacts across the timeframe of the analysis, and across the Units 2, 3, and 4 proportional to the area of each proposed unit. Incremental costs of administrative effort per consultation are described in Exhibit 4-3. Total present value incremental costs of section 7 consultation regarding

these forecast activities is \$53,900 over twenty years, assuming a seven percent real discount rate.

135. As described in Section 3.8, there is ongoing solar development in lands surrounding the proposed critical habitat units, particularly Units 1 and 2. While there are currently no specific proposals for solar energy project in the proposed critical habitat, private lands within the proposed designation may be targeted for future solar projects. In the event that these lands are developed for solar energy, the projects would undergo section 7 consultation. The Service expects that the designation of critical habitat would not change the outcome of consultation, and any project modifications would be requested to avoid jeopardy to the species.<sup>118</sup> Therefore, we do not forecast any incremental impacts associated with the potential for future solar development.

#### 4.2.6 DRAFT CONSERVATION PLANS

136. In addition to the section 7 consultations identified above, potential exists for direct impacts associated with two conservation plans that are currently under development:
- **Southern California Gas Company HCP.** SoCal Gas currently conducts its activities under a section 7 programmatic biological opinion. Under discussion since 2008, the HCP is expected to cover the same activities as the biological opinion, including operation and maintenance for existing pipelines, as well as limited new construction projects. SoCal Gas has drafted an interim programmatic biological opinion to cover its activities while the HCP is being drafted. To date, the Service has not yet received a copy of the draft HCP.
  - **Kern County Valley Floor HCP.** This HCP has been in the planning stages for the past 19 years. If implemented, the program area would include four of the five critical habitat units (Units 1, 2, 4, and 5). The plan covers multiple economic activities including limited urban development, oil and gas development and other related activities, water district activities, and country road maintenance.
137. While these plans are still in draft form, conservation efforts under these plans are unlikely to change due to critical habitat because the Service anticipates recommending the same conservation efforts for the shrew regardless of critical habitat designation.<sup>119</sup> The designation of critical habitat may, however, result in an increased level of section 7 administrative effort to consult on these plans. However, absent information on whether and when these plans may be drafted, and consultation with the Service undertaken, we do not include incremental administrative costs of consultation in this analysis. In the case that these efforts do move forward and are subject to section 7 consultation, this analysis therefore underestimates incremental administrative costs.

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<sup>118</sup> Written communication from the Service, Sacramento Field Office, January 24, 2011.

<sup>119</sup> U.S. Fish and Wildlife Service, Sacramento Field Office, "Comments on how the Economic Analysis Should Estimate incremental Costs for the Buena Vista Lake Shrew Proposed Critical Habitat Designation," April 19, 2010.

**4.3 PRIVATELY-OWNED LANDS**

138. Unit 2 consists of 15 privately-owned parcels in Kern County. Exhibit 4-5 highlights the parcels that overlap Unit 2, while Exhibit 4-6 highlights all permitted agricultural activity surrounding Goose Lake. The entire area is exclusively zoned for agriculture, and enrolled in the Kern County Agricultural Preserve Program as described in Section 3.8. As part of enrollment in the Agricultural Preserve Program, the land must be used for the production of agricultural commodities or commercial livestock grazing.
139. As can be observed in Exhibit 4-5, only one working farm, owned by Buttonwillow Land and Cattle Co., intersects with Unit 2. This parcel is permitted for wheat production.<sup>120</sup> As illustrated in Exhibit 4-7, Unit 5 is privately-owned by a single landowner, the J.G. Boswell Company. Entirely zoned for agricultural use, this 89 acre area is the only existing critical habitat for the shrew, as designated in 2005.<sup>121</sup> The landowner has not conducted any section 7 consultations with the Service since being designated as critical habitat,<sup>122</sup> suggesting that no Federal nexus exists for activities in this Unit.
140. Due to the zoning and limited land uses in the two privately-owned units, we do not anticipate significant changes in activity in the future. Thus, forecast consultations in these units are limited to those described in Section 4.2 associated with occasional permitted pipeline, restoration, or water projects.

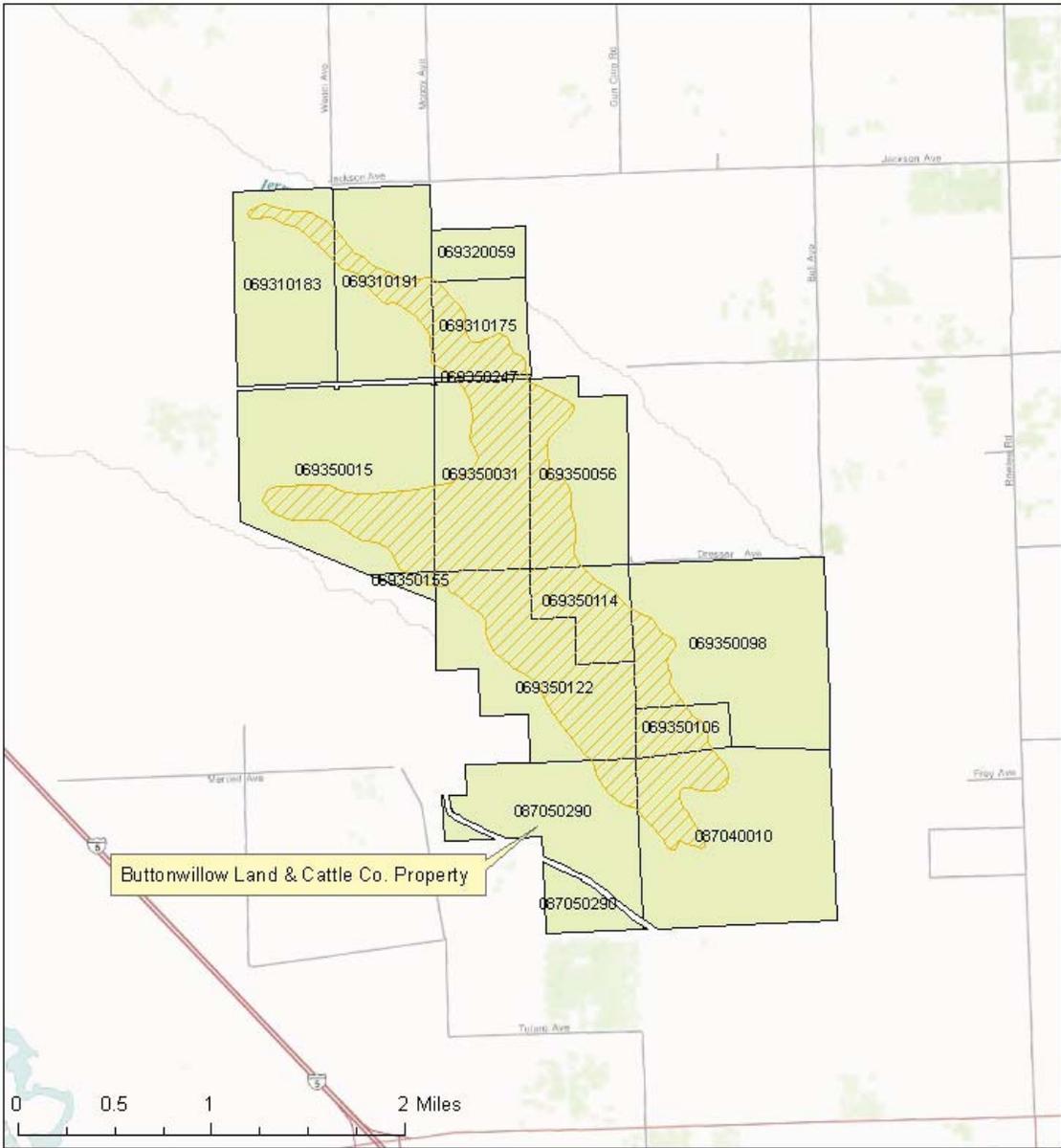
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<sup>120</sup> Kern County. Kern 2009 "Crop Maps 2009." Created by Kern County Department of Agriculture and Measurements. December 31, 2009.

<sup>121</sup> 2005 Final Rule 70 FR 3438.

<sup>122</sup> Review of section 7 consultation history provided by the Service March 8, 2010.

EXHIBIT 4-5. GOOSE LAKE UNIT 2 AFFECTED PRIVATE LAND PARCEL



### Unit 2: Goose Lake

#### Legend

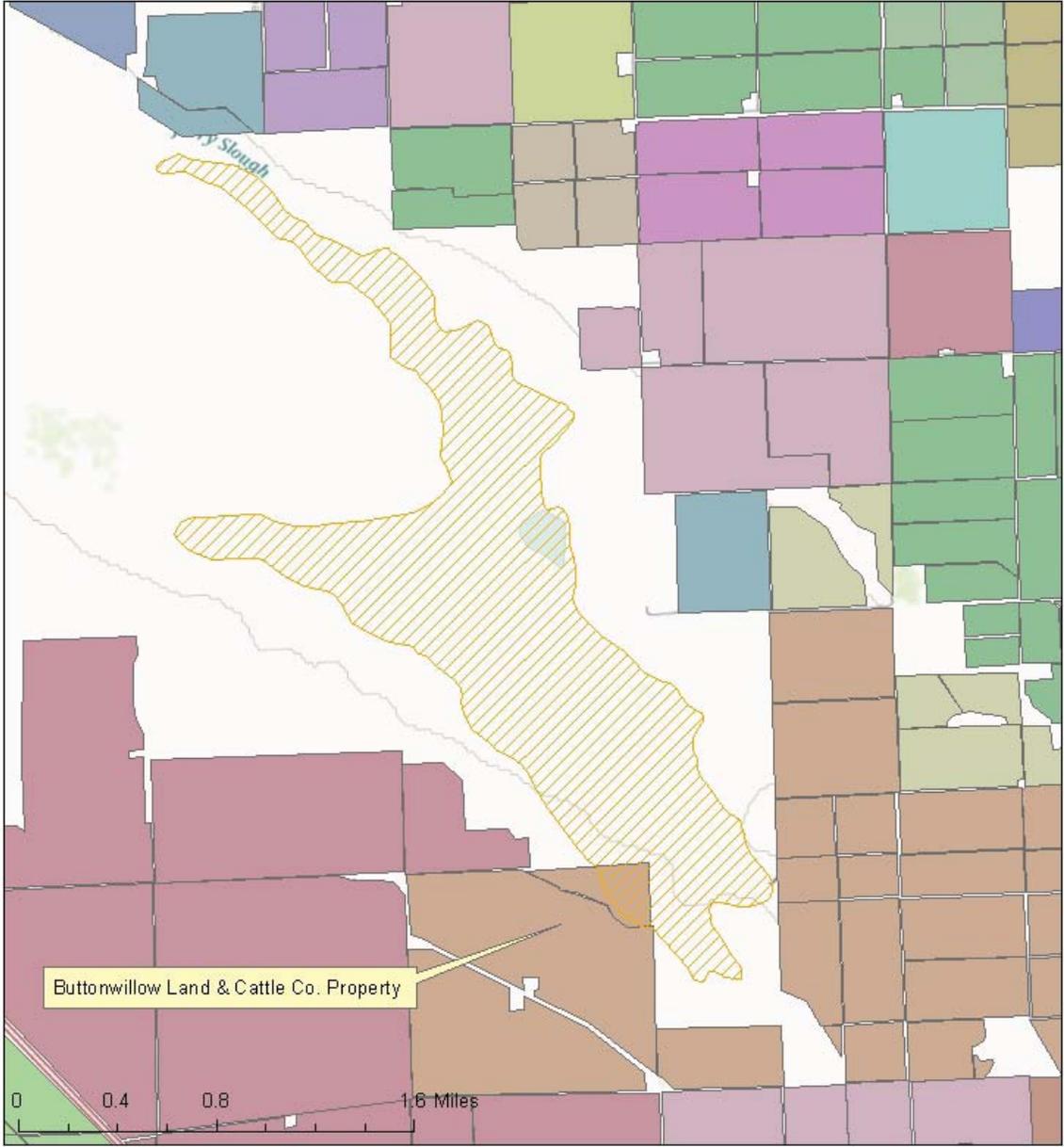
-  Proposed Critical Habitat
-  Private Land Parcels



Projection: NAD\_1983\_UTM\_Zone\_10N  
 Sources:  
 1. ESRI, Inc.  
 2. US Fish and Wildlife Service  
 2. Kern County Planning Department



EXHIBIT 4-6. GOOSE LAKE UNIT PERMITTED AGRICULTURAL PARCELS



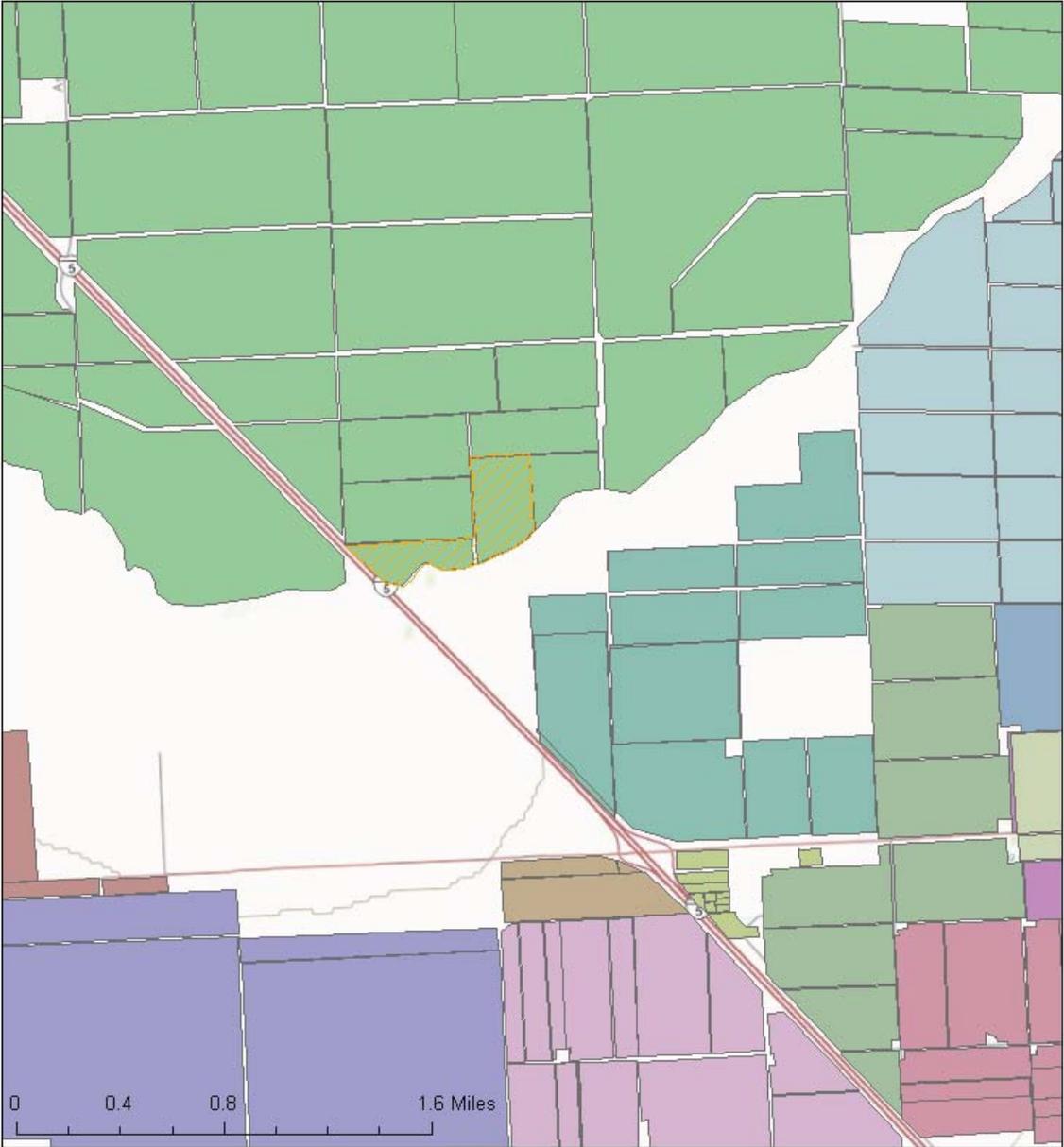
### Unit 2: Goose Lake

- PROPOSED CRITICAL HABITAT
- A & P RANCH
- ACDF, LLC
- BUTTONWILLOW LAND & CATTLE CO.
- D&J FARM MANAGEMENT
- FABBRI FARMING CO., LLC
- FARMLAND MANAGEMENT SERVICE
- J M C FARMS
- JIM VALOV
- JOHN A. MILLER FARMS
- LESTER NEUFELD & SONNEUHOUSE
- MC CONNELL FARMS
- MOZINGO AG. ENTERPRISES
- OWL RANCH
- PETE ROMANINI
- SAND H FARMS
- SANDRIDGE FARMS
- WEGIS RANCH



Projection: NAD\_1983\_UTM\_Zone\_10N  
 Sources:  
 1. ESRI, Inc.  
 2. US Fish and Wildlife Service  
 2. Kern County Planning Department

EXHIBIT 4-7. KERN LAKE UNIT PERMITTED AGRICULTURAL ACTIVITY



### Unit 5: Kern Lake

- PROPOSED CRITICAL HABITAT
- BUONI FORD
- DOUGLAS KOPHAMER
- FOUR STAR FRUIT, INC.
- GREENLEE FARMS
- GRIMMWAY ENTERPRISES
- J. G. BOSWELL CO.
- JIMMIE ICARDO FARMS, INC.
- METTLER
- SOUTHERN CHERRY INVESTMENT
- STEVE MURRAY FARMS
- V & C FARMS
- WALKER FRY RANCH
- WHEELER FARMS



Projection: NAD\_1983\_UTM\_Zone\_10N  
 Sources:  
 1. ESRI, Inc.  
 2. US Fish and Wildlife Service  
 2. Kern County Planning Department



#### 4.4 POTENTIAL INDIRECT IMPACTS

141. Even in the absence of critical habitat, CEQA requires the identification of the environmental effects of proposed projects that have the potential to harm sensitive species or habitat (state- or federally-listed). The “Lead Agency” typically requires projects that may affect sensitive species or habitat to undertake a biological assessment by a qualified biologist to determine the potential for impacts to all rare, threatened and endangered species.<sup>123</sup>
142. The designation of critical habitat has the potential to change how local agencies implement CEQA.<sup>124</sup> For example, the mapping of critical habitat areas may result in local agencies becoming more aware of where CEQA review must consider certain species. It may also prevent certain types of projects from claiming a categorical exemption under CEQA.
143. The majority of proposed critical habitat for the shrew, however, is already managed such that the types of projects that may trigger CEQA are largely precluded. Units 1, 3, and 4 are protected from future agricultural and urban development by existing conservation plans, zoning, and management. Units 1 and 4 are managed as a wildlife refuge and an ecological preserve, respectively, while Unit 3 is zoned as open space under the City of Bakersfield’s General Plan. Under this designation the site is “protected from future agricultural and urban development.”<sup>125</sup> Accordingly, no development projects are forecast for these areas that may be subject to CEQA review.
144. Units 2 and 5 are zoned entirely for agricultural use. Projects related to agriculture may be subject to CEQA review if the project:
- Converts farmland to non-agricultural use;
  - Conflicts with existing zoning for agriculture use; or
  - Involves other changes to the existing environment that could result in the conversion of farmland to non-agricultural use.<sup>126</sup>
145. This analysis has not identified any projects in these units that would result in conversion to non-agricultural use, or otherwise conflict with existing zoning. While there is the potential for solar development, these likelihood and location of any future solar energy development proposals are unknown.

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<sup>123</sup> Under CEQA, the Lead Agency is the public agency that has the principal responsibility for carrying out or approving a project that is subject to CEQA. In general, a local government agency with jurisdiction over general land uses serves as the lead agency. See South Coast Air Management District, *Frequently Asked CEQA Questions*, accessed at: <http://www.aqmd.gov/ceqa/faq.html#What is a lead agency?>.

<sup>124</sup> Personal communication with Ted James, Kern County Planning Director, on May 26, 2010.

<sup>125</sup> Live Oak Associates, Inc., Buena Vista Lake Shrew Habitat Management Plan for the Kern Fan Water Recharge Site, December 10, 2004.

<sup>126</sup> See Office of Planning, Design and Construction, Office of the President, University of California, UC CEQA Handbook, accessed at: [http://www.ucop.edu/budget/pep/ceqacomp/CEQA-Handbook/chapter\\_03/3.3.html](http://www.ucop.edu/budget/pep/ceqacomp/CEQA-Handbook/chapter_03/3.3.html) on August 30, 2010.

#### 4.5 SOURCES OF UNCERTAINTY

146. The key conclusion of this analysis is that the Service is not able to envision a circumstance in which critical habitat will change the outcome of section 7 consultation regarding the shrew and its habitat. To the extent future land management and uses within the proposed critical habitat area are different from those forecast in this analysis, we underestimate or overestimate incremental administrative costs of consultation. However, regardless of the future land use and land management, the Service does not expect conservation activities and measures for the shrew to be affected by the designation of critical habitat. Thus, the following uncertainties affect only our accounting of the incremental administrative costs of consultation.
147. The analysis of the incremental impacts of critical habitat designation are subject to the following key uncertainties:
- **The number and location of future land use activities is not known:** Activities such as agriculture, energy development, and pipeline construction are subject to section 7 consultation regarding the shrew and its habitat. Specific land use plans are not available, however, describing the projected level of activity of these types of projects. In the absence of these planning documents, we rely on the best available information derived from interviews with local landowners and manager, as well as historical precedence through the recent consultation history for the shrew. If activity levels increase in the future, this analysis underestimates associated incremental costs of section 7 consultation.
  - **The potential for critical habitat to result in additional CEQA review or requirements is uncertain.** The analysis does not identify any future projects that may be subject to CEQA review. Current land use, zoning, conservation plans, and management all preclude the types of development projects that may be subject to CEQA. However, in the case that land use changes occur in Units 2 and 5 (i.e., away from agriculture and convert their land to other uses such as solar energy), CEQA review may occur. In this case, critical habitat may add to the level of effort of CEQA review or increase the number of projects subject to CEQA review. As a result, incremental impacts may be underestimated in this report.
  - **Future shrew conservation described in the draft HCPs is not certain.** Two draft HCPs are being developed that intend to incorporate shrew conservation. The details of these plans (land area covered and shrew conservation described) are uncertain. To the extent that these HCPs are developed, this analysis underestimates administrative incremental impacts by not incorporating costs consultation with the Service regarding the HCPs. On the other hand, if the HCPs are developed and prescribe conservation for activities occurring within critical habitat, we may overestimate the number of future per-project consultations and associated costs in this analysis (i.e., the HCP may preclude the need for consultation on every individual project covered by the plan).

- **The potential for future solar energy projects within proposed critical habitat is uncertain.** Solar energy projects have been recently proposed in areas adjacent to critical habitat indicating some increased levels of development pressure for alternative energy projects in the region. While current land use and management in the region suggests it is unlikely solar energy projects will be proposed within critical habitat, to the extent that this changes in the future, this analysis underestimates the incremental administrative impacts of consultation regarding these projects.

## CHAPTER 5 | ECONOMIC BENEFITS OF CRITICAL HABITAT DESIGNATION FOR THE BUENA VISTA LAKE SHREW

148. No changes in economic activity or land management are expected to result from critical habitat designation. Absent changes in land management or shrew conservation efforts, no incremental economic benefits are forecast to result from designation of critical habitat.
149. The primary intended benefit of critical habitat is to support the conservation of threatened and endangered species, such as the Buena Vista Lake shrew. Thus, attempts to develop monetary estimates of the benefits of this proposed critical habitat designation would focus on the public's willingness to pay to achieve the conservation benefits to the shrew resulting from this designation.
150. Quantification and monetization of species conservation benefits requires information on the incremental change in the probability of shrew conservation that is expected to result from the designation. As described in Chapters 3 and 4, however, modifications to future projects are unlikely given the extensive baseline protections already provided to shrew habitat under various conservation plans and the lack of a Federal nexus on privately-owned parcels.
151. Numerous published studies estimate individuals' willingness to pay to protect endangered species. The economic values reported in these studies reflect various groupings of benefit categories (including both use and non-use values). For example, these studies assess public willingness to pay for wildlife-viewing opportunities, for the option for seeing or experiencing the species in the future, to assure that the species will exist for future generations, and simply knowing a species exists, among other values. Unfortunately, this literature addresses a relatively narrow range of species and circumstances compared to the hundreds of species and habitats that are the focus of the Act. Specifically, existing studies focus almost exclusively on large mammal, bird, and fish species, and generally do not report values for incremental changes in species conservation.
152. Other benefits may also be achieved through designation of critical habitat. For example, the public may hold a value for habitat conservation, beyond its willingness to pay for conservation of a specific species. Studies have been done that estimate the public's willingness to pay to preserve wilderness areas, for wildlife management and preservation programs, and for wildlife protection in general. These studies address categories of benefits (e.g., ecosystem integrity) that may be similar to the types of benefits provided by critical habitat, but do not provide values that can be used to establish the incremental values associated with this proposed critical habitat designation (i.e., the ecosystem and

species protection measures considered in these studies are too dissimilar from the habitat protection benefits that may be afforded by this designation). Again, because the designation of critical habitat for the shrew is unlikely to preserve new areas or protect wildlife above existing baseline protections, such benefits are unlikely.

153. Similarly, economists have conducted research on the economic value of ancillary benefits, such as the preservation of open space, which may positively affect the value of neighboring parcels, or maintenance of natural hydrologic functions of an ecosystem, which result in improved downstream water quality. Ancillary benefits are unlikely given that no changes in behavior to protect such resources are anticipated to result from the designation.

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## APPENDIX A | SMALL BUSINESS ANALYSIS AND ENERGY IMPACTS ANALYSIS

1. This appendix considers the extent to which incremental impacts from critical habitat designation may be borne by small entities and the energy industry. The analysis presented in Section A.1 is conducted pursuant to the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996. The energy analysis in Section A.2 is conducted pursuant to Executive Order No. 13211.
2. The analyses of impacts to small entities and the energy industry rely on the estimated incremental impacts resulting from the proposed critical habitat designation. The incremental impacts of the rulemaking are most relevant for the small business and energy impacts analyses because they reflect costs that may be avoided or reduced based on decisions regarding the composition of the final rule. Any baseline impacts associated with the listing of the shrew and other Federal, State, and local regulations and policies are expected to occur regardless of the outcome of this rulemaking.

### A.1 SBREFA ANALYSIS

3. When a Federal agency proposes regulations, the RFA requires the agency to prepare and make available for public comment an analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions as defined by the RFA).<sup>1</sup> No initial 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. To assist in this process, this appendix provides a screening level analysis of the potential for shrew critical habitat to affect small entities.
4. To ensure broad consideration of impacts on small entities, the Service has prepared this small business analysis without first making the threshold determination in the proposed rule regarding whether the proposed critical habitat designation could be certified as not having a significant economic impact on a substantial number of small entities. This small business analysis will therefore inform the Service's threshold determination.

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<sup>1</sup> 5 U.S.C. § 601 et seq.

**A.1.1 SUMMARY OF IMPACTS TO SMALL ENTITIES**

5. This screening analysis is based on the estimated incremental impacts associated with the proposed rulemaking. As estimated in Chapter 4 of this analysis, incremental impacts limited to additional administrative costs of time spent by the Service, Federal action agency, and any third parties in section 7 consultation.
6. Small entities may participate in section 7 consultation as a third party (the primary consulting parties being the Service and the Federal action agency). It is therefore possible that the small entities may spend additional time considering critical habitat during section 7 consultation for shrew. These incremental administrative impacts to third parties are also considered in this analysis. Additional incremental costs of consultation that would be borne by the Federal action agency and the Service are not relevant to this screening analysis as these entities (Federal agencies) are not small.
7. Incremental impacts are expected to consist entirely of administrative costs. These costs are likely to be borne by city and county governmental jurisdictions, as well as several energy utilities. Exhibit A-1 describes entities that potentially may be affected by critical habitat designation and assesses whether they are considered small entities under the RFA based on the applicable small entity thresholds by North American Industry Classification System (NAICS) code.
8. As shown in Exhibit A-1, none of the entities expected to bear incremental impacts is considered to be small under the RFA. Potentially, some incremental impacts borne by the energy utilities may be passed on to individual customers in the form of increased energy prices. However, given the small size of the impacts, such an outcome is unlikely.

## EXHIBIT A-1. SUMMARY OF ENTITIES AND GOVERNMENTAL JURISDICTIONS POTENTIALLY AFFECTED

GOVERNMENTAL JURISDICTION / COMPANY	SMALL ENTITY SIZE STANDARD	RELEVANT CRITERIA	SMALL ENTITY UNDER THE RFA	ANNUALIZED INCREMENTAL ECONOMIC IMPACTS TO SMALL BUSINESSES (7%)	IMPACTS AS % OF ANNUAL REVENUES
City of Bakersfield	50,000 people served	308,392	No	n/a	n/a
Kern County		807,407	No	n/a	n/a
Pacific Gas and Electric (NAICS 221)	4 million megawatt hours produced annually	79.585 million megawatt hours	No	n/a	n/a
Southern California Gas Company (NAICS 486210)	\$7.0 million in annual revenues	\$3,565 million	No	n/a	n/a

Note: Governmental jurisdictions include county or municipal agencies and departments.

Source: US Census Bureau, State and County Quickfacts, accessed at: <http://quickfacts.census.gov/qfd/states/06/06037.html> on August 5, 2010. US Securities and Exchange Commission, Form 10-K for Pacific Gas and Electric Company for the fiscal year ended December 31, 2009. Sempra Energy, Annual Report for the fiscal year ended December 31, 2009.

**A.1.2 DETAILED ANALYSIS OF IMPACTS TO SMALL BUSINESSES**

9. This analysis is intended to improve the Service's understanding of the potential effects of the proposed rule on small entities and to identify opportunities to minimize these impacts in the final rulemaking. The Act requires the Service to designate critical habitat for threatened and endangered species to the maximum extent prudent and determinable. Section 4(b)(2) of the Act requires that the Service designate critical habitat "on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impacts, of specifying any particular area as critical habitat." This section grants the Secretary [of the Interior] discretion to exclude any area from critical habitat if (s)he determines "the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat". However, the Secretary may not exclude an area if it "will result in the extinction of the species."
10. Three types of small entities are defined in the RFA:
- **Small Business** - Section 601(3) of the RFA defines a small business as having the same meaning as small business concern under section 3 of the Small Business Act. This includes any firm that is independently owned and operated and is not dominant in its field of operation. The SBA has developed size standards to carry out the purposes of the Small Business Act, and those size standards can be found in 13 CFR 121.201. The size standards are matched to NAICS industries. The SBA definition of a small business applies to a firm's parent company and all affiliates as a single entity.
  - **Small Governmental Jurisdiction** - Section 601(5) defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with a population of less than 50,000. Special districts may include those servicing irrigation, ports, parks and recreation, sanitation, drainage, soil and water conservation, road assessment, etc. When counties have populations greater than 50,000, those municipalities of fewer than 50,000 can be identified using population reports. Other types of small government entities are not as easily identified under this standard, as they are not typically classified by population.
  - **Small Organization** - Section 601(4) defines a small organization as any not-for-profit enterprise that is independently owned and operated and not dominant in its field. Small organizations may include private hospitals, educational institutions, irrigation districts, public utilities, agricultural co-ops, etc.
11. The courts have held that the RFA/SBREFEA requires Federal agencies to perform a regulatory flexibility analysis of forecast impacts to small entities that are directly regulated. In the case of *Mid-Tex Electric Cooperative, Inc., v. Federal Energy Regulatory Commission (FERC)*, FERC proposed regulations affecting the manner in which generating utilities incorporated construction work in progress in their rates. The generating utilities that expected to be regulated were large businesses; however, their

customers -- transmitting utilities such as electric cooperatives -- included numerous small entities. In this case, the court agreed that FERC simply authorized large electric generators to pass these costs through to their transmitting and retail utility customers, and FERC could therefore certify that small entities were not directly impacted within the definition of the RFA.<sup>2</sup>

12. Similarly, *American Trucking Associations, Inc. v. Environmental Protection Agency* (EPA) addressed a rulemaking in which EPA established a primary national ambient air quality standard for ozone and particulate matter.<sup>3</sup> The basis of EPA's RFA/SBREFEA certification was that this standard did not directly regulate small entities; instead, small entities were indirectly regulated through the implementation of state plans that incorporated the standards. The court found that, while EPA imposed regulation on states, it did not have authority under this rule to impose regulations directly on small entities and therefore small entities were not directly impacted within the definition of the RFA.
13. The SBA, in its guidance on how to comply with the RFA, recognizes that consideration of indirectly affected small entities is not required by the RFA, but encourages agencies to perform a regulatory flexibility analysis even when the impacts of its regulation are indirect.<sup>4</sup> "If an agency can accomplish its statutory mission in a more cost-effective manner, the Office of Advocacy [of the SBA] believes that it is good public policy to do so. The only way an agency can determine this is if it does not certify regulations that it knows will have a significant impact on small entities even if the small entities are regulated by a delegation of authority from the Federal agency to some other governing body."<sup>5</sup>
14. The regulatory mechanism through which critical habitat protections are enforced is section 7 of the Act, which directly regulates only those activities carried out, funded, or permitted by a Federal agency. By definition, Federal agencies are not considered small entities, although the activities they may fund or permit may be proposed or carried out by small entities. Given the SBA guidance described above, this analysis considers the extent to which this designation could potentially affect small entities, regardless of whether these entities would be directly regulated by the Service through the proposed rule or by a delegation of impact from the directly regulated entity.
15. This screening analysis focuses on small entities that may bear the incremental impacts of this rulemaking quantified in Chapter 4 of this economic analysis. Small entities also may participate in section 7 consultation as a third party (the primary consulting parties being the Service and the Federal action agency). It is therefore possible that the small entities may spend additional time considering critical habitat during section 7

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<sup>2</sup> 773 F. 2d 327 (D.C. Cir. 1985).

<sup>3</sup> 175 F. 3d 1027, 1044 (D.C. Cir. 1999).

<sup>4</sup> Small Business Administration, Office of Advocacy. May 2003. A Guide for Government Agencies: How to Comply with the Regulatory Flexibility Act, pg. 20.

<sup>5</sup> *Ibid.*, pg. 21.

consultation for the shrew. These incremental administrative impacts to third parties are discussed in Chapter 3 of this analysis. Additional incremental costs of consultation that would be borne by the Federal action agency and the Service are not relevant to this screening analysis as these entities (Federal agencies) are not small.

16. As described above and detailed in Chapter 4 of this report, estimated incremental costs consist entirely of administrative impacts associated with section 7 consultation. In total, the analysis estimates \$25,800 in incremental impacts may be borne by third-party participants in section 7 consultation. As shown in Exhibit A-1, none of these third-party entities meets SBA's definition of a small government or business.

## **A.2 POTENTIAL IMPACTS TO THE ENERGY INDUSTRY**

17. Pursuant to Executive Order No. 13211, "Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use," issued May 18, 2001, Federal agencies must prepare and submit a "Statement of Energy Effects" for all "significant energy actions." The purpose of this requirement is to ensure that all Federal agencies "appropriately weigh and consider the effects of the Federal Government's regulations on the supply, distribution, and use of energy."<sup>6</sup>
18. The Office of Management and Budget provides guidance for implementing this Executive Order, outlining nine outcomes that may constitute "a significant adverse effect" when compared with the regulatory action under consideration:
- Reductions in crude oil supply in excess of 10,000 barrels per day (bbls);
  - Reductions in fuel production in excess of 4,000 barrels per day;
  - Reductions in coal production in excess of 5 million tons per year;
  - Reductions in natural gas production in excess of 25 million Mcf per year;
  - Reductions in electricity production in excess of 1 billion kilowatts-hours per year or in excess of 500 megawatts of installed capacity;
  - Increases in energy use required by the regulatory action that exceed the thresholds above;
  - Increases in the cost of energy production in excess of one percent;
  - Increases in the cost of energy distribution in excess of one percent; or
  - Other similarly adverse outcomes.<sup>7</sup>
19. Although Pacific Gas and Electric and Southern California Gas Company operate facilities within the proposed designation, the Service does not anticipate recommending additional shrew conservation on these activities due to the designation of critical habitat.

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<sup>6</sup> Memorandum For Heads of Executive Department Agencies, and Independent Regulatory Agencies, Guidance For Implementing E.O. 13211, M-01-27, Office of Management and Budget, July 13, 2001, <http://www.whitehouse.gov/omb/memoranda/m01-27.html>.

<sup>7</sup> Ibid.

As a result, we do not anticipate critical habitat designation to affect energy use, production, or distribution. Additional administrative time spent in consultation with the Service due to critical habitat may cost these companies \$1,020 on an annualized basis, less than 0.01 percent of the annual revenues of either PG&E and SoCal Gas.<sup>8</sup>

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<sup>8</sup> Revenue information obtained from US Securities and Exchange Commission, Form 10-k for PG&E Corp for the fiscal year ending December 31, 2009, and US Securities and Exchange Commission, Form 10-K for Sempra Energy, San Diego Gas and Electric Company, Pacific Enterprises, and Southern California Gas Company for the fiscal year ending December 31, 2009.

**APPENDIX B | SENSITIVITY OF RESULTS TO DISCOUNT RATE**

1. This appendix summarizes the costs of shrew conservation quantified in Chapter 4 of this report. It presents impacts assuming an alternative real discount rate of three percent (the main text of the report assumes a real discount rate of seven percent).

**EXHIBIT B-1. ESTIMATED INCREMENTAL IMPACTS, BY HABITAT UNIT (2010\$, DISCOUNTED AT 3 PERCENT)**

UNIT	UNIT NAME	PRESENT VALUE	ANNUALIZED
1	Kern National Wildlife Refuge	\$27,600	\$1,800
2	Goose Lake	\$23,200	\$1,510
3	Kern Fan Recharge Area	\$123,000	\$8,020
4	Coles Levee	\$8,820	\$576
5	Kern Lake	\$0	\$0
<b>Total</b>		<b>\$183,000</b>	<b>\$11,900</b>

**APPENDIX C:**

**INFORMATION FROM THE U.S. FISH AND WILDLIFE SERVICE  
REGARDING POTENTIAL CHANGES IN CONSERVATION FOR THE  
BUENA VISTA LAKE SHREW FOLLOWING DESIGNATION OF CRITICAL HABITAT**

**Comments on how the Draft Economic Analysis Should Estimate Incremental Costs for the Buena Vista Lake Shrew Proposed Critical Habitat Designation**

April 19, 2010

The proposed critical habitat units for the Buena Vista Lake shrew (shrew) represent habitat-based population distributions associated with known occurrence records for this species. The distribution of units is an attempt to include areas representing the geographic distribution of the species across its range. A jeopardy analysis for this species would look at the magnitude of the project's impacts relevant to the populations across the species' entire range. Furthermore, the jeopardy analysis would focus on effects to the species' reproduction, numbers, or distribution. An adverse modification analysis would focus on a project's impacts to the physical features (primary constituent elements (PCEs)), or other habitat characteristics in areas determined by the Secretary to be essential for the conservation of the species, and analyze impacts to the capability of the critical habitat unit to maintain its conservation role and function for the subspecies.

The basis for delineation of proposed critical habitat unit areas includes only occupied areas that we have determined to have the primary constituent elements and that are essential to the shrew. Canals, open water areas, and other nonessential areas have been omitted. These units are delineated based on known locations of occurrences of the species throughout its range, and comprise suitable habitat areas of relict San Joaquin Valley riparian communities that provide for the essential lifecycle needs of the species, and that provide the habitat components essential for the conservation of this species. The proposal is inclusive of the geographic habitat areas needed for long-term conservation of Buena Vista Lake shrew populations. We do not have information on density of occupancy for the proposed units.

Buena Vista Lake shrews live in a landscape that is influenced by a Mediterranean climate. The best available information suggests that essential habitat features for shrews generally include perennial or intermittently moist wetlands that have a dense vegetative cover with a layered vertical structure and an abundant layer of detritus. Historically, shrews were likely distributed throughout the swampy margins of Kern, Buena Vista, Goose, and Tulare Lake Basins; however, little is known about the current distribution and population numbers of shrews. Although shrews are reported to be associated with species such as Fremont cottonwood (*Populus fremontii*), willows (*Salix* spp.), glasswort, alkali heath, wild-rye grass (*Elymus* sp.), and Baltic rush (*Juncus balticus*), it is generally thought that the structure of the vegetation community, rather than species composition, determines suitable habitat. Studies at the Kern National Wildlife Refuge have closely associated shrew presence with dense riparian understories that provide food, cover, and moisture.

Specific information on habitat use is not known. In general, shrews species feed indiscriminately on the available larvae and adults of several species of aquatic and terrestrial insects. Though the specific feeding and foraging habits of the shrew are unknown, food is probably not cached and stored, so the shrew must actively forage intermittently throughout the day and night to maintain their high metabolic rate. Home range size is not currently known; the average home range size of the closely-related vagrant shrew (*Sorex vagrans*), found in the Sierra Nevada, was determined to be 372 square meters (4,000 square feet). Little is known about the reproduction and mating system of the shrew, though based on studies of other *Sorex* spp., it is likely that shrews can produce up to two litters per year containing four to

six young. For Buena Vista Lake shrews, the breeding season begins in February or March, and ends with the onset of the dry season in May or June, or may extend later in the year, based on habitat quality and availability of water. Shrews, on the average, rarely live more than 12 months, and each generation is largely replaced annually. Except for the breeding season, shrews are thought to be generally solitary. As juveniles, they establish their home range, which is a small area in which they nest, forage, and explore, and where they remain for most of their life. Information on dispersal distance and frequency, small population size, and inbreeding is unknown.

When consulting under section 7 of the Act in designated critical habitat, independent analyses are separately made for jeopardy and adverse modification. Avoidance of impacts, rather than some form of compensation, is strongly encouraged in consultations for projects in suitable shrew habitat, especially in areas where shrews have been reported. In general, impacts to wetland features are avoided whenever possible. If avoidance of incidental take is not possible, we look to minimize habitat impacts. Beyond suggesting modifications to project designs, we may allow project proponents to off-set project effects through the dedication of in-kind habitat to be preserved and protected at another location, preferably within the same critical habitat unit. The availability of in-kind habitat is scarce, so we may also allow for a combination of habitat preservation and habitat restoration or creation to off-set project effects. As little is currently known regarding habitat use by shrews, we do not differentiate among feeding, breeding, or dispersal habitat types.

Because the shrew are generally restricted to habitats with specific conditions, and are not known to migrate or move far from their limited home ranges, projects that are expected to affect individual shrews are habitat-disturbing projects. Therefore, project descriptions that are modified to avoid impacts to individuals also minimize impacts to the designated critical habitat. In general, measures implemented solely to minimize impacts to individuals seldom differ from those implemented to minimize impacts to the critical habitat. As a result, potential economic impacts from conservation efforts that may be implemented to avoid adverse modification of critical habitat are considered parallel with efforts to avoid impacts to shrews and, for the purposes of the economic analysis, should be considered to be baseline costs. Therefore, the incremental costs in these consultations will likely be limited to administrative costs.

As stated above, although all proposed critical habitat units support at least one occurrence and are therefore considered occupied, shrews may not be present or detected every year at a given location within the critical habitat area. Thus, even if the subspecies is not present within a project footprint at the time that surveys occur, the Service would still assume presence and need to analyze any affects both to members of the species and to PCEs within designated critical habitat. As these areas are considered occupied, it is not plausible to differentiate between measures implemented to minimize any such impacts to underlying habitat characteristics (PCEs) and measures implemented to minimize impacts to individuals and to avoid jeopardy to the species range-wide.

An action may be likely to result in adverse modification if the impacts affect the ability of that portion of the critical habitat unit to continue to function and support occupancy. For example, removal of vegetative structure, including the clearing of litter, duff, and down logs, within a small isolated critical habitat unit could result in adverse modification if it reduced the ability of adult shrews to access the feature during that year or in future years. Such removal could alter occupied portions of the critical habitat to become unsuitable for feeding, breeding, or sheltering behavior by shrews. Conversely, if impacts to a critical habitat unit are proportionally small, they may not significantly reduce the habitat's

ability to support such behaviors by shrews. As such, the loss of a small or de minimus portion of the critical habitat unit may not result in a determination of adverse modification.

If we determine that an adverse modification finding may be likely, we would suggest changes to the project or suggest reasonable and prudent alternatives to eliminate or reduce the impacts. These measures or alternatives may include modifying the project such that (1) a lower level of land use would occur (i.e., minimize project disturbance footprint by locating staging areas and all ancillary project lay down areas a minimum of 100 feet from riparian and potential shrew habitat areas; (2) wetland and suitable habitat areas would be avoided; and (3) project proponent would be required to implement Best Management Practices to protect PCE habitat features. However, we would also suggest these changes to reduce impacts to individual shrews.

In summary, critical habitat units have been designated based on the presence of occupied shrew habitat. Therefore, for any project proposed within a critical habitat unit, the Service will be assuming that the shrew is present, regardless of individual survey results. Measures taken to avoid impacts to individual shrews are also expected to minimize impacts to critical habitat. Therefore we do not expect that designation of critical habitat will greatly affect the outcome of section 7 consultations. Nor do we expect that incremental costs will exceed baseline costs.

*To IEC from U.S. Fish and Wildlife Service, Sacramento Field Office:*

**Date:** 5/27/2010 6:29 PM  
**Subject:** Fw: Buena Vista Lake Shrew pCH

Thank you for saying that you were still waiting for information from us - I thought that I had sent it all. I checked back in my emails and have found that I missed the final step in getting this information to you - I sent you the partial response, but not the full response. Here is the full response.

----- Forwarded on 05/27/2010 02:50 PM -----

I've transcribed the answers to your questions below (in red), based on our conversation about these proposed units.

05/07/2010 01:08 PM  
Subject  
Buena Vista Lake Shrew pCH

Thanks for taking the time to speak with us yesterday. We have included a list of the issues we discussed on yesterday's call. We also include specific questions for which responses will be important for the economic analysis.

Issue #1) Maps: You mentioned that there may be changes in the pCH maps. Our understanding is that there may be additional areas included in the pCH for the shrew. In this case, the Service will publish a revision to the proposed boundaries along with the NOA for the draft economic analysis (DEA). If additional areas are included, the DEA will need to quantify impacts of designation in those areas.

Questions:

- a) What are the changes in pCH? *Although the potential for changes to proposed critical habitat was mentioned, we have discussed this further and have determined that we will not make changes to the proposed critical habitat.*
- b) When do you anticipate new maps (GIS shape files) will be available? *N/A*
- c) Are the new areas subject to additional threats to the shrew and its habitat not discussed in the current proposed rule? *N/A*

Issue # 2) Potential Incremental Impacts of CH: You mentioned on yesterday's call that it is possible that CH will result in changes to the

type of compensation or mitigation requested of projects. This potentiality is not discussed in the incremental memorandum reviewed by the Solicitor that was provided to IEC. In short, he thought that, following CHD, compensation/mitigation for impacts to shrew habitat may be requested to occur within CH, as opposed to in viable shrew habitat outside of CH. This represents a difference to the assumptions laid out in the incremental memo and has important implications for the DEA (a difference in whether CH would result in any economic impacts).

In the case that pCH for the shrew covers the full range of the species and all potentially viable habitat, this would not be an issue because, regardless of whether CH is designated, all requested compensation would occur within this area and impacts would therefore be baseline (not affected by CHD). However, in the case that additional viable habitat does exist outside of the CH (as indicated in Issue #1 above), incremental impacts of CH may be associated with requesting compensation be limited to areas within the boundaries of CH. **Regardless of CHD, the areas where the shrew is known to occur are so few and fragmented that we would request compensation in the area of project effect, regardless of whether or not CH had been designated.**

Questions:

a) Do you expect there to be a difference in compensation/mitigation (either in terms of how much or where compensation occurs) requested via section 7 consultation for the shrew with versus without CHD? **No. Regardless of CHD, the areas where the shrew is known to occur are so few and fragmented that we would request that any compensation occur in the area of project effect, regardless of whether or not CH had been designated.**

b) Similarly, do you expect there to be a difference in compensation/mitigation requirements for the shrew described in HCPs with versus without CHD? **No. Regardless of CHD, the areas where the shrew is known to occur are so few and fragmented that we would request that any compensation occur in the area of project effect, regardless of whether or not CH had been designated.**

Issue #3) HCPs: Currently all of the proposed critical habitat area is covered either by an existing HCP (PG&E) that addresses the shrew (Units 1, 2, 4, and 5) or an existing management plan (City of Bakersfield Kern Fan Water Recharge Area Management Plan) that addresses the shrew (Unit 3). Another proposed HCP (Kern County Valley Floor HCP) may cover the shrew in Units 1, 2, 4, and 5 if it moves forward.

**The PG&E HCP only covers Operations and Maintenance activities on PG&E facilities (such as power poles, transmission lines, etc.), so only covers these CH units to the extent that such facilities occur within the unit.**

(The same will be true of the potential HCP with Southern California Gas Company, mentioned below.)

Questions:

a) Will CHD require re-initiations of consultations on all HCPs and management plans that occur within the proposed critical habitat for the shrew? In terms of completed Biological Opinions, the PG&E HCP included all proposed CH. The Biological Opinion for the PG&E HCP includes a conference opinion, with consultation on CH for the shrew, and applies the law as established in Gifford Pinchot Task Force. Our San Joaquin Valley Branch did not complete a biological opinion on the City of Bakersfield Kern Fan Water Recharge Area because their review of the proposed management plan did not identify any negative effects to the shrew. The Area covered by the plan was proposed CH at the time that the plan was written, so the plan includes express analysis of PCEs within the area. Therefore, staff also reviewed the plan for negative effects to PCES and did not identify any. We expect that any re-initiation on these would be limited to intra-service consultation that would be completed within one day.

b) Will CHD result in any differences in conservation for the shrew and its habitat included in the HCPs? I.e., Any changes following CHD for existing HCPs? No, the existing HCP (PG&E) applies the Gifford Pinchot Standard.

c) Will the Biological Opinion regarding the proposed Kern Valley Floor HCP have a different outcome if CH is designated for the shrew versus if it is not? I.e., Any changes following CHD for future HCPs? The locations of the shrew are so few that we expect to roll protection of locations where the shrew is present into the HCP whether or not CH is designated. and the conservation functions of areas that are proposed Critical Habitat are already being evaluated in the HCP. Although the Draft HCP only recognizes one of the re-proposed units as Critical Habitat (because it was previously designated in the final CH rule), we expect that the HCP will be completed subsequent to the finalization of CH, so will be revised in draft form to recognize any other units that receive final designation.

d) On a previous conference call you mentioned the possibility of an HCP with Southern California Gas Company. Could you send us any drafts or information you might have regarding this potential plan and how it may address the shrew? We have no drafts yet as this process is only beginning, but the Service does have a Biological Assessment and will send you that. Again, this HCP will only cover the O&M activities of the Company.

We look forward to your responses on these issues. Please let us know if you have questions or concerns. We will hold on developing the methodology memorandum and economic analysis until we have direction on these issues.

*To IEC from U.S. Fish and Wildlife Service, Sacramento Field Office:*

**Date:** 6/11/2010 9:41 AM

**Subject:** Fwd: Corrections, clarification of PG&E SJV O&M HCP and proposed CH for the BVLS

With respect to your questions about the re-proposed Buena Vista Lake shrew critical habitat and the PG&E San Joaquin Valley O&M HCP, we would like to revisit some information that we previously gave you regarding the coverage of BVLS critical habitat in the BO.

We previously told you that the BO included a conference opinion that covered all the proposed critical habitat units for the BVLS. That information was not correct; by the time the BO was completed the BVLS CH final rule was published, so only the 84-acre finally-designated critical habitat unit was covered by the BO; there was no conference opinion.

We also told you that the proposed critical habitat area is covered by the PG&E HCP, which addresses the shrew as a covered-species. Although the HCP did consider the total acres of proposed BVLS CH present inside the HCP Plan Area, and did estimate total acres of impact to the proposed CH, PG&E did not calculate impacts to the individual proposed CH units. The estimated total impacts to the proposed CH were determined to be temporary, and expected to be very small (.3 acres over 30 years). Therefore, the impacts to the proposed CH were not considered by PG&E during the development of the HCP conservation strategy, and CH did not play a role in determining adequate minimization and mitigation in the HCP's conservation strategy. Although PG&E provided the Service with a 2007 Errata for the Final HCP, the 2007 Errata did not affect the amount or location of mitigation/conservation provided by the HCP conservation strategy. The Errata did affect some aspects of HCP implementation (specifically adding a "Confer Process" with the Service prior to certain covered activities); however, the Errata would have been prepared by PG&E whether or not BVLS CH was designated.

You also asked:

Will CHD require re-initiations of consultations on all HCPs and management plans that occur within the proposed critical habitat for the shrew? With regards to the PG&E HCP, because the completed Biological Opinion on the PG&E HCP only included the 84-acre unit that was finally designated, the Service would need to re-initiate the intra-Service consultation to amend the BO to include the additional CH units.

However, the HCP classified BVLS as a highly endangered "biologically susceptible" species, and mapped "BVLS designated-occupied habitat" for all locations where the species occurs. PG&E is required by the final HCP and the 2007 Errata to confer with the Service prior to implementing ground-disturbing covered activities within the BVLS "designated occupied-habitat" areas. The areas that were proposed in 2004 and 2009 as BVLS critical habitat are the same areas already classified by the HCP as BVLS "designated-occupied habitat". Therefore, the HCP already requires Service review of most PG&E activities inside the 2004/2009 proposed BVLS critical habitat units (The HCP also requires PG&E to confer on the same type of activities within designated critical habitat). Because the BVLS proposed CH Units and the HCP's BVLS "designated occupied habitat" are the same, the Service expects that the designation of additional BVLS CH units in the Plan Area will not affect the implementation of the HCP, and will not change amounts of mitigation/conservation required by the HCP conservation strategy. The Service expects that little to no additional analysis would be required, and consultation would most likely be limited

to intra-Service consultation to amend the BO and the Incidental Take Permits.

Did consideration of CH affect the specific conservation and mitigation measures described in the HCP: The consideration of CH for any covered-species did not affect the conservation and mitigation measures described in the HCP. Although the BVLS proposed CH units and the HCP "BVLS designated-occupied habitat" units appear to be the same, the biologist that worked on the critical habitat originally has told me that so little habitat was identified for the shrew at the time, that those identified areas would likely have been the basis for any protective measures, whether proposing HCP conservation measures or proposing critical habitat. PG&E and their contractors may have additional information in this respect.

I hope that this information is helpful.