Statewide Electrified Fence Project

HABITAT CONSERVATION PLAN

California Department of Corrections

Prepared by:

EDAW

July 26, 1999

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Project Sponsor:

California Department of Corrections
501 J Street, Room 304
Sacramento, California 95814

Contact:
Bernd T. Beutenmuller
Supervising Environmental Planner

Prepared by:

EDAW, Inc.
2022 J Street
Sacramento, California 95814

Contact:
Brian T. Hoffmann
Project Manager and
Senior Biologist

Contact:
Curtis E. Alling, AICP
Principal-in-Charge

EDAW

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1 INTRODUCTION AND BACKGROUND

1.1 OVERVIEW AND BACKGROUND

PURPOSE OF THE HCP AND PROPOSED PERMIT TERM

This Habitat Conservation Plan (HCP) has been prepared by the California Department of Corrections (CDC) for the Statewide Electrified Fence Project. This HCP addresses mortality or the potential for mortality of special-status species and native migratory birds at each of the 25 prisons where lethal electrified fences are operational and four future sites where electrified fences are planned (see Table 1-1). Impacts to these species are the result of take via accidental electrocution on the electrified fence. Because the electrified fences are located within the existing secured prison perimeters, no undisturbed native habitats would be affected by construction of the fences. Therefore, only direct mortality impacts to these species from electrocution are expected and are covered by the HCP.

This HCP is intended to be an integrated document addressing provisions of three statutes: 1) an incidental take permit pursuant to Section 10(a)(1)(B) of the federal Endangered Species Act (ESA; 16 U.S.C. 1531 *et seq.*); 2) an incidental take permit pursuant to §2081(b) of the California Endangered Species Act (CESA; Fish and Game Code, Article 4, §2080 *et seq.*); and 3) a demonstration that CDC has exercised a good faith effort and reasonable due care to prevent or to minimize take of migratory birds covered by the federal Migratory Bird Treat Act (MBTA; 16 U.S.C. 703-711), using all practicable methods available. In addition, the HCP addresses other pertinent sections of the California Fish and Game Code (see pages 1-8 and 1-9). Under separate cover, an Environmental Assessment (EA) of this HCP has also been prepared, pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*). The information in this HCP is also supported, in part, by biological studies, environmental impact analysis, and mitigation planning conducted for an Environmental Impact Report (EIR) prepared for the Statewide Electrified Fence Project, pursuant to the California Environmental Quality Act (CEQA; see SCH No. 95032000, CDC, 1996; CDC, 1997).

The proposed term of the ESA Section 10(a)(1)(B) permit is 50 years. Similarly, the incidental take permit pursuant to §2081(b) of CESA is proposed to be in effect for 50 years.

OVERVIEW AND PURPOSE OF THE PROJECT

CDC is responsible for incarcerating California's most serious criminal offenders in secure institutional facilities. The security of state prison facilities is critical both for preventing inmate escapes and for protecting the safety of the public. The state's inmate population has grown rapidly since the late 1970's and is expected to continue to increase substantially. In 1980, 23,500 inmates were incarcerated in the state prison system. The inmate population has grown to over 156,000 in 1997. CDC has had to respond to this inmate population increase by expanding the capacity of the state prison system and by enhancing the cost-effectiveness of prison operations.

The Statewide Electrified Fence Project is being implemented by CDC to decrease the operational costs of state prisons, in light of the rapid increase in the prison inmate population and the need to cost-effectively operate the state correctional system. Most medium-security and all maximum-security prisons

Table 1-1
Locations of Prisons with Electrified Fences

Prison Facility *Informal Name or Acronym*	Fence Status[1]	County	USGS[2]			
			Quad	T	R	S
Existing Prisons Where Electrified Fences Are Already Built						
Calipatria State Prison *Calipatria*	A	Imperial	Iris	11S/12S	14E	35/2
Centinela State Prison *Centinela*	A	Imperial	Plaster City	16S	12E	16,17
California Institution for Men, West *CIM*	A	San Bernardino	Prado Dam	2S	8W/7W	23,24,25/18,19
R. J. Donovan Correctional Facility at Rock Mountain *R. J. Donovan*	A	San Diego	Otay Mesa	18S	1W	24
Ironwood State Prison *ISP*	A	Riverside	Hopkins Well	7S	20E	17,18
California State Prison - Los Angeles *CSP-Los Angeles*	A	Los Angeles	Lancaster West	7N	13W	14
California Correctional Institution, Level III *CCI III*	A	Kern	Cummings Mountain	12N	32E	29
California Correctional Institution, Level IVA *CCI IVA*	A	Kern	Cummings Mountain	12N	32E	29
California Correctional Institution, Level IVB *CCI IVB*	A	Kern	Cummings Mountain	12N	32E	29
California State Prison - Corcoran *CSP-Corcoran*	A	Kings	Corcoran	21E	22E	35
Pleasant Valley State Prison *PVSP*	A	Fresno	Coalinga	20S	15E	4
Avenal State Prison *ASP*	A	Kings	Garza Peak	22S	17E	33
Wasco State Prison - Reception Center *WSP*	A	Kern	Wasco South West	27S	24E	8
North Kern State Prison *NKSP*	A	Kern	Delano West	25S	25E	5,6
Mule Creek State Prison *MCSP*	A	Amador	Ione	6N	9E	4
California State Prison - Solano *CSP-Solano*	A	Solano	Elmira	6N	1W	33
Pelican Bay State Prison *PBSP*	A	Del Norte	Crescent City	17N	1W	22,23
California Correctional Center, Level III *CCC Level III*	A	Lassen	Johnstonville	29N	13E	3,4

Table 1-1
Locations of Prisons with Electrified Fences

Prison Facility *Informal Name or Acronym*	Fence Status[1]	County	USGS[2]			
			Quad	T	R	S
California State Prison - Sacramento *CSP-Sacramento*	A	Sacramento	Folsom	10N	7E	25
Central California Women's Facility *CCWF*	A	Madera	Berenda	10S	17E	6
Chuckawalla Valley State Prison *CVSP*	A	Riverside	Hopkins Well	7S	20E	16,17
High Desert State Prison *HDSP*	A	Lassen	Johnstonville	30N	13E	33,34
Valley State Prison for Women *VSPW*	A	Madera	Berenda	9S	17E	31
Salinas Valley State Prison *SVSP*	A	Monterey	Soledad	17S	5E	1
California Substance Abuse Treatment Facility and California State Prison at Corcoran *CSATF and CSP-Corcoran*	A	Kings	Corcoran	21S	22E	35
Future Electrified Fence Sites (Fences Not Yet Built)						
Northern California Women's Facility[3] *NCWF*	F	San Joaquin	Stockton East	1N	7E	27
California State Prison - Kern County at Delano II *Delano II*	F	Kern	Delano West	25S	25E	8
California State Prison - San Diego County II *San Diego II*	F	San Diego	Otay Mesa	18S	1W	19,24,25, 30
California State Prison - Kern County at California City *California City*	F	Kern	Galileo Hill	32S	38E	13

[1] Fence status:
- A activated fence is installed and operating
- F future planned fence

[2] USGS 15-minute Quadrangle name, and Township/Range/Section

[3] NCWF is an existing prison; however, the installation of an electrified fence is unauthorized. The fence would only be constructed if the mission of the prison changes from housing female inmates to male inmates.

Source: CDC 1998

have guard towers spaced at distances that allow correctional officers to survey the entire secured perimeter and use deadly force, if necessary, to prevent inmate escapes. Other prisons conduct surveillance from a combination of earthen perimeter berms and guard towers. CDC and the State Legislature determined that substantial annual costs could be saved by installing lethal electrified fences between secure perimeter, parallel chain link and razor wire fences, in lieu of 24-hour staffing of most perimeter guard towers and berm surveillance positions. This approach allows operational costs at each facility to be substantially reduced, while maintaining the same level of security.

HISTORY OF THE STATEWIDE ELECTRIFIED FENCE PROJECT

The California Department of Corrections (CDC) began considering implementation of electrified fences as a feature of the secured perimeters of state prisons in 1990. A summary of the project's history is presented below.

Authorization of the Project

To reduce the operational costs of state prisons, CDC submitted the first budget request to fund construction of electrified fences to the State Legislature in 1991. The Legislature concurred with CDC's conclusion that staffing costs could be substantially reduced, and passed Senate Bill 1341 (Chapter 1284, Statutes of 1992) that approved the use of lethal electrified fences at state prisons. In 1992 and 1993, State Budget Acts (Chapter 587, Statutes of 1992 and Chapter 55, Statutes of 1993) authorized implementation of the electrified fences and simultaneously reduced operational funding related to the decrease in guard tower and berm surveillance positions. Construction and activation of the electrified fences began in 1993 with a prototype fence at Calipatria State Prison in Imperial County. The construction and activation of fences at other prison sites was initiated in 1994 and 1995.

Original CEQA Compliance by Categorical Exemption

A Notice of Exemption (NOE) was filed with the Governors's Office of Planning and Research and posted on April 15, 1992, for the Calipatria State Prison prototype electrified fence. A second NOE was filed and posted for 23 other prison sites on July 17, 1992.

CEQA §21084 and the State CEQA Guidelines §15300 provide that the classes of projects established as exempt "have been determined not to have a significant effect on the environment." Categorical exemptions (Class 1 projects), as described in §15301 of the Guidelines, include minor alterations to existing facilities, structures, and equipment. As noted in the NOE, the electrified fence is installed between two existing perimeter fences as an addition to the existing secured perimeter. The secured perimeter is already highly disturbed and kept clear of vegetation. CDC concluded that this addition to the existing secured perimeter fencing would not have a significant effect on the environment. CDC was not aware of any unusual circumstances that would trigger the need for additional CEQA review.

Preparation of an Environmental Impact Report

The prototype fence at Calipatria State Prison in Imperial County was constructed in 1993 and the electrified fence became operational on October 30, 1993. CDC personnel found that unanticipated accidental wildlife electrocution began after the initiation of fence operations, including the loss of burrowing owls (a California Species of Special Concern). Because of this unexpected effect,

consultation was conducted among CDC, the California Department of Fish and Game (CDFG), and the U.S. Fish and Wildlife Service (USFWS). Based on that consultation, review of the recorded wildlife electrocutions at several prisons, and wildlife studies conducted in 1994 at 24 prison sites, CDC determined that a statewide EIR was needed to assess impacts on wildlife by the operation of the electrified fences and to identify feasible mitigation measures. Refer to Appendix A for a complete list of biological studies completed and reports prepared. The EIR was certified by CDC on July 21, 1997. The Notice of Determination (NOD) was signed by the Director of CDC on July 21, 1997 and filed at the State Clearinghouse on July 23, 1997.

Agency Consultation and Coordination

ESA- and CESA-related consultations with USFWS and CDFG began in 1996. CDC began meeting frequently with representatives from both agencies to discuss mitigation strategies and permitting issues. One group that evolved early on became known as the "Management Group," and consisted of senior management staff from CDC, CDC's consultants, senior environmental services staff from CDFG, and senior environmental services, HCP, and law enforcement staff from USFWS. The Management Group met primarily to discuss policy, strategy, and procedural issues. A second group, known as the "Working Group," formed that included CDC's consulting biologists and endangered species staff from CDFG and USFWS. The Working Group met regularly to discuss technical issues and formulate mitigation planning methodology. One significant outcome of the Working Group was the formulation and adoption of the quantitative methodology that ultimately determined the target types and target amounts of Tier 3 habitat enhancement actions.

DESCRIPTION OF THE STATEWIDE ELECTRIFIED FENCE PROJECT

Electrified fences are installed and operating, or planned for installation and operation, at 29 existing and potential future prison sites throughout California. The 29 prison sites are generally located near rural communities or in isolated areas, with a few exceptions. All of the electrified fence sites are located on state property. Of the 29 sites, 25 have the fences installed and activated. Of the remaining four sites, none of which are currently authorized for construction by CDC, three are associated with proposed future prisons, and one involves an existing prison where an electrified fence would be constructed only if the mission of the prison changes from housing female to housing male inmates.

The project involves the installation and activation of lethal electrified fences within the secured perimeter of prison facilities. The electrified fence is installed between two parallel, chain link security fences that are topped with razor wire. The parallel, chain link fences (without the electrified fence in between) have been the standard design of the perimeters at all the subject prisons. The space between the standard parallel fences is graded and kept clear of vegetation and debris. In the case of existing prisons, the electrified fences are retrofitted between the two existing security fences.

The installation and operation of the electrified fences does not change or affect the security levels or number of inmates at the subject prisons.

The fence consists of galvanized posts spaced approximately 30 feet apart, supporting 15 to 18 electrified wires. The posts are 13 to 17 feet high with post-mounted insulators that isolate the high-voltage wires from the grounding posts, grounding brackets, and the concrete grade beam. The electrified wires are spaced more closely near the ground and farther apart near the top of the fence, with

an average separation of approximately 10 inches. The electrified fence design includes two types of devices to ensure that contact is made if the lower wires are spread apart during an inmate escape; these include detection rings around the lower seven wires and grounding posts enveloping the lower wires between the fence posts. A concrete grade beam is provided along the base of the fence.

An internal alarm sounds when an object receives an electric charge on the fence by simultaneously contacting two wires, one wire and a detection ring or grounding post, or one wire and an electrical ground. The alarm sounds at the central control room and the pedestrian and vehicle sally port (entrance/exit) towers. An alarm signal is also transmitted to the correctional officer in a 24-hour roving patrol vehicle on the outside perimeter road. This alarm system facilitates a rapid response to escape attempts.

The monies for the guard tower and berm staff positions at the prisons were removed from CDC's support budget by the State Legislature when it approved the fences. There is no authorized budget to place staff continuously in guard towers and berm surveillance positions.

1.2 REGULATORY/LEGAL FRAMEWORK

The HCP is an integrated document addressing provisions of the federal ESA and MBTA, as well as CESA and other provisions of the California Fish and Game Code. The pertinent portions of these statutes are described below, along with their relationship to the project.

FEDERAL STATUTES

Endangered Species Act

Although no federally-listed or proposed Threatened or Endangered species have been accidentally electrocuted to date, a number of these species have been identified by the EIR as being at risk of electrocution. The electrocution of any individuals of a federally listed species would be considered a "take" under ESA. Species are defined as Threatened or Endangered by USFWS if they are listed in Title 50 of the Code of Federal Regulations (§§17.11 or 17.12). Section 9 of ESA and federal regulations prohibit the "take" of federally-listed species; take is defined under ESA, in part, as killing, harming, or harassment of such species. Under federal regulations, take is further defined to include habitat modification or degradation where it actually results in death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. For this project, because no loss of habitat has occurred or will occur as a result of development and activation of the electrified fences, the only potential for take of federally listed species is through direct mortality by accidental electrocution.

"Incidental take" is defined by ESA as take that is incidental to, and not the purpose of, the carrying out of otherwise lawful activities. Incidental take of a federally-listed Threatened or Endangered species may be permitted by USFWS under Section 10(a)(1)(B) of ESA. Because a federally-listed species could potentially be electrocuted at one or more of the 29 prison sites considered part of this project, CDC is pursuing a Section 10(a)(1)(B) incidental take permit and has prepared this HCP in compliance with Section 10(a) requirements.

In addition to an incidental take permit for federally-listed species, CDC is seeking, pursuant to this HCP, future take authorization for specified, currently unlisted species that are adequately covered by this HCP,

in the event such species become listed during the term of the permit. CDC is also seeking a "special purpose permit" under MBTA for species that are listed under ESA and protected by MBTA, pursuant to the USFWS February 9, 1996, policy (see Appendix F); in brief, this policy states that an ESA Section 10(a)(1)(B) permit may also serve as a special purpose permit under MBTA. Special purpose permits are described in §21.27 of Title 50 CFR; they allow for limited take of migratory birds under special circumstances.

Migratory Bird Treaty Act

MBTA, first enacted in 1918, implements domestically a series of treaties between the United States and Great Britain (on behalf of Canada), Mexico, Japan, and the former U.S.S.R., which provide for international migratory bird protection and authorizes the Secretary of the Interior to regulate the taking of migratory birds. MBTA provides that it shall be unlawful, except as permitted by regulations, "at any time, by any means, or in any manner, that to pursue, take, or kill ... any migratory bird, or any part, nest or egg of any such bird, included in the terms of conventions" with certain other countries (16 U.S.C. 703). The current list of species protected by MBTA can be found in Title 50, Code of Federal Regulations §10.13. This HCP covers all native species of birds that have been accidentally electrocuted or are at risk of electrocution by operation of electrified fences at state prisons and are protected by MBTA (refer to Table 4.1). Loss of non-native species, such as house sparrows, European starlings, and rock doves, are not covered by this statute.

MBTA offers no statutory mechanism for obtaining an incidental take permit for the take of migratory birds during such activities as operation of CDC's electrified fences. Even though USFWS's HCP/MBTA policy allows for incidental take of migratory birds that are also listed under ESA, unlisted migratory birds can not be similarly covered. The federal courts, in interpreting liability under MBTA, have held that the MBTA does not dictate that the death of a migratory bird in every instance will result in criminal liability.

It is CDC's position that it has used due care and implemented, in good faith, the most effective methods to minimize bird deaths while maintaining the necessary security at the state prisons; these methods include Tier 1 operations-related measures (reducing wildlife attractants), and Tier 2 deterrent and exclusion devices (such as anti-perching wire and vertical netting enveloping the lower wires of the fence). Further, the Tier 3 compensation package of this HCP is additional evidence of CDC's good faith effort to deal with MBTA, and is intended to address the lingering risk of electrocution for all migratory species within California with reasonable and feasible compensatory measures. These combined efforts meet the test of good faith and reasonable care which reflects that CDC has conformed its conduct in operation of the electrified fences to the requirements of the law by minimizing take of migratory birds and implementing a program to benefit migratory birds.

Although there is no statutory or regulatory mechanism in current law for authorizing the unintended, incidental killing of migratory birds, USFWS has stated in discussions with CDC that CDC's efforts are sufficient to provide the basis for USFWS to not pursue prosecution for previous takings of migratory birds at CDC electrified fence sites. Although future unintentional taking of migratory birds cannot be authorized, USFWS and CDFG have indicated that it is highly unlikely that USFWS and CDFG will pursue prosecution for such taking if the HCP is being fully implemented. USFWS and CDFG have agreed to provide, in writing, separate statements summarizing their above position on MBTA-related prosecution; these written statements will be issued concurrent with issuance of the final incidental take permits. While the Service's correspondence will not constitute a permit or other formal authorization, it is intended to provide CDC with reasonable certainty regarding the limits of their future liability for the unintentional

killing of migratory birds. In order to monitor the effectiveness of the mitigation measures, USFWS intends to conduct a review of the project every five years to confirm that efforts to reduce, minimize, and avoid take of migratory birds remain adequate to protect the migratory bird resource. In the unanticipated event that USFWS determines these measures to no longer be adequate, CDC will be notified and provided an opportunity to address the deficiencies before other regulatory remedies are pursued.

STATE OF CALIFORNIA STATUTES

California Endangered Species Act

A number of state-listed Threatened or Endangered species have been identified by the EIR as at risk of electrocution. One state-listed Threatened species (bank swallow) has been accidently electrocuted to date by the project. While the criteria for significant project impacts in the EIR includes impacts to state-listed species, the take of any of these species would also be subject to the requirements of the California Endangered Species Act (CESA; Fish and Game Code §2080 *et seq.*). Threatened and Endangered species are listed in Title 14, California Code of Regulations §§670.2 and 670.5. Section 2080 of CESA prohibits "take" of any of these species. The take of state-listed species incidental to otherwise lawful activities requires a permit, pursuant to §2081(b) of CESA. CDC has incorporated take avoidance and compensatory mitigation measures into the HCP, as required under §2081(b) of CESA, to minimize and fully mitigate impacts of take of state-listed species. In addition to an incidental take permit for state-listed species, CDC is seeking assurance through the Implementing Agreement with CDFG that it will obtain an incidental take permit for specified, currently unlisted species that are adequately covered by this HCP, in the event the species become listed during the term of the permit.

During the EIR and HCP process, CDC followed CDFG's *Guidelines for Consulting with the Department of Fish and Game on Projects Subject to CEQA that may Affect Endangered and Threatened Species* (Cummings and Nicola 1986). This informal document describes procedures by which state agencies may better fulfill their obligations under Public Resources Code §21104.2 to consult with CDFG regarding the effects of proposed projects on wildlife. Major topics covered in this document include the differences between informal and formal consultation, data requirements, survey guidelines, and conditions for determining jeopardy vs. no jeopardy. The guidelines recommend initiation of formal consultation with CDFG in cases where the state is the lead agency for a project that may adversely affect both state and federally listed species. Pursuant to these guidelines, CDC began consulting with CDFG in January 1994, which resulted in a Memorandum of Understanding (MOU) between the two agencies. At the request of CDFG, CDC submitted a subsequent letter documenting that formal CESA consultation was underway. The consultation process between CDC and CDFG is ongoing, and continuing through completion of this HCP. The consultation process will be completed with the issuance of the §2081(b) permit.

State Fish and Game Code §3503.5 - Protection of Raptors

The electrified fences have resulted in accidental electrocution of bird-of-prey species (i.e., raptors). Section 3503.5 of the State Fish and Game Code states that it is "unlawful to take, possess, or destroy any birds-of-prey in the orders *Falconiformes* or *Strigiformes*." This statute does not provide for the issuance of any type of incidental take permit. However, the take minimization and habitat enhancement measures included in the HCP's Tier 1, Tier 2, and Tier 3 mitigation programs are intended to minimize

and fully mitigate impacts to birds-of-prey. CDC is not seeking authorization from CDFG for raptor electrocution, and it is the intent of this HCP to demonstrate to CDFG that CDC has exerted, in good faith, due care in implementing feasible measures to minimize and fully mitigate the project's impacts to raptors.

State Fish and Game Code §3513 - Adoption of Migratory Bird Treaty Act

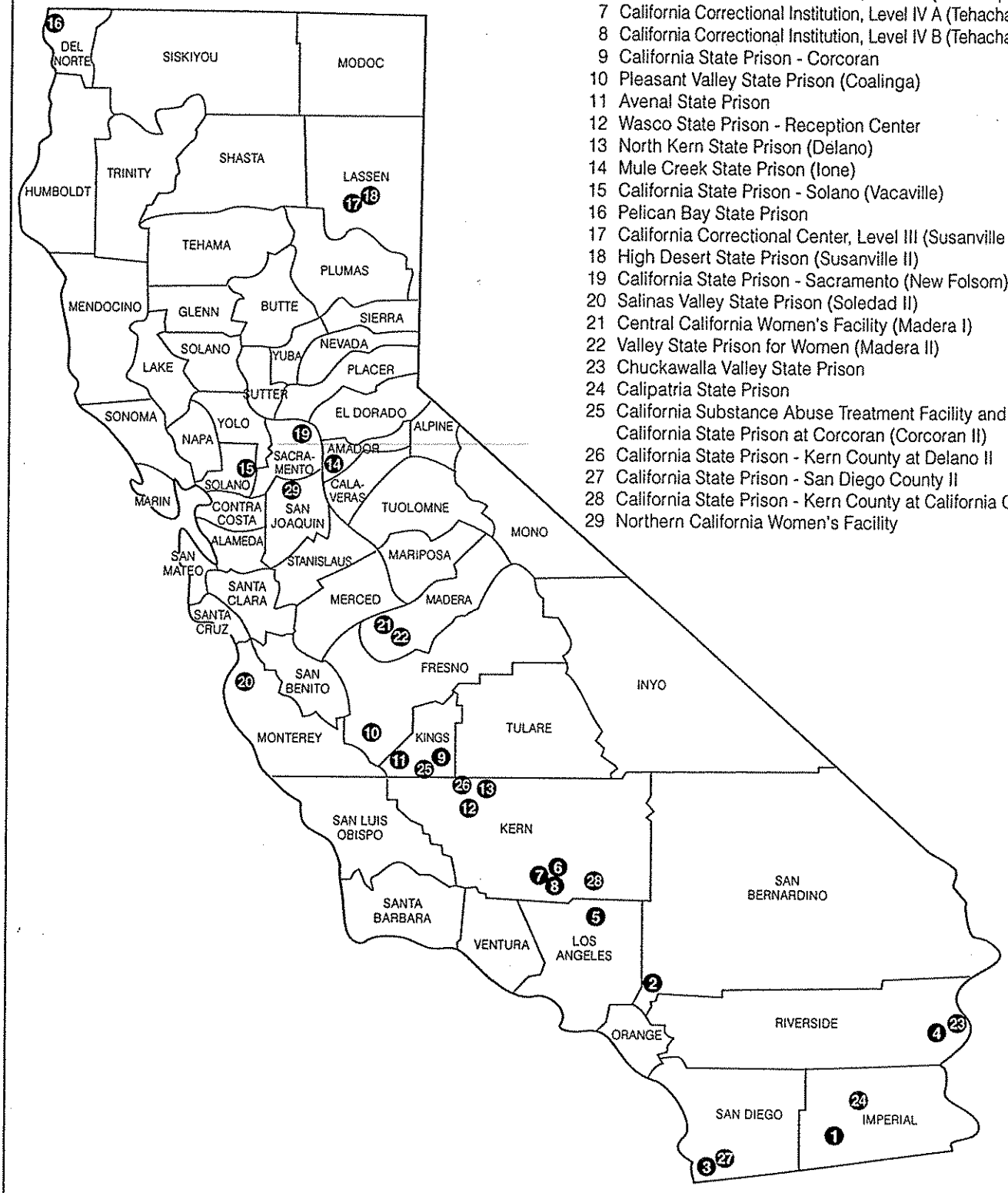
Section 3513 of the Fish and Game Code of California provides for adoption of MBTA's provisions. It states, "*It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act.*" Therefore, as with MBTA, this state code offers no statutory or regulatory mechanism for obtaining an incidental take permit for the loss of nongame, migratory birds. The HCP is intended to demonstrate to CDFG that CDC has used due care and implemented, in good faith, the most effective methods to minimize bird deaths and to fully mitigate for impacts to migratory birds through compensatory mitigation. The §2081(b) permit will provide that take of birds protected by MBTA resulting from permitted activities will not be prohibited by §3513 if, and to the extent, the take is authorized by USFWS.

1.3 PLAN AREA

For the Statewide Electrified Fence Project, the HCP plan area encompasses all of the specified prison and mitigation sites throughout California. The Township, Range, Section Number, and County for each existing and planned future prison are listed in Table 1-1. The location of each prison is shown on Exhibit 1-1.

The existing prison facilities and future prison sites are located in a variety of settings. Eleven are located in valley agricultural areas; of those, nine are in agricultural areas of the San Joaquin Valley in Madera, Fresno, Kings, and Kern counties. In addition, one prison is located in an agricultural setting in the Salinas Valley of Monterey County and another is in an agricultural area of the Imperial Valley in Imperial County. Five sites are located in desert environs in Riverside, Kern, Imperial, and Los Angeles counties, including one relatively near urban development outside of Lancaster. Five sites are located in higher elevation settings at approximately 4,000 feet, either in the Modoc Plateau of Lassen County or the high desert plateau associated with the Tehachapi Mountains in Kern County. Three sites are near coastal areas of Del Norte and San Diego counties and one prison site is in a Sierra Nevada foothill setting in Amador County. Four sites are close to urban development and agricultural settings in Sacramento, San Joaquin, Solano, and San Bernardino counties.

Thus, the potential for take of federally or state-listed and migratory bird species involves 29 sites scattered throughout California. Consequently, the boundary of the area investigated for the identification and evaluation of potential mitigation sites included the whole state. Refer to Section 5.2 and Exhibit 5.2-1 for the location of the compensatory mitigation sites finally selected.



1 Centinela State Prison
2 California Institution for Men, West (Chino)
3 R. J. Donovan Correctional Facility
4 Ironwood State Prison
5 California State Prison - Los Angeles (Lancaster)
6 California Correctional Institution, Level III (Tehachapi III)
7 California Correctional Institution, Level IV A (Tehachapi IVA)
8 California Correctional Institution, Level IV B (Tehachapi IVB)
9 California State Prison - Corcoran
10 Pleasant Valley State Prison (Coalinga)
11 Avenal State Prison
12 Wasco State Prison - Reception Center
13 North Kern State Prison (Delano)
14 Mule Creek State Prison (Ione)
15 California State Prison - Solano (Vacaville)
16 Pelican Bay State Prison
17 California Correctional Center, Level III (Susanville I)
18 High Desert State Prison (Susanville II)
19 California State Prison - Sacramento (New Folsom)
20 Salinas Valley State Prison (Soledad II)
21 Central California Women's Facility (Madera I)
22 Valley State Prison for Women (Madera II)
23 Chuckawalla Valley State Prison
24 Calipatria State Prison
25 California Substance Abuse Treatment Facility and California State Prison at Corcoran (Corcoran II)
26 California State Prison - Kern County at Delano II
27 California State Prison - San Diego County II
28 California State Prison - Kern County at California City
29 Northern California Women's Facility

California State Prisons with Existing or Planned Electrified Fences

EXHIBIT 1-1

California Department of Corrections
Habitat Conservation Plan

NORTH

EDAW

1.4 SPECIES COVERED/ADDRESSED BY THE HCP

As described in Section 1.2 above, this HCP addresses species protected by both ESA and CESA, as well as the MBTA. Consequently, for purposes of the plan, two categories of species are described and addressed: ESA/CESA-covered species and uncovered MBTA-protected species. Collectively, both categories are referred to herein as HCP-addressed species or, more simply, as HCP species.

ESA/CESA-COVERED SPECIES

Species in this category are covered by ESA Section 10(a)(1)(B) and CESA Section 2081(b) incidental take permits issued in association with this HCP. "Covered" by the permits means that any incidental take of these species as a result of electrocution at CDC's electrified prison fences, and as defined by ESA and CESA, would be legally authorized under the HCP's state and federal permits. Of these species, most are birds that are also protected by the MBTA. For purposes of this HCP, species being covered by the permits are referred to as "ESA/CESA-covered species" or simply as "covered species." A total of 62 covered species are addressed by the HCP. These are listed in Table 1-2 at the end of this section.

"Covered species" under the plan are further divided into: (1) listed covered species, and (2) unlisted covered species.

Listed Covered Species

Listed covered species are those that are currently listed either under the federal ESA or state CESA. This distinction between listed covered species and unlisted covered species is important because those species that are both protected by MBTA and listed under the federal ESA are covered by the ESA Section 10(a)(1)(B) permit, not only for purposes of ESA, but also for purposes of MBTA. This is accomplished pursuant to USFWS's February 9, 1996, HCP/MBTA policy which states, in brief, that an ESA Section 10(a)(1)(B) permit may also serve as a "special purpose permit" under MBTA for all jointly ESA listed/MBTA protected species addressed in an HCP. (See Appendix F for a copy of this policy.) However, only ESA listed species receive this dual protection; ESA unlisted species do not.

Unlisted Covered Species

These species are currently unlisted under ESA and CESA, but would be covered under ESA Section 10(a)(1)(B) and CESA Section 2081(b) permits should they become listed during the life of the HCP. ESA and CESA permit coverage for such species would become effective at the time the species are listed. As described above, take of unlisted avian species at CDC's electrified fences is not covered for purposes of MBTA by USFWS's HCP/MBTA policy. However, unlisted covered species are addressed for purposes of MBTA in this plan, as described in the "uncovered MBTA-protected species" section below.

These species are addressed under the HCP because they are already rare or declining, or their status is uncertain, and there is a significant possibility that they could be listed under ESA or CESA within the 50-year life of the HCP. This category also includes species with no designated status under ESA or CESA, but whose biological status is potentially sensitive enough to warrant attention under the plan's conservation program (e.g., unlisted raptor species).

UNCOVERED MBTA-PROTECTED SPECIES

Species in this category are protected by MBTA but are not listed under ESA or CESA, and they are not covered by the ESA Section 10(a)(1)(B) or CESA Section 2081(b) permits. These species are relatively common compared to the ESA/CESA-covered species and have no status under ESA or CESA. However, they are important avian wildlife resources, they are being electrocuted at CDC's electrified prison fences or may be electrocuted in the future, and any such take of these species is subject to the requirements of MBTA. Although, as described in Section 1.2 above, MBTA has no incidental take permitting mechanism, CDC, USFWS, and CDFG have reached an agreement that recognizes CDC's good faith efforts to minimize the impacts of its electrified fences on migratory birds, and to develop a program that benefits the migratory bird resource. This agreement will be described in a letter to be issued by USFWS's Law Enforcement Division, concurrently with final Section 10(a)(1)(B) permit issuance.

For purposes of the HCP, the species in this category are referred to as "uncovered MBTA-protected species" or simply as "MBTA species." The difference, compared to "covered species," is that MBTA species are not covered by the HCP's federal and state incidental take permits but are addressed for purposes of MBTA by the CDC/USFWS/CDFG agreement described above. The HCP addressees 57 uncovered MBTA-protected species. These are listed in Table 1-3 at the end of this section. However, some species protected by MBTA that are not listed in Table 1-3 may in fact be taken periodically at CDC's electrified fences. This is because Table 1-3 was developed, in part, by compiling all species known to have been electrocuted at the fences to date. In other words, it is possible that some species not known to have been electrocuted in the past may be electrocuted in the future, and that these species may not be included in Table 1-3. However, any such species would also be covered under the CDC/USFWS/CDFG agreement described above, provided that CDC is otherwise in full compliance with the terms of the HCP.

1.5 TIERED MITIGATION AND FEASIBILITY EVALUATION

CDC is minimizing and mitigating wildlife electrocution impacts. An extensive feasibility evaluation has been conducted by CDC to determine which mitigation measures were biologically effective, cost effective, and viable based on weather, security, maintenance, and operational issues. Mitigation was organized into three tiers to facilitate implementation of some measures while others were being developed, tested, and evaluated. Tier 1 measures include operations-related measures designed to modify or remove habitat or other attractions to wildlife from the secured perimeter area of each prison. Tier 2 involves installation of exclusion and deterrent devices on the electrified fences and in the perimeters. Tier 3, which includes the compensation package described in Chapter 5, is designed to offset the residual loss of wildlife resources at the prisons as a result of electrocution risks that remain even after Tier 1 and Tier 2 have been implemented.

Tier 1 mitigation has been implemented at all prisons with electrified fences, and will be implemented at all future prisons where the electrified fences are installed. This tier includes maintenance and operational measures designed to reduce the attractiveness of the perimeter environs to wildlife species (e.g., weed, trash, and debris removal), which in turn would reduce wildlife use of the perimeter and thus lower electrocution risks. These measures affected only previously disturbed areas and did not result in the modification or destruction of any endangered species habitat.

Tier 2 measures include the installation of exclusion and deterrent fence devices which are designed to prevent or deter wildlife from making contact with the electrified fences. These measures avoid and minimize the risk of wildlife electrocution for those animals which continue to visit the secured perimeters despite the Tier 1 measures. Field testing and research were conducted to determine the effectiveness and feasibility of these devices. Several of them were found to be ineffective and/or not feasible for installation at the prison facilities. These include sound devices, flashing tapes, chemical irritants, alternative food sources, lighting alternatives, over-the-top netting, parallel wires, and vertical netting to the top (refer to Section 7 for a full discussion of infeasible alternatives that were tested). Tier 2 exclusion and deterrent devices that were found to be feasible are anti-perching devices, anti-rodent fencing, and vertical netting enveloping the lower electrified fence wires and associated detection rings and grounding posts.

To benefit migratory birds and to offset the residual electrocution risks to ESA/CESA-covered species at prison sites after the implementation of Tier 1 and Tier 2 measures, and the cumulative impacts of the combined electrocution effects of multiple prisons, a third tier of measures has been developed as part of this HCP. These Tier 3 measures benefit uncovered MBTA-protected species and mitigate the impacts to ESA/CESA-covered species resulting from the residual risk of wildlife mortality. Approaches include some acquisition of lands; habitat enhancement via creation, restoration, or management; and monetary contributions to species recovery efforts. Tier 3 measures considered in this HCP are described in Chapter 5.

Table 1-2
ESA/CESA-Covered Species

Common Name	Scientific Name	Legal Status	
		Federal	State
Federally-listed Species (Some with State Listing)			
Reptiles			
desert tortoise	*Gopherus agassizi*	FT	CT
blunt-nosed leopard lizard	*Gambelia silus*	FE	CP CE
Birds			
California brown pelican	*Pelecanus occidentalis californicus*	FE	CP CE
Aleutian Canada goose	*Branta canadensis leucopareia*	FT	-
bald eagle	*Haliaeetus leucocephalus*	FT	CP CE
American peregrine falcon	*Falco peregrinus anatum*	FE	CP CE
western snowy plover	*Charadrius alexandrinum nivosus*	FT	-
southwestern willow flycatcher	*Empidonax traillii extimus*	FE	CE
coastal California gnatcatcher	*Polioptila californica californica*	FT	CSC
Mammals			
Tipton kangaroo rat	*Dipodomys nitratoides nitratoides*	FE	CE
San Joaquin kit fox	*Vulpes macrotis mutica*	FE	CT
Species with State Listing Only			
Birds			
greater sandhill crane	*Grus canadensis tabida*	-	CP CT
Swainson's hawk	*Buteo swainsoni*	-	CT
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	-	CE
bank swallow	*Riparia riparia*	-	CT
Mammals			
San Joaquin antelope squirrel	*Ammospermophilus nelsoni*	-	CT
Mohave ground squirrel	*Spermophilus mohavensis*	-	CT

Table 1-2
ESA/CESA-Covered Species

Common Name	Scientific Name	Legal Status	
		Federal	State
Currently "Unlisted" Species			
Reptiles			
San Diego horned lizard	*Phrynosoma coronatum blainvillei*	-	CSC
orange-throated whiptail	*Cnemidophorus hyperythrus*	-	CSC
northern red-diamond rattlesnake	*Crotalus ruber ruber*	-	CSC
Birds			
black-crowned night heron	*Nycticorax nycticorax*	-	-
osprey	*Pandion haliaetus*	-	CSC
white-tailed kite	*Elanus leucurus*	-	CP
northern harrier	*Circus cyaneus*	-	CSC
northern goshawk	*Accipiter gentilis*	-	-
sharp-shinned hawk	*Accipiter striatus*	-	CSC
Cooper's hawk	*Accipiter cooperii*	-	CSC
red-shouldered hawk	*Buteo lineatus*	-	-
red-tailed hawk	*Buteo jamaicensis*	-	-
rough-legged hawk	*Buteo logopus*	-	-
ferruginous hawk	*Buteo regalis*	-	CSC
golden eagle	*Aquila chrysaetos*	-	CP CSC
American kestrel	*Falco sparverius*	-	-
merlin	*Falco columbarius*	-	CSC
prairie falcon	*Falco mexicanus*	-	CSC
long-billed curlew	*Numenius americanus*	-	CSC
California gull	*Larus californicus*	-	CSC
barn owl	*Tyto alba*	-	-
western screech-owl	*Otus kennicottii*	-	-
great horned owl	*Bubos virginiana*	-	-

Table 1-2
ESA/CESA-Covered Species

Common Name	Scientific Name	Legal Status	
		Federal	State
northern pygmy owl	*Glaucidium gnoma*	-	-
burrowing owl	*Athene cunicularia*	-	CSC
long-eared owl	*Asio otus*	-	CSC
short-eared owl	*Asio flammeus*	-	CSC
Vaux's swift	*Chaetura vauxi*	-	CSC
California horned lark	*Eremophila alpestris actia*	-	CSC
purple martin	*Progne subis*	-	CSC
Bendire's thrasher	*Toxostoma bendirei*	-	CSC
San Diego cactus wren	*Campylorhynchus brunneicappillus sandiegensis*	-	CSC
loggerhead shrike	*Lanius ludovicianus*	-	CSC
yellow warbler	*Dendroica petechia*	-	CSC
yellow-breasted chat	*Icteria virens*	-	CSC
southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	-	CSC
Bell's sage sparrow	*Amphispiza belli belli*	-	CSC
tricoloredt blackbird	*Agelaius tricolor*	-	CSC
Mammals			
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*	-	CSC
San Joaquin pocket mouse	*Perognathus inornatus inornatus*	-	CSC
short-nosed kangaroo rat	*Dipodomys nitratoides brevinasus*	-	CSC
southern grasshopper mouse	*Onychomys torridus ramona*	-	CSC
Tulare grasshopper mouse	*Onychomys torridus tularensis*	-	CSC
San Diego desert woodrat	*Neotoma lepida intermedia*	-	CSC
white-footed vole	*Arborimus albipes*	-	CSC

Table 1-2
ESA/CESA-Covered Species

Common Name	Scientific Name	Legal Status	
		Federal	State

U.S. Fish and Wildlife Service (USFWS) Federal Listing Categories:

- FE Federal Endangered
- FT Federal Threatened

California Department of Fish and Game (CDFG) State Listing Categories:

- CE California Endangered
- CT California Threatened
- CP California Fully-Protected Species
- CSC California Species of Special Concern

Unlisted species included on this list are mostly state Species of Special Concern. Except for Black-crowned Night Heron, which is an Audubon species of "Local Concern," the other unlisted species are all CDFG-protected raptors.

Source: EDAW 1998

Table 1-3
Uncovered MBTA-protected Species[1]

Common Name	Scientific Name
horned grebe	*Podiceps auritus*
cattle egret	*Bubulcus ibis*
green heron	*Butorides striatus*
turkey vulture	*Cathartes aura*
wild turkey	*Meleagris gallopavo*
sora	*Porzana carolina*
American coot	*Fulica americana*
killdeer	*Charadrius vociferus*
ring-billed gull	*Larus delawarensis*
herring gull	*Larus argentatus*
mourning dove	*Zenaida macroura*
greater roadrunner	*Geococcyx californianus*
common nighthawk	*Chordeiles minor*
acorn woodpecker	*Melanerpes formicivorous*
northern flicker	*Colaptes auratus*
black phoebe	*Sayornis nigricans*
Say's phoebe	*Sayornis saya*
western flycatcher	*Empidonax occidentalis*
ash-throated flycatcher	*Myiarchus cinerascens*
Cassin's kingbird	*Tyrannus vociferans*
western kingbird	*Tyrannus verticalis*
tree swallow	*Tachycineta bicolor*
violet-green swallow	*Tachycineta thalassina*
northern rough-winged swallow	*Stelgidopteryx serripennis*
cliff swallow	*Hirundo pyrrhonota*
barn swallow	*Hirundo rustica*
Steller's jay	*Cyanocitta stelleri*
yellow-billed magpie	*Pica nuttalli*
American crow	*Corvus brachyrhynchos*
common raven	*Corvus corax*
plain titmouse	*Parus inornatus*
house wren	*Troglodytes aedon*

Table 1-3
Uncovered MBTA-protected Species[1]

Common Name	Scientific Name
ruby-crowned kinglet	*Regulus calendula*
western bluebird	*Sialia mexicana*
American robin	*Turdus migratorius*
northern mockingbird	*Mimus polyglottos*
American pipit	*Anthus rubescens*
yellow-rumped warbler	*Dendroica coronata*
common yellowthroat	*Geothlypis trichas*
Wilson's warbler	*Wilsonia pusilla*
western tanager	*Piranga ludoviciana*
black-headed grosbeak	*Pheucticus melanocephalus*
lazuli bunting	*Passerina amoena*
lark sparrow	*Chondestes grammacus*
savannah sparrow	*Passerculus sandwichensis*
song sparrow	*Melospiza melodia*
white-crowned sparrow	*Zonotrichia leucophrys*
dark-eyed junco	*Junco hyemalis*
red-winged blackbird	*Agelaius phoeniceus*
western meadowlark	*Sturnella neglecta*
Brewer's blackbird	*Euphagus cyanocephalus*
great-tailed grackle	*Quiscalus mexicanus*
brown-headed cowbird	*Molothrus ater*
northern oriole	*Icterus galbula*
house finch	*Carpodacus mexicanus*
lesser goldfinch	*Carduelis psaltria*
American goldfinch	*Carduelis tristis*

[1] This is a list of MBTA species that have been electrocuted by the electrified fences of the project. However, all MBTA species are presumed to be addressed by this HCP pursuant to the CDC/USFWS/CDFG letter (refer to page 1-7) regarding MBTA, even though they are not covered under either the federal 10(a)(1)(B) or the state Section 2081(b) incidental take permits.

2 ENVIRONMENTAL SETTING/BIOLOGICAL RESOURCES

This section of the HCP contains a brief discussion of location, climate, topography, surrounding land use, vegetation communities, and common wildlife species observed or expected to occur on each prison site. Because the 29 existing and future prison facilities are located in a variety of settings throughout California, each site's environmental setting is discussed separately. However, setting descriptions are consolidated when prison sites are adjacent, or are part of a group of prison facilities. Wildlife listed in Section 2.1 for each site generally includes only the species that were commonly observed or are expected to occur; for a full description of all ESA/CESA-covered species that could be incidentally taken at each of the sites, refer to Section 2.2.

2.1 ENVIRONMENTAL SETTING

2.1.1 CALIPATRIA STATE PRISON

Calipatria State Prison (Calipatria) is located approximately 4 miles northeast of the City of Calipatria and 10 miles east of the Salton Sea, in Imperial County. The 1,200-acre prison facility is on flat terrain and is entirely surrounded by agricultural land uses. The site elevation is 167 feet below sea level. Annual temperatures range from a normal summer daily high of approximately 107 degrees Fahrenheit (°F) to a normal winter daily low of 39 °F, while rainfall averages 3.05 inches a year.

Vegetation

Three vegetation communities were identified on the prison property: barren/disturbed/ruderal areas, landscaped areas, and open water/wetland. Barren ground, disturbed areas, and ruderal fields cover most of the undeveloped land on the prison site where plant species include fiddleneck (*Amsinckia menziessi* ssp. *intermedia*), Russian thistle (*Salsola tragus*), dove weed (*Eremocarpus setigerus*), wild oat (*Avena* sp.), filaree (*Erodium* sp.), and prickly lettuce (*Lactuca serriola*). The landscaped areas are well-maintained, irrigated, and planted with ornamental lawns, trees, shrubs, and flowerbeds. There are also small gardens and irrigated lawns inside the fenced perimeter. A large detention pond in the southwest corner of the site and several small drainage ditches near the perimeter road constitute the open water/wetland habitat onsite. Except for a few scattered weeds at the bottom of the drainage ditches, these areas are mostly devoid of vegetation. Irrigation canals parallel both the northern and southern boundaries of the site.

Wildlife

The Calipatria State Prison property does not support any naturally-occurring habitat types and the remaining undeveloped, open space areas are either landscaped or barren, disturbed, and weedy. Because of the lack of native vegetation, wildlife diversity and abundance tends to be low. Appreciable numbers of wildlife were only observed in the landscaped areas and these were mostly species adapted to urban settings. Common species observed foraging in these areas include: western meadowlark (*Sturnella neglecta*), mourning dove (*Zenaida macroura*), rock dove (*Columba livia*), American kestrel (*Falco sparverius*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and house finch (*Carpodacus mexicanus*).

Species associated with the large detention pond included black tern (*Chlidonias niger*), red-necked phalarope (*Phalaropus lobatus*), Bonaparte's gull (*Larus philadelphia*), and eared grebe (*Podiceps nigricollis*). Birds observed foraging along the banks of the pond and in the drainage ditches include black-necked stilt (*Himantopus mexicanus*), ring-billed gull (*Larus delawarensis*), spotted sandpiper (*Actitis macularia*), least sandpiper (*Calidris minutilla*), killdeer (*Charadrius vociferus*), and cattle egret (*Bubulcus ibis*).

2.1.2 CENTINELA STATE PRISON

Centinela State Prison (Centinela) is located in southwestern Imperial County, approximately 12 miles west of El Centro, on 2,300 acres of state-owned land. The prison facility, like the surrounding area, is predominantly flat with a slight eastward decline. The site is nearly devoid of both natural and ruderal vegetation, which has been removed or altered by recent grading activity. Elevations on the site range between sea level and 40 feet below sea level. Annual temperatures range from a normal summer daily high of approximately 107 °F to a normal winter daily low of 39 °F, while rainfall averages 3.05 inches a year.

Vegetation

Six vegetation communities were identified on or adjacent to the prison site: barren/disturbed/ruderal areas, creosote bush, desert wash, tamarisk, open water/wetland, and landscaped areas. Graded and barren ground where vegetation is sparse and weedy, typifies most of the prison site. The property is surrounded by creosote bush and desert wash habitat. Creosote bush (*Larrea tridentata*) is the most prevalent shrub, with all-scale (*Atriplex polycarpa*), goldenbush (*Isocoma* sp.), and bur-sage (*Ambrosia dumosa*) being frequent subdominants. The dominant tree in this habitat is tamarisk (*Tamarix ramosissima*). Two large detention basins and a network of drainage ditches constitute the open water/wetland habitat. Plant species present in these onsite habitats include prickly sow thistle (*Sonchus asper*), cattail (*Typha* sp.), and western sunflower (*Helianthus annuus*). Landscape vegetation present on the prison grounds includes lawns, ornamental trees, shrubs and flowerbeds.

Wildlife

Wildlife species observed most frequently in the disturbed areas include round-tailed ground squirrel (*Spermophilus tereticaudus*), black-tailed jackrabbit (*Lepus californicus*), Audubon's cottontail (*Sylvilagus audubonii*), side-blotched lizard (*Uta stansburiana*), and western kingbird (*Tyrannus verticalis*). Species less frequently observed in these areas were American kestrel, red-tailed hawk (*Buteo jamaicensis*), savannah sparrow (*Passerculus sandwichensis*), and western meadowlark. The water storage and wastewater treatment ponds on the site provide habitat for ring-billed gull, American coot (*Fulica americana*), killdeer, and black-necked stilt.

Species adapted to the desert conditions are abundant in the creosote bush and desert wash habitat adjacent to the prison site. Species observed or expected to occur in these areas include desert iguana (*Dipsosaurus dorsalis*), lesser nighthawk (*Chordeiles acutipennis*), zebra-tailed lizard (*Callisaurus draconoides*), mourning dove, red-tailed hawk, greater roadrunner (*Geococcyx californicus*), black-tailed gnatcatcher (*Polioptila melanura*), desert kangaroo rat (*Dipodomys deserti*), Audubon's cottontail, Botta's pocket gopher (*Thomomys bottae*), coyote (*Canis latrans*), and desert kit fox (*Vulpes macrotis*).

2.1.3 CALIFORNIA INSTITUTION FOR MEN, WEST

California Institution for Men, West (CIM) is located 3 miles south of the city of Chino, in San Bernardino County. It is bordered by Central Avenue on the west, Kimball Avenue on the south, Euclid Avenue on the east, and Edison Avenue on the north. Chino Creek is approximately ¼ mile west of the prison. The prison was built on approximately 2,600 acres of flat land 1.5 miles east of the Chino Hills. Much of the property is in active agriculture, which supports the prison dairy operation. The site elevation ranges from 575 feet to 685 feet above mean sea level (msl). Annual temperatures range from a normal summer daily high of approximately 95 °F to a normal winter daily low of 44 °F, while rainfall averages 15.63 inches a year.

Vegetation

The CIM property and surrounding acreage is best described as a mix of urban (buildings and landscaping) and agricultural land uses. The site itself is devoid of native plant communities. Four altered habitat types were identified on the prison grounds: agricultural fields, barren/disturbed/ruderal areas, landscaped areas, and fresh emergent wetland (ponds and ditches). Some agricultural fields are being used to grow crops, some are fallow, and some have neglected, weedy crops. Where vegetation is present in the barren, disturbed or ruderal habitat, it is sparse and dominated by herbaceous weeds that are tolerant of disturbed conditions. Landscaping consists of irrigated lawns, flowerbeds, and ornamental trees and shrubs. Two wastewater treatment ponds and man-made drainage ditches (located throughout the state-owned property) contain degraded emergent wetland vegetation and are dominated by low growing weedy species.

A willow dominated valley-foothill riparian habitat occurs offsite along Chino Creek. The banks of the creek have been rip-rapped in this area, limiting its value for wildlife. The dominant species in this community is black willow (*Salix gooddingii*) with arroyo willow, mugwort, stinging nettle (*Urtica dioica* ssp. *holosericea*), castor-bean (*Ricinus communis*), mule fat (*Baccharis salicifolia*), California bulrush (*Scirpus californica*), and willow-weed (*Polygonum lapathifolium*) as subdominants.

Wildlife

Common bird species observed using the agricultural fields and disturbed habitats include turkey vulture (*Cathartes aura*), red-tailed hawk, rough-legged hawk (*Buteo lagopus*), American kestrel, ring-billed gull, common raven (*Corvus corax*), European starling, lesser goldfinch (*Carduelis psaltria*), yellow-rumped warbler (*Dendroica coronata*), and Brewer's blackbird (*Euphagus cyanocephalus*). Mammals observed in these areas include California ground squirrel, striped skunk (*Mephitis mephitis*), and Botta's pocket gopher. Common wildlife species observed at the wastewater treatment ponds include great blue heron (*Ardea herodias*), green heron (*Butorides striatus*), cattle egret, great egret (*Casmerodius albus*), bufflehead (*Bucephala albeola*), western grebe (*Aechmophorus occidentalis*), American coot, northern shoveler (*Anas clypeata*), and American wigeon (*Anas americana*).

2.1.4 R.J. DONOVAN CORRECTIONAL FACILITY AT ROCK MOUNTAIN AND CALIFORNIA STATE PRISON—SAN DIEGO COUNTY II

The R.J. Donovan Correctional Facility (R.J. Donovan) and the proposed site of the California State Prison-San Diego County II (San Diego II) are located next to each other in southern San Diego County,

approximately 5 miles east of Interstate 805, 18 miles southeast of San Diego, and 2 miles north of the US/Mexican border. The sites are on a plateau that slopes gently from the southeast to the northwest. Steep slopes drop sharply into two Otay River tributary canyons, O'Neal Canyon and Johnson Canyon, that border the plateau on the northeast and southwest, respectively. R.J. Donovan occupies a 760-acre site and San Diego II would occupy a 513-acre site; both are at approximately 600 feet above msl. Annual temperatures range from a normal summer daily high of approximately 75 °F to a normal winter daily low of 45 °F, while rainfall averages 9.34 inches a year.

Vegetation

Five vegetation communities were identified on the prison grounds: Diegan coastal sage scrub, riparian/wetland, non-native annual grassland, barren/disturbed/ruderal areas, and landscaped areas. The majority of the site has been altered for agricultural use, most of which was fallow at the time of the surveys. Some native coastal sage scrub vegetation exists on the north-facing slope of O'Neal Canyon and in the southwest portion of the site. This vegetation is relatively dense and is dominated by California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*). A small riparian/wetland area is located on the west side of the facility along a drainage ditch. Vegetation in this area consists of several small willows (*Salix* sp.), cattail, tamarisk, and mulefat. The facility is surrounded by non-native annual grassland vegetation which is dominated by oat (*Avena* sp.), ripgut brome (*Bromus diandrus*), and foxtail chess (*Bromus madritensis* ssp. *rubens*). A small area in the southeast portion of the site contains little vegetation, having been disturbed by prison construction activities. Also, much of the area immediately surrounding the fenced perimeter is essentially barren. A number of weedy species were found in areas not recently disturbed or disced, including mustard (*Brassica* sp.), fiddleneck, Russian thistle, and prickly lettuce. Landscape vegetation consists of sea lavender (*Limonium californicum*), cactus (*Opuntia* sp.), and a variety of ornamental trees.

Wildlife

Wildlife species observed most frequently in the onsite coastal sage scrub habitat included California towhee (*Pipilo crissalis*), wrentit (*Chamaea fasciata*), California thrasher (*Toxostoma redivivum*), and Anna's hummingbird (*Calypte anna*). Species observed in association with the riparian/wetland areas included red-winged blackbird, song sparrow (*Melospiza melodia*), and killdeer. Within the non-native annual grassland and other more open habitats, species such as Brewer's blackbird, red-winged blackbird, house sparrow, western meadowlark, and house finch were observed or are expected to occur. Other species expected to occur onsite are ferruginous hawk (*Buteo regalis*), sharp-shinned hawk (*Accipiter striatus*), southern grasshopper mouse (*Onychomys torridus romona*), and San Diego horned lizard (*Phrynosoma coronatum blainvillei*).

2.1.5 IRONWOOD STATE PRISON AND CHUCKAWALLA VALLEY STATE PRISON

Ironwood State Prison (ISP) and Chuckawalla Valley State Prison (CVSP) are located next to each other in eastern Riverside County, approximately 3 miles south of Interstate 10, and 17 miles west of Blythe. ISP, in operation since February 1994, and CVSP, in operation since December 1988, occupy 1,720 acres of state-owned property. The property, like the surrounding area, is predominantly flat with elevations ranging between 425 and 460 feet above msl. Climatic conditions are typical of the lower Colorado Desert region: extremely hot summers and cool winters, with low annual precipitation. Annual

temperatures range from a normal summer daily high of approximately 108 °F to a normal winter daily low of 38 °F, while rainfall averages 3.8 inches a year.

Vegetation

Six vegetation communities were identified on the prison grounds: creosote bush scrub, desert wash, disturbed areas (disced fields and barren areas), man-made drainage ditches and storm water detention basins, jojoba fields, and landscaped areas. Creosote bush scrub is one of only two native plant communities on the prison site. Although dominated by creosote bush, other shrub species such as bur-sage, brittlebush (*Encelia farinosa*), and broom snakeweed (*Gutierrezia sarothrae*) are common in this community. Desert wash habitat exists in the northwest corner of the site. While plant species diversity is similar to that described above for creosote bush scrub, desert wash habitat is dominated by trees that often form dense thickets. Typical tree species include desert ironwood (*Olneya tesota*), catclaw (*Acacia gregii*), and blue palo verde (*Cercidium floridum* ssp. *floridum*). Open water and wetland habitat is confined to a large detention basin and a network of perimeter drainage ditches on the prison properties. Plant species found in this habitat type include tamarisk, plantain, Bermuda grass (*Cynodon dactylon*), and rush (*Juncus* sp.).

Disced fields, barren ground, and other disturbed areas typify most of the prison properties. Vegetation in these areas is usually sparse and weedy. Agriculture areas include an abandoned jojoba (*Simmondsia chinensis*) field and an orange orchard. Jojoba is still being harvested, although it is no longer irrigated, and the small orange orchard has many dead trees and appears to be abandoned. Landscaped areas onsite consist of lawns, flowerbeds, ornamental trees and shrubs and an arboretum with native and non-native species.

Wildlife

The prison site provides suitable habitat for several common wildlife species. In the onsite and offsite creosote bush scrub and desert wash habitats, desert iguana, zebra-tailed lizard, western diamondback rattlesnake (*Crotalus atrox*), northern mockingbird (*Mimus polyglottos*), and turkey vulture were observed. Killdeer, least sandpiper, American coot, cinnamon teal (*Anas cyanoptera*), and American wigeon were observed in the open water and wetland areas onsite. Most of the wildlife observed onsite are species adapted to disturbed and urbanized habitats. Species observed in the developed, landscaped, and disturbed habitats near the fenced perimeter include house sparrow, European starling, mourning dove, lesser nighthawk, zebra-tailed lizard, killdeer, mourning dove, white-winged dove (*Zenaida asiatica*), horned lark (*Eremophila alpestris*), and cliff swallow (*Hirundo pyrrhonota*).

2.1.6 CALIFORNIA STATE PRISON—LOS ANGELES

California State Prison-Los Angeles (CSP-Los Angeles) is located on Avenue J in the City of Lancaster, approximately 2.5 miles west of the Antelope Valley Freeway. The 282-acre site, located at the southwestern edge of the Mojave Desert, is flat with an elevation of 2,350 feet. Land use in the vicinity of the site is a mixture of open space areas to the north and west, with agriculture and housing to the south and east. Annual temperatures range from a normal summer daily high of approximately 97 °F to a normal winter daily low of 31 °F. Rainfall average is 6.92 inches a year.

Vegetation

Three vegetation communities were identified on or adjacent to the prison site: wetlands, barren/ disturbed/ruderal areas, and desert scrub. Disturbed ground and barren areas resulting from frequent grading are the dominant vegetation communities onsite. Ruderal species in these areas include foxtail chess, cheat grass (*Bromus tectorum*), and Mediterranean schismus (*Schismus barbatus*). Depressions that hold seasonal water and a small freshwater marsh constitute the open water/wetland habitat. The depressions support ruderal plant species and some wetland vegetation such as prickly lettuce, Russian thistle, common knotweed, tumble mustard, and tumbleweed (*Amaranthus albus*). The small freshwater marsh formed in an area that collects water from a culvert. Species observed in this habitat include broad-leaved cattail (*Typha latifolia*), winged threesquare (*Scirpus americanus*), wire rush (*Eleocharis* sp.), narrow-leaved willow, and tamarisk. The prison is surrounded by desert scrub habitat, which is dominated by shadescale (*Atriplex confertifolia*), four-wing saltbush (*Atriplex canescens*), Mormon tea (*Ephedra nevadensis*), and great basin sagebrush. A Joshua tree woodland is located offsite south of the prison. This habitat is differentiated from desert scrub by the presence of Joshua trees (*Yucca brevifolia*) and California juniper (*Juniperus californicus*).

Wildlife

Wildlife species observed most frequently in disturbed habitat onsite include horned lark, common raven, Brewer's blackbird, house finch, house sparrow, and killdeer. Egrets and herons (*Egretta thula, Bubulcus ibis* and *Casmerodius albus*) were observed in the wetlands onsite. Where standing water was present, the stormwater detention basins supported species such as killdeer, ring-billed gull, ring-necked duck (*Aythya collaris*), and mallard (*Anas platyrhynchos*). Species observed or expected to occur in the desert scrub habitat include side-blotched lizard, red-tailed hawk, California quail (*Callipepla californica*), western kingbird, northern mockingbird, white-tailed kite (*Elanus leucurus*), and Swainson's hawk (*Buteo swainsoni*).

2.1.7 CALIFORNIA CORRECTIONAL INSTITUTION, LEVELS III, IVA AND IVB

The California Correctional Institution's (CCI) Level III , IVA, and IVB facilities are grouped together in the Cummings Valley, 10 miles southwest of the City of Tehachapi, in the Tehachapi Mountains of Kern County. The site elevation is approximately 3,900 feet above msl. Topography on the 1,705-acre prison property ranges from mostly flat "spray fields" to moderately steep foothills. Climatic conditions are transitional between the southern Sierra Nevada to the north, the Mojave Desert to the east, and the transverse mountains of southern California. The area has relatively warm to hot summers and cold winters, with moderate annual precipitation. Annual temperatures range from a normal summer daily maximum of approximately 97 °F to a normal winter daily low of 35 °F, while rainfall averages 11.13 inches a year. Snow falls occasionally at this elevation.

Vegetation

Seven vegetation communities were identified on or near the prison grounds: barren/disturbed/ruderal areas, landscaped areas, spray fields, open water/wetland, non-native grassland, sagebrush scrub, and blue oak woodland. Barren, disturbed, and ruderal habitats are present throughout the site. Ruderal areas are dominated by non-native grasses and forbs such as foxtail (*Hordeum murinum* ssp. *leporinum*), ripgut brome, and red brome (*Bromus madritensis* ssp. *rubens*). Landscaped areas support irrigated

lawns, flowerbeds, and ornamental trees and shrubs. Spray fields are generally dominated by tall, dense, weedy vegetation such as soft chess (*Bromus hordeaceus*), curly dock (*Rumex crispus*), and dallisgrass (*Paspalum dilatatum*). Open water and wetland habitat is comprised of wastewater treatment ponds, stormwater detention basins, and seasonal drainages that contain occasional clumps of riparian vegetation. Common species found in this area include willows, cattail, and foxtail. Non-native grassland is a common habitat on the lower slopes of the foothills south and east of the state property. Dominant species include red brome and wild oat (*Avena fatua*). Sagebrush scrub, either dominated by sagebrush (*Artemisia tridentata* ssp. *Vaseyana*) or rabbitbrush (*Chrysothamnus nauseosus*), is the prevalent native plant community on the level terrain that occurs near each of the perimeters and surrounding the prison property. Blue oak woodland occurs on several knolls onsite and is present southeast of the prison property; it is dominated by blue oak (*Quercus douglasii*), and to a lesser extent, Oregon oak (*Quercus garryana*).

Wildlife

Most of the wildlife observed onsite are species adapted to disturbed and urbanized habitats. Species associated with the developed, landscaped, and barren/disturbed/ruderal areas in the immediate vicinity of the fenced perimeter included house sparrow, European starling, house finch, Brewer's blackbird, mourning dove, and rock dove. The spray fields provide foraging habitat for raptor species, including red-tailed hawk, turkey vulture, and red-shouldered hawk (*Buteo lineatus*). Species observed or expected to occur at the wastewater treatment ponds and in other open water/wetland areas include killdeer, American coot, ruddy duck (*Oxyura jamaicensis*), mallard, gadwall (*Anas strepera*), and bufflehead. The blue oak woodlands and non-native grasslands supported the highest diversity of wildlife, including such species as western fence lizard (*Sceloporus occidentalis*), American kestrel, turkey vulture, red-tailed hawk, and Nuttall's woodpecker (*Picoides nuttallii*).

Sagebrush scrub habitats are used by many native species. Avian species adapted to the sagebrush scrub habitats include common raven, sage sparrow (*Amphispiza belli*), golden-crowned sparrow (*Zonotrichia atricapilla*), Brewer's sparrow (*Spizella breweri*), and roadrunner. Mammals observed or expected in this area are black-tailed jackrabbit, Audubon's cottontail, coyote, kangaroo rat (*Dipodomys* sp.), and long-tailed weasel (*Mustela frenata*).

2.1.8 CALIFORNIA STATE PRISON—CORCORAN AND CALIFORNIA SUBSTANCE ABUSE TREATMENT FACILITY

The California State Prison at Corcoran (CSP-Corcoran) is located in the City of Corcoran, approximately 45 miles south of the City of Fresno, along the eastern edge of the Tulare Lake basin. The new prison next to CSP-Corcoran is the California Substance Abuse Treatment Facility (CSATF). CSP-Corcoran comprises approximately 960 acres, while CSATF occupies a 750-acre parcel adjoining CSP-Corcoran to the south. Land use in the immediate vicinity of the prison is almost entirely active agriculture. A number of wastewater percolation ponds, owned and operated by the City of Corcoran, are located north of the prison. The topography of the sites is flat with an elevation of approximately 200 feet above sea level. Annual temperatures range from a normal summer daily high of approximately 99 °F to a normal winter daily low of 35 °F, while rainfall averages 7.04 inches a year.

Vegetation

Three dominant communities were identified on the prison grounds: agricultural fields, wetlands (drainage ditches, irrigation canals and wastewater treatment ponds), and barren/disturbed/ruderal areas. Agricultural crops grown on the prison grounds include corn (*Zea mays*), wheat (*Triticum aestivum*), and alfalfa (*Medicago sativa*). Some fields are fallow and have become dominated by non-native, weedy species such as Bermuda grass, puncture vine (*Tribulus terrestris*), and rough pigweed (*Amaranthus retrofleaus*). Freshwater emergent wetland vegetation is found in the numerous ditches that drain the agricultural fields. Dominant vegetation in the ditches include California bulrush, broad-leaved cattail, and common sunflower. Ruderal species such as Russian thistle, rough pigweed, and tumbleweed occupy barren and disturbed areas around prison buildings, parking lots, and roads.

Wildlife

Wildlife species observed or expected to occur in the disturbed and agricultural areas include side-blotched lizard, western toad (*Bufo boreas*), turkey vulture, red-tailed hawk, house sparrow, yellow-rumped warbler, greater yellowlegs (*Tringa melanoleuca*), green heron, California ground squirrel, Audubon's cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit, long-tailed weasel (*Mustela frenata*), and Botta's pocket gopher. Species present in the wastewater treatment ponds and drainage ditches include long-billed dowitcher (*Limnodromus scolopaceus*), least sandpiper, Canada goose (*Branta canadensis*), ruddy duck, pied-billed grebe (*Podilymus podiceps*), ring-billed gull, and Wilson's phalarope (*Phalaropus tricolor*). Mammal species observed or expected to occur offsite in riparian and agricultural habitat include Audubon's cottontail, black-tailed jackrabbit, and coyote.

2.1.9 PLEASANT VALLEY STATE PRISON

Pleasant Valley State Prison (PVSP) is located in western Fresno County, approximately 5 miles east of downtown Coalinga. The 637-acre site is approximately 580 feet above sea level and is mostly flat. Agriculture and ranch land constitute the primary land use surrounding the site. Annual temperatures range from a normal summer daily high of approximately 99 °F to a normal winter daily low of 35 °F, while rainfall averages 7.82 inches a year.

Vegetation

Five vegetation communities were identified on or adjacent to prison property: agricultural fields, barren/disturbed/ruderal areas, wetlands, saltbush scrub, and tamarisk scrub. Barren and disturbed areas are present throughout the site and are typically devoid of vegetation, or support only ruderal vegetation such as Russian thistle and cheeseweed (*Malva parviflora*). Wetlands onsite include the newly-constructed wastewater treatment ponds, stormwater detention basins, and ditches that drain to the stormwater detention basins. The wastewater treatment ponds are lined and do not support any vegetation. The two stormwater detention basins are earthen and support a weedy plant community dominated by Italian ryegrass (*Lolium multiflorum*). The agricultural fields adjacent to the prison are planted with wheat and other grain crops. Saltbush scrub occurs along the northeast and east side of the prison and is dominated by scattered spiny saltbush (*Atriplex spinifera*), big saltbush (*Atriplex lentiformis*), and allscale. Tamarisk scrub is the only woody species present in a small offsite drainage. Understory species in this area consist mostly of ripgut brome, soft chess, and Mediterranean grass (*Schismus arabicus*).

Wildlife

Generally, wildlife diversity in the disturbed and ruderal areas onsite and adjacent to the property was fairly low and typical of other disturbed areas in the region. Common species observed onsite include killdeer, mourning dove, white-crowned sparrow (*Zonotrichia leucophrys*), harvest mouse (*Reithrodontomys megalotis*), and Audubon's cottontail. The stormwater detention basin and wastewater treatment ponds onsite attract many species of wildlife and provide habitat for both migratory and nesting birds. Migratory birds observed in the basins included Wilson's phalarope, least sandpiper, and long-billed dowitcher. Birds known or suspected to nest along the banks of these basins include American avocet (*Recurvirostra americana*), black-necked stilt, and killdeer. Migratory species observed included eared grebe, mallard, cinnamon teal, lesser scaup (*Aythya affinis*), and ruddy duck.

The saltbush scrub and tamarisk scrub habitats offsite support a moderate diversity of wildlife. Species observed or expected in the saltbush scrub include American kestrel, common raven, western meadowlark, black-tailed jackrabbit, Audubon's cottontail, and coyote. Species expected to forage or nest in the tamarisk scrub include red-winged blackbird, California quail, western kingbird, lesser goldfinch, northern mockingbird, and black phoebe (*Sayornis nigricans*)

2.1.10 AVENAL STATE PRISON

Avenal State Prison (ASP) is located approximately 3 miles south of the City of Avenal, in Kings County. The mostly level, 640-acre site is approximately 800 feet above msl. The southwest corner of the site abuts the rolling foothills of the coastal mountains; the remainder of the site is surrounded by active crop land and disced fields. No native habitats are present onsite and much of the undeveloped land is disced regularly to eliminate vegetation. Annual temperatures range from a normal summer daily high of approximately 98 °F to a normal winter daily low of 38 °F, while rainfall averages 6.61 inches a year.

Vegetation

Five vegetation communities were identified on or adjacent to the prison property: open water/wetland, barren/disturbed/ruderal areas, landscaped areas, non-native grassland, and agricultural fields. Barren, disturbed, and ruderal areas are the most common habitats on the prison site. Typically, these areas support widely scattered weedy vegetation and no trees or shrubs. Landscaped areas onsite include lawns, and native and non-native trees such as poplar (*Populus alba*), pine (*Pinus* sp.), and eucalyptus (*Eucalyptus* sp.). A stormwater detention basin and wastewater storage pond comprise the open water and wetland habitat onsite. Although neither basin supports emergent vegetation, tamarisk was present along the banks of the wastewater storage pond. Non-native annual grassland is the dominant plant community in the low foothills southwest of the site. Species present in this area include red-stemmed filaree, foxtail chess, ripgut brome, and Mediterranean grass. Agricultural crops such as grain, cotton and alfalfa are currently farmed in fields offsite.

Wildlife

In general, wildlife diversity on the site is relatively low because the site lacks native habitat. However, the ruderal vegetation, when allowed to grow, provides forage and cover for some native and non-native birds and mammals. Common species observed foraging in the barren and ruderal areas include

feet above msl. Annual temperatures range from a normal summer daily high of approximately 95 °F to a normal winter daily low of 37 °F, with average rainfall of 21.85 inches a year.

Vegetation

Six native habitat types were identified on and adjacent to the site: altered blue oak/digger pine woodland, valley-foothill riparian, open water/wetland, chaparral, and non-native annual grassland. Altered habitats include spray fields (within oak-pine woodlands and non-native annual grassland onsite), agricultural fields, and areas that were barren, heavily disturbed, or supporting sparse, weedy vegetation. Blue oak-digger pine woodland is the dominant habitat at MCSP. Common trees found in this area include blue oak, foothill pine (*Pinus sabiniana*), and interior live oak (*Quercus wislizenii*). Valley-foothill riparian habitat is located both onsite (along Mule Creek) and offsite (along Dry Creek). Species present in this habitat are Fremont's cottonwood (*Populus fremontii*), red willow (*Salix laevigata*), interior live oak, blue oak, and Himalayan blackberry (*Rubus discolor*). Freshwater emergent wetland habitat is confined to man-made drainage ditches and supports yellow waterweed (*Ludwigia peploides*) and annual beard grass (*Polypogon monspeliensis*). Lined sewage treatment ponds and a large detention basin constitute the open water habitat that supports species such as barnyard grass, knotweed, and nutsedge. Chaparral habitat is found on the cliffs and hills in the northeast corner of the prison property, where chamise (*Adenostoma fasciculatum*) and yerba santa (*Eriodictyon californicum*) are the dominant shrubs. Common species found in the non-native grassland habitat include wild oat, squirreltail (*Elymus elymoides* ssp. *elymoides*), soft chess, and milk thistle.

Wildlife

The highest wildlife diversity onsite was found in the foothill pine/oak woodlands and chaparral. Wildlife species frequently encountered in these habitats include western fence lizard, turkey vulture, red-tailed hawk, American kestrel, California quail, wild turkey (*Meleagris gallopavo*), mourning dove, acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker, northern flicker (*Colaptes auratus*), Say's phoebe (*Sayornis saya*), scrub jay (*Aphelocoma coerulescens*), common raven, American crow, western bluebird (*Sialia mexicana*), California towhee, black-tailed jackrabbit, coyote, bobcat (*Felis rufus*), and mule deer (*Odocoileus hemionus*). Species observed or expected to occur in the riparian habitat onsite include Anna's hummingbird, black phoebe, ruby-crowned kinglet (*Regulus calendula*), hermit thrush (*Catharus guttatus*), Hutton's vireo (*Vireo huttoni*), rufous-sided towhee (*Pipilo erythrophthalmus*), and raccoon (*Procyon lotor*).

Most of the wildlife species observed in the ditches or barren/disturbed/ruderal habitats immediately adjacent to the perimeter fences were primarily those adapted to urban environments, including house sparrow, European starling, house finch, Brewer's blackbird, ring-billed gull, house cat (*Felis domesticus*), American pipit (*Anthus rubescens*), killdeer, lesser goldfinch, Brewer's blackbird, barn owl, great horned owl (*Bubo virginianus*), and common nighthawk (*Chordeiles minor*).

2.1.14 CALIFORNIA STATE PRISON—SOLANO

California State Prison-Solano (CSP-Solano) is located within the incorporated limits of the City of Vacaville, approximately 5 miles southwest of the city center. The prison, located on approximately 980 acres, is situated at the base of the east slope of the Vaca Mountains. A residential subdivision borders the prison's eastern boundary. Other land uses in the vicinity include farming and livestock grazing.

Annual temperatures range from a normal summer daily high proximately 94 °F to a normal winter daily low of 36 °F, while rainfall averages 23.84 inches a year.

Vegetation

Six vegetation communities were identified on the prison grounds: blue oak woodland, non-native annual grassland, open water/wetland, barren/disturbed/ruderal areas, landscaped areas, and orchards. Blue oak woodland is the dominant habitat in the foothills west of the site. Blue oaks are the only tree species found throughout this community, with a herbaceous understory dominated by non-native grasses. Non-native grassland habitat is dominated by slender wild oats (*Avena barbata*) and red brome. Two large irrigation water storage ponds, four small sludge settling ponds and a drainage canal constitute the open water/wetland habitat onsite. Emergent vegetation is present in all the ponds and includes species such as cattail, curly dock, and tule (*Scirpus acutus* var. *occidentalis*). Barren ground, ruderal fields, and disturbed areas are common throughout the site and are dominated by non-native grasses and yellow star thistle (*Centaurea solstitialis*). Landscaped areas onsite consist of a small garden, nursery, lawns, and several mature elm (*Ulmus* sp.), pine, and fig (*Ficus carica*) trees. Well maintained English walnut (*Juglans regia*) and plum (*Prunus domestica*) orchards are present in the northwest corner of the site.

Wildlife

Numerous wildlife species were observed or are expected to occur in the blue oak woodland and orchard habitats onsite, including yellow-billed magpie (*Pica nuttalli*), scrub jay, northern flicker, American robin (*Turdus migratorius*), yellow-rumped warbler, Anna's hummingbird, and mule deer. Within the non-native annual grassland and ruderal habitats, some of the more common species observed or expected to occur include white-crowned sparrow, savannah sparrow, western meadowlark, and black-tailed jackrabbit. The storage ponds provide habitat for a variety of species, including killdeer, common snipe (*Gallinago gallinago*), and pied-billed grebe, to name a few. Species observed in association with the landscaped, barren, and ruderal habitats in the immediate vicinity of the fenced perimeter include house sparrow, ring-billed gull, European starling, white-crowned sparrow, savannah sparrow, American crow, Brewer's blackbird, red-winged blackbird, killdeer, loggerhead shrike (*Lanius ludovicianus*), western meadowlark, northern mockingbird, rock dove, house cat, bullfrog, great horned owl, and black-tailed jackrabbit.

2.1.15 PELICAN BAY STATE PRISON

Pelican Bay State Prison (PBSP) is located on 430 acres, approximately 7.5 miles northeast of Crescent City and 14 miles south of the California-Oregon border, in Del Norte County. The Smith River runs east to west approximately 2 miles north of the prison. The north end of Lake Earl is within 0.5 mile of the project site. The topography of the prison site is relatively flat, with an elevation of approximately 100 feet above msl. Land use in the immediate vicinity of the prison consists of a few individual residences located to the south and north within coast redwood forest habitat. Relatively undisturbed stands of coast redwood forest are located to the east, and many small wetlands, marshes, swamps, and drainages occur in the project vicinity. Second- and third-growth redwood forest and other native forest and wetland habitats surround the prison site. Annual temperatures range from a normal summer daily high of approximately 67 °F to a normal winter daily low of 40 °F, while rainfall averages 65.21 inches a year.

Vegetation

Six vegetation communities occur on or adjacent to the prison property: upland redwood forest, red alder forest, red alder riparian forest, barren/disturbed/ruderal areas, agricultural fields, and wetlands. Upland redwood forest is comprised mainly of second- and third-growth coast redwood (*Sequoia sempervirens*), with scattered western hemlock (*Tsuga heterophylla*) and Douglas fir (*Pseudotsuga menziesii*). Red alder forest is associated with gaps in the redwood forest canopy and isolated, moist situations on the prison grounds. Red alder dominates the canopy of this community, with an understory of wild ginger (*Asarum caudatum*), deer fern (*Blechnum spicant*), slough sedge (*Carex obnupta*), buckhorn cascara (*Rhamnus purshiana*), willow, and California black currant (*Ribes bracteosum*). Barren or disturbed areas include parking lots, roads, areas covered with gravel and ruderal areas along the perimeter of the prison. Several freshwater marshes are located onsite in areas that have been dammed for use as water detention basins. The dominant marsh species is broad-leaved cattail, although California bullrush (*Scirpus californica*) and willow are also present. The agricultural fields onsite consist of alfalfa.

Wildlife

Common wildlife species frequently observed in the red alder and redwood forests on and around the prison property include: Pacific tree frog (*Hyla regilla*), common raven, Steller's jay (*Cyanocitta stelleri*), turkey vulture, red-tailed hawk, red-shouldered hawk, mourning dove, northern flicker, red-breasted sapsucker (*Sphyrapicus ruber*), chestnut-backed chickadee (*Parus rufescens*), red-breasted nuthatch (*Sitta canadensis*),American robin, winter wren (*Troglodytes troglodytes*), wrentit, cedar waxwing (*Bombycilla cedrorum*), Wilson's warbler (*Wilsonia pusilla*), ruby-crowned kinglet (*Regulus calendula*), golden-crowned kinglet (*Regulus satrapa*), rock dove, song sparrow, white-crowned sparrow, marsh wren (*Cistothorus palustris*), American crow, American goldfinch (*Carduelis tristis*), cliff swallow, and barn swallow. Mammals found in the forest were identified by tracks and scat. Mammal sign was found for mule deer, black bear (*Ursus americanus*), gray fox (*Urocyon cinereoargenteus*), striped skunk, brush rabbit (*Sylvilagus bachmanii*), and raccoon.

The freshwater marshes and wastewater treatment ponds on the prison grounds provide habitat for green heron, killdeer, black phoebe, common yellowthroat (*Geothlypis trichas*), American goldfinch, common snipe, marsh wren, Virginia rail (*Rallus limicola*), barn swallow, ring-necked duck, ring-billed gull, bufflehead, and mallard.

2.1.16 CALIFORNIA CORRECTIONAL CENTER, LEVEL III AND HIGH DESERT STATE PRISON

The California Correctional Center, Level III (CCC Level III) and High Desert State Prison (HDSP) are located next to each other, 7 miles east of the City of Susanville, in Lassen County. The prison property includes the 1,100-acre CCC facility, the 655-acre High Desert State Prison, and 475 acres of spray fields. The average elevation is approximately 4,100 feet above msl. Annual temperatures range from a normal summer daily high of approximately 85 °F to a normal winter daily low of 13 °F, while rainfall averages 11.18 inches a year.

Vegetation

Six vegetation communities were identified on or adjacent to the CCC Level III and HDSP properties: sagebrush scrub, barren/disturbed/ruderal areas, spray fields, non-native annual grassland, open water/wetland, and landscaped areas. Sagebrush scrub is the prevalent habitat in the area and is dominated by great basin sagebrush; other, less dominant species include rabbitbrush, bitterbrush (*Arshia tridentata*),spineless horsebush (*Tetradymia canescens*), wild buckwheat (*Eriogonum fascleulatum*), cheatgrass, squirreltail, and Great Basin wild rye. Woody cover varies considerably in this habitat, but often forms a dense canopy. Most barren, disturbed habitat supports low-growing, herbaceous species, including cheat grass and fiddleneck. Several large spray fields (475 acres) are present onsite and are planted with alfalfa. The non-native annual grassland onsite is dominated by foxtail chess, foxtail barley, and wild oats. Open water habitat and wetland vegetation onsite occur in wastewater treatment ponds and excavated drainage channels. The ponds are mostly devoid of vegetation, but the channel supports willow and mule fat (*Baccharis* sp.). Landscaped areas onsite include irrigated and maintained lawns, ground cover, trees and shrubs.

Wildlife

Sagebrush scrub provides excellent habitat for many wildlife species, including some not found elsewhere onsite. Species observed only in sagebrush scrub include sage sparrow, sage thrasher (*Oreoscoptes montanus*), Brewer's sparrow, common poorwill (*Phalaenoptilus nuttallii*), Nuttall's cottontail (*Sylvilagus nuttallii*), and kangaroo rat. Species of birds often observed in disturbed and ruderal habitats are mourning dove, western kingbird, and lesser goldfinch. The spray fields provide good foraging habitat for red-tailed hawk, American kestrel, and coyote. Species often observed in the grasslands and sprayfields onsite include California ground squirrel, house cat, black-tailed jackrabbit, western meadowlark, savannah sparrow, and horned lark. Open water and wetland habitat onsite and offsite is suitable to support many wetland dependant wildlife species. Species observed or expected to occur in these areas include ring-billed gull, red-necked phalarope, Wilson's phalarope, eared grebe, cliff swallow, barn swallow, tree swallow (*Tachycineta bicolor*), violet-green swallow (*Tachycineta thalassina*) and mallard.

2.1.17 CALIFORNIA STATE PRISON—SACRAMENTO

California State Prison—Sacramento (CSP-Sacramento) is located in the City of Folsom, approximately 26 miles east of the City of Sacramento, in eastern Sacramento County. The 1,173-acre site is approximately 1 mile south of Folsom Dam, in the rolling Sierra Nevada foothills east of the American River. The approximate elevation is 300 feet above sea level. Most of the undeveloped land onsite is relatively undisturbed and wildlife diversity and abundance is considered high. Annual temperatures range from a normal summer daily high of approximately 94 °F to a normal winter daily low of 37 °F, while rainfall averages 23.91 inches a year.

Vegetation

Five vegetation communities were identified on or adjacent to the prison property: blue oak woodland, mixed oak woodland, non-native annual grassland, barren/disturbed/ruderal areas, and landscaped. Blue oak woodland onsite is dominated by blue oaks, with occasional occurrences of wild buckwheat, dyeweed (*Lotus scoparium*), and bush monkey flower (*Mammals aurantiacus*). Mixed oak woodland is

located in the hilly portions of the site and is dominated by blue oak and interior live oak, with toyon (*Heteromeles arbutifolia*), blue elderberry (*Sambucus medica*), poison oak (*Toxicodendron diversilobum*), foothill pine (*Pinus sabiniana*), and California buckeye being less dominant but occurring throughout. Non-native annual grassland and barren/disturbed/ruderal habitat support many of the same species, such as yellow star thistle, foxtail chess, and wild oats. Landscaped areas include lawns, a variety of ornamental shrubs, and tree species such as sycamore (*Plancus racemosa*), redwood, and elm.

Wildlife

The highest wildlife diversity was found in the mixed oak woodland and blue oak woodland habitats. Wildlife species frequently encountered in these habitats include western fence lizard, scrub jay, turkey vulture, American kestrel, red-tailed hawk, plain titmouse (*Parus in ornatus*), bushtit (*Psaltriparus minibus*), western bluebird, northern flicker, wild turkey, gray squirrel (*Sciurus griseus*), mule deer, and coyote. Wildlife diversity onsite in non-native annual grassland habitat is not as high as that in oak woodland, but it does support several species not found in the woodland areas. Species observed in the grassland habitat included western meadowlark, American goldfinch, savannah sparrow, mourning dove, Say's phoebe, black-tailed jackrabbit, California ground squirrel, and mule deer. Most of the species observed in the barren, disturbed or ruderal habitat were those adapted to urban environments, such as house sparrow, house finch, European starling, Brewer's blackbird, American robin, northern mockingbird, and house cat.

2.1.18 CENTRAL CALIFORNIA WOMEN'S FACILITY AND VALLEY STATE PRISON FOR WOMEN

The Central California Women's Facility (CCWF) and Valley State Prison for Women (VSPW) are located on adjoining properties in the San Joaquin Valley, approximately 6 miles southeast of the City of Chowchilla, in Madera County. Land use in the immediate vicinity of the prison is entirely active agriculture. CCWF and VSPW each comprise approximately 640 acres. The topography of both sites is flat, with an elevation of approximately 275 feet above msl. Annual temperatures range from a normal summer daily high of approximately 98 °F to a normal winter daily low of 35 °F, while rainfall averages 11.15 inches a year.

Vegetation

Four vegetation communities were identified on or adjacent to the prison properties: agricultural fields, orchards, open water/wetlands, and barren/disturbed/ruderal areas. Agricultural fields are the most prevalent habitat on and offsite and are typically planted with alfalfa. Almonds (*Prunus dulcis*), walnuts (*Juglans regia*), and pistachios (*Pistacia dulcis*) are grown in offsite orchards. Wetland habitat onsite is comprised of man-made drainage ditches, stormwater detention ponds, and wastewater treatment and storage ponds. Common species found in these areas include Mexican sprangletop, barnyard grass, umbrella plant (*Cyperus esculentus*), cattail, and telegraph weed. Barren and disturbed habitat exists onsite in the unused wastewater storage ponds, at the shooting range, and in an abandoned field near the irrigation water storage pond. These sites are dominated by non-native ruderal species such as cultivated oat, ripgut brome, tumbleweed, telegraph weed and Russian thistle.

Wildlife

Wildlife species that are adapted to urban areas were present in the barren, disturbed and ruderal habitats onsite. These include house sparrow, house finch, European starling, savannah sparrow, and American crow. Species commonly observed in the agricultural fields onsite include white-crowned sparrow, savannah sparrow, western meadowlark, European starling, American kestrel, Brewer's blackbird, red-winged blackbird, house finch, house sparrow, California ground squirrel, and Audubon's cottontail. The open water/wetland areas represent habitat for killdeer, American pipit, American coot, ruddy duck, mallard, pied-billed grebe, eared grebe, great egret, snowy egret (*Egretta thula*), American avocet, and belted kingfisher.

2.1.19 NORTHERN CALIFORNIA WOMEN'S FACILITY

The Northern California Women's Facility (NCWF) is located in the northern San Joaquin Valley, approximately 4 miles southeast of the City of Stockton and immediately southeast of the Northern California Youth Center. This is an existing women's facility, and will only receive an electrified fence if the state legislature authorizes its conversion to a medium security men's institution. Land use in the vicinity of the prison is primarily active agriculture, with the exception of the existing youth center. The topography of the site is flat with an elevation of approximately 70 feet above msl. Annual temperatures range from a normal summer daily high of approximately 94 °F to a normal winter daily low of 37 °F, while rainfall averages 13.95 inches a year.

Vegetation

Three vegetation communities were identified on or adjacent to the prison property: barren/disturbed/ ruderal areas, landscaped areas, and agricultural fields. Barren and disturbed areas include those found around prison buildings and other structures, parking lots, and roads that are kept clear of vegetation, or periodically disced. Common ruderal species found in this habitat type include non-native grasses such as cultivated oat, annual beard grass, annual ryegrass (*Lolium multiflorum*), foxtail, and canarygrass (*Phalaris* sp.). Agricultural fields are the dominant habitat type on and adjoining NCWF property. These fields are comprised of mixed grain crop species, including cultivated oat and barley. Well maintained landscaped areas, such as lawns, ornamental trees, and flowerbeds are located around the prison facilities. Tree species, such as European white birch (*Betula pendula*), weeping willow (*Salix babylonica*), and cherry plum (*Prunus cerasifera*), are grown within the lawn areas. Flowerbeds containing gazania (*Gazania* sp.), alyssum (*Alyssum* sp.), and agapanthus (*Agapanthus* sp.) are interspersed throughout this area.

Wildlife

Most of the wildlife observed onsite were those species adapted to disturbed and urbanized habitats. Species observed in the barren/disturbed/ruderal and landscaped areas include house sparrow, house finch, Brewer's blackbird, northern mockingbird, American robin, loggerhead shrike, mourning dove, killdeer, western kingbird, scrub jay, yellow-billed magpie, black-tailed jackrabbit, Audubon's cottontail, and California ground squirrel. Wildlife observed in the agricultural fields include red-tailed hawk, American kestrel, mourning dove, black-tailed jackrabbit, and Audubon's cottontail.

2.1.20 SALINAS VALLEY STATE PRISON

Salinas Valley State Prison (SVSP) is located on the 950-acre Correctional Training Facility (CTF) site in southern Monterey County. The site is located within the incorporated limits of the City of Soledad, approximately 3 miles to the north of the city center. The site topography can be described as gently sloping, with an elevation ranging from 170 to 360 feet above sea level. Annual temperatures range from a normal summer daily high of approximately 84 °F to a normal winter daily low of 34 °F, while rainfall averages 11.55 inches a year.

Vegetation

Four vegetation communities were identified on or adjacent to the prison property: landscaped/ vineyards, barren/disturbed/ruderal areas, and open water/wetland. Because of pre-construction grading activities, barren ground, ruderal fields and disturbed areas are common throughout the prison site. Where it occurred, vegetation in these areas was typically tall, dense, and dominated by weedy species such as fiddleneck and foxtail barley (*hordeum murinum ssp. leporinum*). Many prison buildings are surrounded by landscaped vegetation such as lawns, ground cover, and ornamental trees and shrubs. The prison property is adjoined on three sides by active agricultural fields and vineyards. Vineyards are located along the north and east sides of the site, while row crops (broccoli, oats, barley, lettuce, and alfalfa) and disced fields are found primarily west of the site. Four man-made ponds represent the open water/wetland habitat onsite. Patches of emergent vegetation, dominated by California bulrush and threesquare (*Scirpus americanus*), are present in most of the ponds.

Wildlife

Species observed most frequently in the barren/disturbed/ruderal and landscaped areas include: rock dove, Brewer's blackbird, brown-headed cowbird (*Molothrus ater*), red-winged blackbird, house sparrow, house finch, lesser goldfinch, European starling, American crow, California ground squirrel, Audubon's cottontail, and black-tailed jackrabbit. These same species were also observed in offsite agricultural fields and vineyards. Species observed in open water/wetland areas include killdeer, song sparrow, mallard, American coot, cinnamon teal, green-winged teal, American wigeon, black-necked stilt, and greater yellowlegs. Bullfrog (*Rana catesbeiana*), raccoon, and striped skunk tracks were also recorded in these wetland-like areas onsite.

2.1.21 CALIFORNIA STATE PRISON—KERN COUNTY AT CALIFORNIA CITY

The proposed future California State Prison—Kern County at California City (California City) site would be located in the Fremont Valley of the Mojave Desert, within the incorporated limits of California City. The Rand Mountains are located approximately 15 miles north of the site. The topography of the area is relatively flat, with elevations ranging from 2,540 to 2,680 feet above msl. Annual temperatures range from a normal summer daily high of approximately 97 °F to a normal winter daily low of 31 °F, while rainfall averages 6.92 inches a year.

Vegetation

One vegetation community, creosote bush scrub, covers the entire site. Creosote bush is the dominant shrub. Other shrubs present include bur-sage, goldenhead (*Acamptopappus sphaerocephalus*), and Mojave aster (*Xylorhiza tortifolia* var. *tortifolia*). Following winter rains, a variety of annual wildflowers cover the site, with goldfields (*Lasthenia californica*), pygmy poppy (*Escholzia minutiflora*), brittle spineflower (*Chorizanthe brevicornu* var. *brevicornu*), and Watson's spineflower (*Chorizanthe watsonii*) being among the most common.

Wildlife

Despite the monotypic vegetation, this region of the Mojave desert supports a rich reptilian fauna. Reptiles commonly observed or expected to occur onsite include the long-nosed leopard lizard (*Gambelia wislizenii*), side-blotched lizard, western whiptail (*Cnemidophorus tigris*), desert horned lizard (*Phrynosoma platyrhinos*), and desert spiny lizard (*Sceloporus magister*). The diversity of bird species in this area is generally low, compared to other native plant communities; however, birds adapted to this arid environment may be present in large numbers. Species that were observed or expected to occur as permanent residents of the creosote scrub include horned lark, sage sparrow, common raven, mourning dove, chukar (*Alectoris chukar*), American kestrel, red-tailed hawk, and turkey vulture. Summer residents of this habitat include species such as lesser nighthawk, black-throated sparrow (*Amphispiza bilineata*) and western kingbird. Winter residents include white-crowned sparrow and dark-eyed junco. Some of the mammal species that were observed or are expected to occur include white-tailed antelope squirrel (*Ammospermophilus leucurus*), black-tailed jackrabbit, desert kit fox, Merriam's kangaroo rat (*Dipodomys merriami*), coyote, and desert woodrat (*Neotoma lepida*).

2.2 ESA/CESA-COVERED SPECIES IN THE PLAN AREA

Many sensitive or otherwise protected species were evaluated for their risk of electrocution. Of those evaluated, 62 are considered to be at risk of electrocution during the life of the project and are therefore being included in the Section 10(a)(1)(B) and Section 2081(b) incidental take permits (refer to Section 1.4, ESA/CESA-Covered Species). All other sensitive species evaluated were determined not to be at sufficient risk to warrant inclusion in the permits or coverage in this HCP. The following is a discussion of life history requirements, distribution, and population trends for the 62 ESA/CESA-covered species being included in the permits. Species-specific discussions are not provided for the 58 uncovered MBTA-protected species; these uncovered MBTA-protected species are generally more common in California, and they are not covered by the incidental take permits.

The following descriptions include the prisons where each special-status species is known or expected to occur as a summer, winter, or year-round resident or, for birds, during spring or fall migration. Because the take permit has a 50-year term, prisons were also listed if appropriate habitat to support a special-status species could develop there during the life of the permit and/or the species range could expand to include one or more prisons. For bird species, distribution is described as summer or winter ranges. Summer range is defined as April through August and winter range is October through February. Year-round resident applies to amphibians, reptiles, mammals, and some birds. The species and accompanying discussions are organized taxonomically (reptiles, birds, mammals) as follows.

REPTILES

desert tortoise (*Gopherus agassizi*)
Federal Threatened; California Threatened

The desert tortoise is widely distributed throughout the Mojave and Colorado deserts, from below sea level to 4,130 feet or higher. This species predominately occurs in desert scrub, desert wash, and Joshua tree habitats, but is also found in almost any desert habitat without steep slopes (Zeiner et al., 1988). Desert tortoises are primarily herbivorous, although they have been observed feeding on carrion. Based on current literature, the average home range for this species in the western Mojave Desert is between 5 and 38 acres (Zeiner et al., 1988). Desert tortoises are active primarily during late winter and spring. Between mid-May and July, females scoop nests in soft soils, often at or near their burrow entrances. In early summer the female lays an average of 5 eggs. By October most tortoises have begun their winter hibernation. Rising temperatures and sprouting plants entice desert tortoises out of their winter hibernation in mid-March. Within the plan area, this species is known or expected to occur at 8 prison sites: ISP, CCI III, CCI IVA, CCI IVB, CSP-Los Angeles, CVSP, and California City.

blunt-nosed leopard lizard (*Gambelia silus*)
Federal Endangered, California Endangered

Leopard lizards occur at scattered sites in the San Joaquin Valley and adjacent foothills, generally in open sandy areas such as low grasslands, alkali flats, dry washes, and areas where vegetation is sparse. Typical habitats include areas with small, scattered shrubs interspersed with small patches of bare soil. These carnivorous lizards feed on grasshoppers, other insects, and small lizards (including smaller leopard lizards) (Zeiner et al., 1988). Based on current literature, average densities for the blunt-nosed leopard lizard are 1 per acre (USFWS 1985). This species hibernates during the winter and is active from mid-spring to mid-fall. The breeding season is from late April through May, with the female laying an average of three eggs between May and June. Females sometimes excavate nests by altering vacated mammal burrows (e.g., kangaroo rats, California ground squirrel). The blunt-nosed leopard lizard has undergone a population decline primarily as a result of conversion of habitat into crop land. Within the plan area, this species is known or expected to occur at 8 prison sites: PVSP, NKSP, WSP, ASP, CSP-Corcoran, CSATF, VSPW, and Delano II. CCI III, CCI IVA, and CCI IVB are located outside this species' known range, so the lizards would potentially be taken on the electrified fences only if their range expands within the next 50 years.

San Diego horned lizard (*Phrynosoma coronatum blainvillei*)
California Species of Special Concern

This species occurs from the transverse ranges that separate the Central Valley from southern California, to the Mexican border west of the deserts, although it also occurs at scattered sites along the extreme western desert slope of the peninsular ranges. San Diego horned lizards occupy coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest habitats. Based on current literature, the average home range for a similar species (regal horned lizard) is approximately 0.22 acre (Zeiner et al., 1988). The San Diego horned lizard requires loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense, shrubs for refuge. Horned lizards emerge from hibernation in late March and are active from April through July, after which time most adults aestivate (dormant state). This species then reappears in August and disappears again into overwintering sites from late August through

October (Jennings and Hayes 1994). Within the plan area, this species is known or expected to occur at three prison sites: San Diego II, CIM, and R.J. Donovan.

orange-throated whiptail (*Cnemidophorus hyperythrus*)
California Species of Special Concern

Orange-throated whiptail occurs in extreme southern Los Angeles County (near the coast), in southwestern San Bernardino County, and in Orange, Riverside, and San Bernardino counties west of the peninsular ranges. This species inhabits low-elevation coastal scrub, chamise/redshank, chaparral, mixed chaparral, and valley/foothill hardwood habitats (Zeiner et al., 1988). These lizards feed on small arthropods; termites are a high percentage of their diet. Whiptails seek cover under surface objects such as rocks, logs, or decaying vegetation, or in rock crevices. Based on current literature, the average home range for this species is 0.07 acre for males and 0.15 acre for females (Zeiner et al., 1988). Breeding activities begin in April and continue through mid-July. Females deposit eggs in loose, well-aerated soil under or near surface objects, or at the base of dense shrubs (Zeiner et al., 1988). Within the plan area, this species is known or expected to occur at R. J. Donovan and San Diego II.

northern red-diamond rattlesnake (*Crotalus ruber ruber*)
California Species of Special Concern

This rattlesnake's range extends southward from San Bernardino County to the Mexican border, where it inhabits coastal scrub, desert scrub, chamise and redshank-dominated habitats (Jennings and Hayes 1994). Although they are found in a variety of habitats, this rattlesnake occurs more frequently in heavy brush associated with large rocks or boulders. Mating takes place March to April, resulting in 3 to 20 live-birth young in late July to September. Red-diamond rattlesnakes eat mostly squirrels and rabbits; however, lizards are a significant portion of the diet of juveniles. Within the plan area, this species is known or expected to occur at R.J. Donovan and San Diego II.

BIRDS

California brown pelican (*Pelecanus occidentalis californicus*)
Federal Endangered, California Endangered

Brown pelicans are found in estuarine, marine subtidal, and marine pelagic waters along the coast of California (Zeiner et al., 1990a). This species forages in the early morning or late afternoon on fish, anchovies being a high percentage of their diet during the breeding season. These pelicans breed on the Channel Islands, where they construct nests made of sticks, reeds, and grass, that are usually placed in mangrove treetops or on the ground (Ehrlich et al., 1988). Breeding season is March through August, with peak egg laying occurring in March and April. Females have a single brood, laying an average of 3 eggs. PBSP, R.J. Donovan, and San Diego II occur within the year-round range of this species; SVSP is located outside this species' known range, so these birds would potentially be taken on the electrified fences only if their range expands within the next 50 years.

Aleutian Canada goose (*Branta canadensis leucopareia*)
Federal Threatened

Each autumn this species leaves its breeding grounds in the western Aleutian Islands of Alaska to winter in the upper San Joaquin Valley (Thelander 1994). On their California wintering grounds, the geese feed on post-harvest grain, and harvested bean-, rice- and cornfields. They may also forage in freshly

planted pastures and winter wheatfields. In the evening these geese roost in shallow water, usually near their feeding sites. In March and April, Aleutian Canada geese return to their breeding grounds. Females lay 5 to 6 eggs, with an average of 4 young per nest surviving to fledgling. PBSP occurs within this species' winter range. NCWF, CCWF, and VSPW are located outside the known range, and the geese would potentially be taken on the electrified fences only if their range expands within the next 50 years.

black-crowned night-heron *(Nycticorax nycticorax)*
CNDDB-Monitored Species (Rookeries are protected)

The black-crowned night-heron is a fairly common resident throughout the state except for the northeastern portion, the mountains, and the deserts, where this species is generally rare. Black-crowned night-herons breed mainly between February and July in colonies, usually with other herons and egrets. For roosting and nesting, they require dense vegetation, including bulrushes and tules and groves of tall trees (Small 1994). Nest vary from rather frail platforms to solid, bulky structures that are used for several years (Shuford 1993). A typical clutch includes three of four eggs (Zeiner et al., 1990a). Black-crowned night-herons are primarily nocturnal foragers. The diet may consist of fish, crustaceans, insects, frogs, and rodents (Shuford 1993). Suitable foraging habitat includes freshwater marshes, saltwater marshes, coastal mudflats, estuaries, and harbors. Within the plan area, this species is known or expected to occur at all of the prison sites.

osprey *(Pandion haliaetus)*
California Species of Special Concern

Ospreys breed in northern California from the Cascade Range south to Lake Tahoe, and along the coast south to Marin County, mainly in ponderosa pine and mixed coniferous forests. This species is associated with large, fish-bearing waters with large trees, snags, and dead-topped trees in open forest habitats for nesting and cover. The breeding season is from March to September, with the female laying an average of 3 eggs (Zeiner et al., 1990a). Osprey typically are resident species, remaining through winter, although some migrate to Central and South America in the winter. Four prisons occur within this species' winter range: R.J. Donovan, San Diego II, SVSP, and CSP-Sacramento. Four prisons occur within the summer range: PBSP, CCC Level III, HDSP, and MCSP. CSP-Solano is located outside this species' known range, and ospreys would potentially be taken on the electrified fences only if their range expands within the next 50 years.

bald eagle *(Haliaeetus leucocephalus)*
Federal Threatened, California Endangered

Bald eagles winter throughout California, excluding the southern desert areas, and breed in the northern portion of the state. Most bald eagles present in California are residents; however, in September through October, other bald eagles migrate into the state for winter. This species requires large bodies of water or free-flowing rivers with abundant fish and adjacent snags or other perches. Bald eagles feed primarily on fish, but will also eat birds and small mammals (Thelander 1994). Nesting usually occurs near a permanent water source, in large, old-growth trees, especially ponderosa pine or other conifers. Breeding occurs February through July, with an average clutch size of 2 eggs. This species could occur year-round at CCC Level III and HDSP. Twenty prisons occur within their winter range and include: PBSP, CSP-Sacramento, CSP-Solano, MCSP, CCWF, VSPW, PVSP, ASP, CSATF, CSP-Corcoran, CCI III, CCI IVA, CCI IVB, R.J. Donovan, San Diego II, CIM, SVSP, NKSP, WSP, and Delano II.

white-tailed kite *(Elanus leucurus)*
California Fully Protected

The white-tailed kite is an uncommon to fairly common resident of coastal and valley lowlands. They forage in moist meadows, grasslands, low marsh vegetation, riparian edges, irrigated pastures, and cultivated fields that provide the requisite prey base. Kites in California prey almost exclusively on small rodents. The characteristics of preferred nesting sites do not appear to be as important as the proximity to suitable foraging areas (Shuford 1993). Nests are built in a wide variety of trees of moderate height and sometimes in tall bushes. The clutch size of the white-tailed kite averages 4 to 5 eggs. The breeding season ranges from February to October, with a peak in May to August. Within the plan area, this species is known or expected to occur at all prison sites except Centinela, ISP, CVSP, California City, Calipatria, CCC Level III, and HDSP.

northern harrier *(Circus cyaneus)*
California Species of Special Concern

Harriers breed in the Central Valley and Sierra Nevada in tall grasses and forbs in wetlands, or wetland/field borders. This species occurs from annual grassland up to lodgepole pine and alpine meadow habitats, as high as 3,000 m (10,000 ft). Harriers feed mostly on voles and other small mammals, birds, frogs, small reptiles, crustaceans, insects, and rarely on fish (Zeiner et al., 1990a). Nests are constructed on the ground in shrubby vegetation during the breeding season, April to September. Average clutch size is 5, with a range from 3 to 12 eggs. Within the plan area, this species is known or expected to occur at all the prison sites.

northern goshawk *(Accipiter gentilis)*
California Species of Special Concern

The northern goshawk occurs primarily in the montane coniferous forest of the northern one-third of the state. Small numbers of goshawks are also found in the mountains of southern California. This species is a very rare winter visitor to lowlands and other areas outside of the breeding range. The preferred nesting habitat is mature, dense coniferous forest, interspersed with meadows, other openings, and riparian areas. Northern goshawks begin breeding between April and June. The average clutch size is 3 eggs (Zeiner et al., 1990a). Goshawks forage mostly on other birds but also prey on small mammals. Five prisons are within this species' know range: PBSP, HDSP, CCI III, CCI IVA, and CCI IVB.

sharp-shinned hawk *(Accipter striatus)*
California Species of Special Concern

Sharp-shinned hawks are common migrants and winter residents throughout California, except in areas of deep snow. Some individuals migrate into California for winter, while others migrate to mountains for summer and downslope to foothills and valleys for winter. These hawks prefer riparian habitats, but are also found in black oak, ponderosa pine, mixed conifer and Jeffery pine habitats. Dense, even-aged, single-layer forest canopy is required for nesting (Zeiner et al., 1990a). Breeding season is April through August, with the female laying an average of 4 to 5 eggs. This species primarily eats small birds, but also takes small mammals, insects, reptiles and amphibians. Within the plan area, this species is known or expected to occur at all the prison sites.

Cooper's hawk *(Accipiter cooperii)*
California Species of Special Concern

Most Cooper's hawks are resident species in California; however, some hawks from more northern areas migrate into California. This species occupies dense stands of riparian deciduous, live oak, or other forest habitats near water, and feeds on small birds, mammals, reptiles, and amphibians. Cooper's hawks build stick platform nests lined with bark, in riparian areas or conifer stands. Breeding season is March through August, with the average clutch size of 4 to 5 eggs (Zeiner et al., 1990a). Within the plan area, this species is known or expected to occur at the prison sites.

red-shouldered hawk *(Buteo lineatus)*
CDFG-Protected Raptor

The red-shouldered hawk is a fairly common resident along the entire California coast, in coastal mountains, and throughout the Central Valley. This species also occurs locally in the western Sierra Nevada foothills and west of southern desert regions. Prime nesting and foraging habitat for the red-shouldered hawk includes stretches of dense riparian forest or woodland, mixed evergreen forest, oak woodland, or eucalyptus groves, adjacent to or interspersed with openings of moist grasslands, meadows, swales, or marshland (Shuford 1993). Red-shouldered hawks place their nests in large trees in stands of mature timber. The breeding season may begin as early as February. The average clutch includes 3 eggs (Zeiner et al. 1990a). Dietary items include snakes, frogs, and small mammals. All the prison sites occur within the range of this raptor except CCI III, CCI IVA, CCI IVB, HDSP, California City, Calipatria, ISP, CVSP, and Centinela.

red-tailed hawk *(Buteo jamaicensis)*
CDFG-Protected Raptor

The red-tailed hawk breeds throughout California and winters in all areas without heavy snow cover. Populations over much of the state are highest during winter months, when birds breeding in areas north of California augment the resident population (Small 1994). Suitable breeding habitat includes almost any terrestrial habitat that has suitable cliffs or tall trees. Nest sites in tall trees with unobstructed views and isolated from disturbance are preferred. Courtship begins as early as January. A clutch of usually 2 to 3 eggs is laid in March or April. Red-tailed hawks prey on mammals, birds, snakes, lizards, and invertebrates. Within the plan area, this species is known or expected to occur at all of the prison sites.

rough-legged hawk *(Buteo lagopus)*
CDFG-Protected Raptor

In California, the rough-legged hawk is an uncommon to fairly common winter visitor. This species is generally more common in the northern half of the state, but it can be found throughout the state in suitable habitat if small mammals and other potential prey are abundant. Rough-legged hawks are typically found in open country including grasslands, coastal plains, sagebrush flats, agricultural land, ranches, and river valleys (Small 1994). The number of birds wintering in California varies substantially from year to year. Most birds arrive in November and December and depart by mid-April. The rough-legged hawk does not breed in California. All prison sites occur within this species' winter range except CIM and MCSP.

Swainson's hawk (*Buteo swainsoni*)
California Threatened

Swainson's hawks is a migratory raptor that breeds in western North America and winters in South America. In California the species is limited to a few areas in the Central Valley, Northeastern Plateau, Klamath Basin, Lassen County, and Mojave Desert (Zeiner et al., 1990a). This species arrives in California from early March to early April, and breeds and nests from April through August. Swainson's hawks nest in large trees, and forage over pasture lands and open agricultural fields. In the Central Valley, this species is associated with riparian corridors adjacent to field crops and grasslands, and subsists largely on small mammals, especially California voles (*Microtus californicus*) and California ground squirrels. This species nests in trees on a platform of sticks, bark, and fresh leaves. Breeding occurs late March to August, resulting in an average clutch size of 3 eggs. Swainson's hawks have declined in numbers as a result of loss of nesting habitat (Zeiner, et al., 1990a). Twenty prisons occur within this species' summer range: CSP-Los Angeles, CCI III, CCI IVA, CCI IVB, CSP-Corcoran, PVSP, ASP, WSP, NKSP, MCSP, CSP-Solano, CCC Level III, CSP-Sacramento, CCWF, HDSP, NCWF, CSATF, VSPW, Delano II, and California City.

ferruginous hawk (*Buteo regalis*)
California Species of Special Concern

Ferruginous hawks are migratory raptors that winter in California, generally arriving in September and departing by mid-April. This species occupies open grasslands, sagebrush flats, desert scrub, and low foothills surrounding valleys, and fringes of pinyon/juniper habitats in the Modoc Plateau, Central Valley, and Coast Ranges (Zeiner et al., 1990a). These hawks feed on rabbits, ground squirrels, mice, birds, reptiles, and amphibians. In April breeding occurs from Oregon into Canada, resulting in an average clutch size of 4 eggs. All the prison sites occur within this species' winter range except PBSP.

golden eagle (*Aquila chrysaetos*)
California Species of Special Concern

Most golden eagles in California are residents, but some may migrate into California for the winter. This species occurs in rolling foothills, mountain areas, sage/juniper flats, and desert habitats. The species' diet consists of rabbits, rodents, mammals, birds, reptiles and amphibians. Golden eagles breed from late January through August, with the peak breeding season between March and July. Females lay an average of 2 eggs in early February to mid-May. Cliffs with overhanging ledges or large trees are used for cover and nesting (Zeiner et al., 1990a). All the prison sites occur within this species' winter and/or year-round range except PBSP and Calipatria.

American kestrel (*Falco sparverius*)
CDFG-Protected Raptor

The American kestrel is a fairly common resident throughout California. This species is particularly widespread during summer months, when its range covers almost the entire state. In winter, kestrels from the north of California and the mountains withdraw to the south and the lowlands, increasing populations in the deserts, interior valleys and the western portion of the state (Small 1994). The American kestrel occurs in most habitats from sea level to the timberline, but it is particularly adapted to forest and woodland edges bordering on low, open vegetation of grasslands, meadows, and scattered brush. Unlike most raptors, kestrels prefer natural tree cavities for nesting. The breeding season extends from early April to August. A clutch of 4 or 5 eggs is laid mid-May to late June (Zeiner et al., 1990a). Kestrels

are predators of invertebrates as well as of small mammals, birds, reptiles, and amphibians. All of the prison sites are within this species' range.

merlin (*Falco columbarius*)
California Species of Special Concern

Merlins winter in California from May to September in open grasslands, savannas, woodlands, lakes, wetland edges, and early successional stage habitats. This species feeds on small birds, mammals and insects (Zeiner et al., 1990a). In Alaska and Canada, where this species breeds, merlins typically use dense tree stands close to bodies of water, which provide cover and nesting habitat. An average clutch of 4 to 5 eggs is laid from late May into June. Within the plan area, this species is known or expected to occur during the winter at all prison sites except SVSP and Centinela, which are located outside this species' known range in California.

American peregrine falcon (*Falco peregrinus anatum*)
Federal Endangered, California Endangered

Peregrine falcons nest along the coast north of Santa Barbara, and in the Sierra Nevada and other mountains of northern California. In the winter they are found inland throughout the Central Valley and occasionally on the Channel Islands. This species feeds primarily on birds, but will also eat mammals, insects, and fish. Open ledges, caves, and holes on high, vertical cliffs provide peregrine falcons with suitable nesting sites (Thelander 1994). They prefer cliffs that overlook rivers, lakes, or oceans, where prey tends to be more abundant. This species breeds from early March to late August, resulting in a clutch of 2 or 3 eggs. Within the plan area, this species is known or expected to occur at all prison sites except Centinela, which is located outside this species' known range in California.

prairie falcon (*Falco mexicanus*)
California Species of Special Concern

Prairie falcons migrate into California to winter along the inner Coast Ranges and Sierra Nevada. This species inhabits grassland, rangeland, savannas, agricultural fields, and desert scrub habitats. These falcons primarily eat small mammals, but small birds and reptiles are also eaten. Nests are usually constructed in a scrape on a sheltered ledge of a cliff overlooking a large, open area (Zeiner, et al., 1990a). Breeding season is from mid-February through mid-September, resulting in an average clutch size of 5 eggs. Within the plan area, this species is known or expected to occur at all of the prison sites.

greater sandhill crane (*Grus canadensis tabida*)
California Threatened

The greater sandhill crane winters in the Central Valley and nests in only a small portion of California in Siskiyou, Modoc, Lassen, Shasta and Sierra counties. This crane eats a variety of foods but is primarily vegetarian. Sandhill cranes forage in shortgrass plains, grain fields, and open wetlands on grasses, forbs, cereal crops, tubers, roots, mice, small birds, snakes, frogs, and crayfish. Average territory size is approximately 130 acres, based on data collected from a similar species (lesser sandhill crane) (Tacha, BNA 1992). This species roosts at night in flocks standing in moist fields or shallow water. Nesting occurs primarily in wet meadows, often near marshes, but will also occur in shortgrass prairies or dry sites, such as depressions lined with grass. The breeding season is from April to August, resulting in an average clutch size of 2 eggs. Illegal hunting nearly decimated the population around 1900, but subsequent protection under MBTA helped the California population to recover and attain modest levels

(Thelander 1994). Two prisons are within this species' summer range: CCC Level III and HDSP. Thirteen prisons are within this species' winter range: CSP-Sacramento, CSP-Solano, MCSP, NCWF, CCWF, VSPW, CSP-Corcoran, CSATF, and ASP. PVSP, WSP, NKSP, and Delano II are located outside this species' known range, and the cranes would potentially be taken on the electrified fences only if their range expands within the next 50 years.

western snowy plover (*Charadrius alexandrinus nivosus*)
Federal Threatened, California Species of Special Concern

Snowy plovers are common in the fall and winter on sandy marine and estuarine shores. This species is found coastally, intermittently from the Oregon border to the Mexican border, and widespread on lakes in the interior portions of the state. The largest coastal breeding population occurs near San Francisco Bay, and the largest inland breeding populations are at Owens Lake in Inyo County and Alkali Lake in Modoc County. (Small 1994). The western snowy plover breeds between April and August, with the female laying an average of 3 eggs in a shallow depression in sandy, gravelly, or friable soil (Zeiner et al., 1990a). Based on current literature, average nesting densities for this species are 1 per 15 acres (Zeiner et al., 1990a). This species primarily gleans insects and amphipods from dry beaches, but will also forage for sand crabs along the shoreline (Zeiner et al., 1990a). None of the prisons occur within this species' known range; however, PBSP, SVSP, R.J. Donovan, and San Diego II are located on the eastern boundary of this species' known range. The plovers would potentially be taken on the electrified fences only if their range expands within the next 50 years.

long-billed curlew (*Numenius americanus*)
California Species of Special Concern

This species is a fairly common resident from April to September in wet meadow habitat in northeastern California in Modoc, Siskiyou, and Lassen counties. These birds are also fairly common winter visitors from early July to early April along most of the California coast, and in the Central and Imperial valleys (Zeiner et al., 1990a). During the breeding season from mid-April to September, this species occurs in grasslands and wet meadows. Preferred winter habitats include coastal estuaries, upland grasslands, and croplands. Long-billed curlews are generally solitary nesters, but may be loose colonial nesters in favorable habitat. Females lay an average of 4 eggs in sparsely-lined depressions on the ground. Long-billed curlews use their long bill to probe mud for crabs, ghost shrimp, mud shrimp, insect pupae, small estuarine fish, snails, crayfish, spiders, worms, and berries (Zeiner et al., 1990a). Two prisons occur within this species' summer range: CCC Level III and HDSP. This species could occur year-round at R.J. Donovan, San Diego II, and SVSP. Twenty prisons occur within this species' winter range: CSP-Sacramento, CSP-Solano, NCWF, CCWF, VSPW, CSP-Corcoran, CSATF, Delano II, WSP, NKSP, CSP-Los Angeles, Centinela, Calipatria, CIM, ASP, California City, CCI III, CCI IVA, CCI IVB, and MCSP.

California gull (*Larus californicus*)
California Species of Special Concern

During the non-breeding season, California gulls are abundant visitors to coastal and interior lowlands. Preferred coastal habitats include sandy beaches, rocky intertidal zones, and mudflats. Inland this species often inhabits lacustrine, riverine, and crop land habitats, dumps, and open lawns in cities (Zeiner, et al., 1990a). The California gull has a diverse diet, feeding on a variety of items including insects, worms, mice, other birds and their eggs, garbage, and fish (Ehrlich et al., 1988). California gulls are common nesters in alkali and freshwater lacustrine habitats east of the Sierra Nevada and Cascade mountain ranges. Peak nesting season is between May and June, resulting in an average clutch size of 2 eggs.

These gulls usually nest in colonies and often with other water birds. This species could occur year-round at all prisons except ISP, CVSP, CCI III, CCI IVA, CCI IVB, and California City, which are outside their range.

western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)
California Endangered

Yellow-billed cuckoos are rare summer residents of valley foothill and desert riparian habitats. These cuckoos inhabit riparian thickets or forests with dense understory foliage near slow-moving watercourses, seeps, or backwaters. In the Sacramento Valley this species also utilizes adjacent orchards, especially walnut, for nesting (Zeiner, et al., 1990a). They glean cicadas, grasshoppers, caterpillars, and other insects from foliage, but may occasionally feed on frogs, lizards, berries, and fruit (Ehrlich et al., 1988). Breeding populations are found along the Colorado, Santa Ana, Amargosa, and Kern rivers, and in Sacramento and Owen's valleys (Zeiner, et al., 1990a). Eggs are typically laid between mid-June and mid-July, with the female laying an average of 3 to 4 eggs. Two prisons occur within this species' summer range: ISP and CVSP. CIM and CSP-Sacramento are located outside of their known range, and yellow-billed cuckoos would potentially be taken on the electrified fences only if their range expands within the next 50 years.

barn owl (*Tyto alba*)
CDFG-Protected Raptor

Barn owls are found in the lowlands and up into the lightly forested foothills of montane areas, virtually throughout the entire state, with the exception of dense forests at high elevations. Barn owls hunt in open ranchland, grasslands, broken woodlands, and marshes, preying primarily on small rodents. They do not build nests but use natural cavities in trees and a wide variety of artificial nest sites, including barns, abandoned buildings, and mine shafts. Barn owls nest very early in the season. Courtship may begin in January, with an average of 5 to 7 eggs laid by February or March (Zeiner et al., 1990a). All of the prison sites are within this species' range.

western screech-owl (*Otus kennicottii*)
CDFG-Protected Raptor

The western screech-owl is a widespread resident of broken woodlands of oaks, conifers, and mixed hardwoods at lower elevations (to about 4,000 feet above sea level). This species may also occur in riparian woodland, suburbs, and oak savannahs. Screech-owls are strictly nocturnal in their activities and retreat by day to roost in thick foliage, close against the camouflaging bark of a tree or in other secluded spots (Shuford 1994). They prey on a wide variety of vertebrates and invertebrates. Screech-owls typically nest in natural cavities of trees and holes in trees created by large woodpeckers. Nesting starts in early February and continues through June. The average clutch is 3 or 4 eggs, usually laid in April (Zeiner et al., 1990a). All of the prison sites are within this species' range.

great horned owl (*Bubo virginianus*)
CDFG-Protected Raptor

The great horned owl is found almost statewide in a wide variety of habitats at lower elevations. They can be fairly common in broken woodlands, riparian woodlands, chaparral, deserts, farm fields, and even residential suburbs or large urban districts. The main requisites seem to be sheltered nesting and roosting sites, relatively open foraging grounds with good small mammal populations, and suitable elevated

hunting perches. Great horned owls usually lay their eggs in an abandoned nest of a diurnal raptor (most often red-tailed hawks) in trees and sometimes cliffs. The breeding season is between January and June. An average clutch of 3 eggs is usually laid in February or March (Zeiner et al., 1990a). Great horned owls are mainly nocturnal, but frequently hunt at dawn and dusk and occasionally during the day. The are generalized and opportunistic predators. Their prey can include almost all of the available small mammals within a region (Shuford 1994). All of the prison sites are within this species' range.

northern pygmy-owl *(Glaucidium gnoma)*
CDFG-Protected Raptor

The northern pygmy-owl occurs in the oak woodlands, riparian woodlands, riparian canyons, and mixed coniferous forests below 6,000 feet msl. Northern pygmy-owls are active and hunt during daylight hours, especially near dawn and dusk. The diet of the northern pygmy-owl consists primarily of small mammals, small birds, and insects. The breeding season extends from April through August. Usually 3 or 4 eggs are laid in the bottom of an abandoned woodpecker hole or natural cavity (Zeiner et al., 1990a). Six prisons are within this species' known range: MCSP, CCI III, CCI IVA, CCI IVB, SVSP, and PBSP.

burrowing owl *(Athene cunicularia)*
California Species of Special Concern

These small owls inhabit open grasslands and other habitats throughout North and South America. This year-round resident lives in small colonies and typically nests and roosts in burrow systems created by medium-sized mammals (e.g., ground squirrels), artificial sites (e.g., drain pipes, culverts), or they occasionally dig burrows themselves. In California, breeding occurs March through August, resulting in an average clutch size of 7 eggs (Haug et al., BNA 1993). This species eats mainly insects and some small mammals, reptiles and birds. Burrowing owls have undergone a statewide decline in this century as a result of depredation control of ground squirrels and habitat loss (Remsen 1978). Within the plan area, this species is known or expected to occur at all prison sites.

long-eared owl *(Asio otus)*
California Species of Special Concern

This species is an uncommon resident throughout most of northern California, excluding the Cascade Range, North Coast Range, and higher elevations of the Sierra Nevada. This species winters in the Central Valley and Mojave-Colorado Desert. Long-eared owls inhabit dense vegetation adjacent to grasslands or shrublands and require open forest for nesting and cover. This owl's diet consists mainly of voles and other small rodents, but they also east small birds (including smaller owls) and other vertebrates (Zeiner et al., 1990a). These owls often use abandoned crow, magpie, hawk, heron, or squirrel nests. Breeding season extends from early March to late July, with the female laying an average of 4 to 5 eggs. This species could occur year-round at CCC Level III and HDSP. Twenty-two prisons occur within the winter range of this species: CSP-Solano, CSP-Sacramento, NCWF, MCSP, PVSP, CCWF, VSPW, ASP, CSP-Corcoran, CSATF, WSP, NKSP, Delano II, CSP-Los Angeles, California City, CCI III, CCI IVA, CCI IVB, ISP, CVSP, Centinela, and Calipatria.

short-eared owl *(Asio flammeus)*
California Species of Special Concern

Most short-eared owls migrate into California in September or October, and inhabit annual grasslands, prairies, meadows, dunes, irrigated agricultural lands, and saline and fresh emergent wetlands. There

is a small resident population found in the northeastern part of the state (Zeiner et al., 1990a). This species is found primarily in the Central Valley and western Sierra Nevada foothills, concentrating in areas with abundant prey during the winter. They feed primarily on voles and other small mammals, but also consume birds, reptiles, amphibians, and arthropods. Breeding season extends from early March through July, with the female laying an average of 5 to 7 eggs. Short-eared owl numbers have declined over most of its range because of grazing, and fragmentation and destruction of grassland and wetland habitats (Zeiner et al., 1990a). This species could occur year-round at CCC Level III and HDSP. Five prisons occur within this species' summer range: SVSP, PBSP, CSP-Solano, ISP, and CVSP. Nineteen prisons occur within its winter range: CSP-Sacramento, NCWF, MCSP, CCWF, VSPW, PVSP, CSP-Corcoran CSTAF, ASP, WSP, NKSP, Delano II, CCI III, CCI IVA, CCI IVB, R.J. Donovan, San Diego II, Centinela, and Calipatria.

Vaux's swift (*Chaetura vauxi*)
California Species of Special Concern

Vaux's swifts are a fairly common migrant throughout most of the state, breeding in the Coast Ranges from Santa Cruz County north and in the Sierra Nevada. This species prefers redwood and Douglas fir habitats, with large diameter, hollow trees and snags for nesting. Vaux's swifts are solitary nesters that breed from early May to mid-August, with the female laying an average of 4 to 5 eggs. They forage exclusively for flying insects over most terrains and habitats (Zeiner et al., 1990a). In late August or September these swifts leave California for their wintering grounds in Mexico and Central America. Three prisons occur within this species' summer range: PBSP, CCC Level III, and HDSP.

southwestern willow flycatcher (*Empidonax traillii extimus*)
Federal Endangered, California Endangered

The southwestern willow flycatcher winters in Central and South America, and breeds in the southern and southwestern portions of California during late May and June. By early August or late September, they leave California and start south toward their wintering grounds. This species prefers semi-open brushy areas, dense willow thickets and riparian habitat, where it feeds on insects and occasionally berries and seeds. The nest is an open-cup shape and can be found in willows adjacent to streams, ponds, and wet meadows. Peak egg laying is in June, with an average clutch size of 3 or 4 eggs. The southwestern willow flycatcher is extremely endangered; only two stable breeding populations are currently found in the state, one at Kern River Preserve (Kern County) and the other at Camp Pendleton (San Diego County). Approximately six other nesting groups are known in Southern California, all of which consisted of six or fewer pairs in recent years. Southwestern willow flycatcher numbers have declined drastically in recent decades because of cowbird parasitism and habitat destruction (Zeiner et al., 1990a). Six prisons occur within the summer range of this species: R.J. Donovan, San Diego II, CCI III, CCI IVA, CCI IVB, and CIM.

California horned lark (*Eremophila alpestris actia*)
California Species of Special Concern

California horned lark is a year-round resident in California, but an influx of migrants from outside California adds to the population during winter. They occupy a variety of open, generally barren habitats, usually where trees and large shrubs are absent. Their diet consists primarily of seeds, but they will also capture insects to feed their young. Based on current literature, average population densities for this species are 1 per 3 acres (Beason, BNA 1995). Horned larks breed from March to July, with the female laying an average of 3 eggs in a grass-lined, cup-shaped depression in the ground. In most locations, horned larks are susceptible to brood parasitism by the brown-headed cowbird (Beason, BNA

1995). All the prison sites occur within this species' summer and/or year-round range except PBSP and SVSP.

purple martin (*Progne subis*)
California Species of Special Concern

Purple martins arrive from South America in late March and spend the summer in California, occupying valley foothill and montane hardwood/conifer, riparian, grasslands, wet meadows, emergent vegetation, and coniferous habitats. Breeding occurs from April to August along the coast, inland, and east to Modoc and Lassen counties. Tall, old trees near a body of water are often preferred nesting sites. Purple martins may also nest in abandoned woodpecker cavities, in man-made structures, in nesting boxes, under bridges, or in culverts. Purple martin numbers have declined because of loss of riparian habitat, removal of snags, and competition for nest cavities from European starlings and house sparrows (Zeiner et al., 1990a). Nine prisons occur within this species' summer range: PBSP, CCI III, CCI IVA, CCI IVB, MCSP, CSP-Solano, CCC Level III, HDSP, and SVSP.

Bendire's thrasher (*Toxostoma bendirei*)
California Species of Special Concern

Bendire's thrasher is an uncommon summer resident at scattered locations in the Mojave desert region. It breeds from late February into early August, in flat areas of desert succulent scrub and Joshua tree habitat. The breeding season extends from late February into early August. Nests containing 3 or 4 eggs are built in cholla, yucca, paloverde, thorny scrub, or small trees. Bendire's thrashers forage on the desert floor among scattered clumps of cactus, yucca, and thorny scrub. Within the plan area, this species is expected to occur only at ISP and CVSP.

San Diego cactus wren (*Campylorhynchus brunneicapillus sandiegensis*)
California Species of Special Concern

San Diego cactus wrens range from southern Orange County southward to northwestern Baja California. This species is a year-round resident in California and is found in desert succulent shrub, Joshua tree, and desert wash habitats (Small 1994). Based on current literature, the average territory size for this species is 7 acres (Zeiner et al., 1990a). They nest in cholla or other large, branching cactus, in yucca or thorny shrubs, or small trees. Their intricate, woven, cylinder nests are also used for roosting. The breeding season extends from March into June, with the females laying an average of 4 eggs. Two broods per year are common. The coastal cactus wren forages on the ground in low vegetation for insects, spiders, other small vertebrates, fruits, nectar, and seeds. This species could occur year-round at R.J. Donovan and San Diego II.

bank swallow (*Riparia riparia*)
California Threatened

Bank swallows winter in northern and central South America, migrating to the United States and Canada to breed. They can be found in riparian habitats in California from late March through July. Nesting colonies are found in the Sacramento Valley along the Sacramento and Feather rivers, and in Monterey, San Mateo, Del Norte, Siskiyou, Shasta, Modoc, Mono, and Lassen counties (Zeiner et al., 1990a). Swallows nest in banks, bluffs, and cliffs with sandy, fine-textured soil where they dig nesting holes. Colonies range from a few individuals to more than 1,000 pairs. Bank swallows typically lay a clutch of 4 or 5 eggs. The diet is made up entirely of insects. Channelization and stabilization of banks along

rivers, and other destruction and disturbances to nesting areas, are major factors causing the decline of bank swallows in recent years (Zeiner, et al., 1990a). Six prisons occur within this species' summer range: MCSP, CSP-Solano, CCC Level III, CSP-Sacramento, HDSP, and SVSP. No breeding or foraging habitat is present to support this species at WSP, nor is it within this species' summer range; however, 1 bank swallow was killed at this site in July 1996, presumably during migration.

coastal California gnatcatcher (*Polioptila californica californica*)
Federal Threatened, California Species of Special Concern

The coastal California gnatcatcher is found almost exclusively in dense coastal sage scrub habitat in Los Angeles, Riverside, Orange, and San Diego counties. This insectivorous species eats insects, spiders and arthropods. Breeding activities begin in late February and continue through July. Nests are constructed of various plant materials in coastal shrubs (Thelander 1994). This species is declining in California because of habitat destruction and brood parasitism by brown-headed cowbirds (Zeiner, et al., 1990a). This species could occur year-round at R.J. Donovan and San Diego II.

loggerhead shrike (*Lanius ludovicianus*)
California Species of Special Concern

Loggerhead shrikes are residents throughout California and the continental United States. Shrikes prefer open habitats with scattered shrubs, trees, posts, fences, or other perches. This solitary nester lays a mean clutch size of 5.4 eggs and prefers densely-foliated trees or shrubs adjacent to open areas (Yosef, BNA 1996). They eat insects, small mammals, amphibians, reptiles, fish, and various other invertebrates. Within the plan area, this species is known or expected to occur at all prison sites.

yellow warbler (*Dendroica petechia*)
California Species of Special Concern

A summer resident in the north and locally common in the south, yellow warblers inhabit riparian woodlands from coastal to desert lowlands up to 800 feet (Zeiner et al., 1990a). Breeding occurs from mid-April into early August, typically in montane chaparral, open ponderosa pine, and mixed conifer habitats with abundant brush. Three to 6 eggs are laid in a cup nest and the young are tended by both parents (Zeiner, et al., 1990a). Based on current literature, the average home range for this species is 0.5 acre (Zeiner at al. 1990a). Yellow warblers glean insects and spiders from trees and shrubs. All the prisons in the plan area occur within this species' summer range, except CSP-Los Angeles.

yellow-breasted chat (*Icteria virens*)
California Species of Special Concern

Yellow-breasted chats are uncommon in Modoc, Lassen, and Del Norte counties, along the coastline and in the Great Basin. This species was once fairly common in these areas; however, widespread habitat deterioration and elimination, and brood parasitism by the brown-headed cowbird, has reduced this species to a rare to uncommon summer visitor (Small 1994). The yellow-breasted chat feeds on insects, spiders, berries, and other types of fruit. Based on current literature, average densities for yellow-breasted chats are 1 per 10 acres (Zeiner et al., 1990a). For breeding, this species requires dense riparian willow thickets, and other dense brush near watercourses. Breeding occurs from early May into early August, with peak activity in June. The female lays 3 to 6 eggs, and the young are tended by both parents (Zeiner et al., 1990a). Fifteen prison occur within this species' summer range: CCC Level III,

HDSP, PBSP, MCSP, SVSP, CCI III, CCI IVA, CCI IVB, California City, R.J. Donovan, San Diego II, ISP, CVSP, CSP-Los Angeles, and CIM.

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)
California Species of Special Concern

This species is found in rocky slopes with sparse brush intermixed with grassy areas. Coastal sage scrub habitat, consisting of California sagebrush, buckwheat, and other shrubs, is frequently occupied by these sparrows, whereas dense, continuous chaparral tends to be avoided. This species' diet consists of seeds, insects, spiders, grass, and forb shoots. Insects and spiders are a high percentage of the diet during breeding season, which occurs from mid-March to mid-June and usually results in an average clutch size of 3 eggs. Nests are constructed on the ground at the base of thick tufts or clumps of grasses or shrubs (Zeiner et al., 1990a). This species could occur year-round at R.J. Donovan and San Diego II.

Bell's sage sparrow (*Amphispiza belli belli*)
California Species of Special Concern

Bell's sage sparrow is generally a resident in California, occupying chaparral habitats dominated by dense stands of chamise and coastal sage scrub. There are two disjunct populations of this species in California. The first is in the foothills of the western Sierra Nevada, from El Dorado County south to Mariposa County; the second is along the inner coast ranges from Shasta County south, extending to the coast from Marin County to San Diego County (Small 1994). Cup nests made of dry twigs and herb stems are constructed on the ground or in a shrub. Breeding season is from late March to mid-August, with the female laying an average of 3 to 4 eggs. This species gleans insects, spiders, and seeds from the ground or low shrubs during breeding season, and mostly seeds during the winter. Four prisons occur within the species' winter range: CVSP, ISP, Centinela, and Calipatria. Seventeen prisons occur within this species' summer range: MCSP, SVSP, PVSP, CSP-Corcoran, CSATF, ASP, WSP, NKSP, Delano II, CCI III, CCI IVA, CCI IVB, CIM, California City, CSP-Los Angeles, R.J. Donovan, and San Diego II.

tricolored blackbird (*Agelaius tricolor*)
California Species of Special Concern

Mostly a resident species in California, the tricolored blackbird is common throughout the Central Valley and in coastal areas south of Sonoma County. Preferred nesting habitat is dense cattails or tules, although thickets of willows, blackberry, and wild rose may also be suitable (Zeiner et al., 1990a). This highly gregarious species maintains dense breeding colonies and commonly forages in grasslands and crop land habitats on insects, seeds, and cultivated grains (Zeiner et al., 1990a). Based on data collected for a similar species (red-winged blackbird), average population densities for tricolored blackbirds are approximately 13.5 per 100 acres (DeGraaf, Rudis 1986). Twenty-four prisons occur within this year-round species' range: R.J. Donovan, CCI III, CCI IVA, CCI IVB, CCC Level III, CSP-Corcoran, PVSP, ASP, MCSP, CSP-Solano, CSP-Sacramento, CCWF, WSP, NCWF, NKSP, HDSP, VSPW, SVSP, CSATF, CSP-Los Angeles, California City, CIM, Delano II, and San Diego II.

mammals

San Diego black-tailed jackrabbit (*Lepus californicus bennetii*)
California Species of Special Concern

San Diego black-tailed jackrabbits occur at lower elevations in San Diego County, in herbaceous, desert-shrub, and open, early stages of forest and chaparral habitats. They are strictly herbivorous, preferring grasses and forbs. These rabbits breed throughout the year, with the greatest number of births occurring from April through May. Females may have up to 4 litters per year consisting of 3 to 4 young. Unlike other jackrabbit species, the San Diego black-tailed jackrabbit does not construct a nest, young are born beneath vegetation which provides overhead cover (Zeiner et al., 1990b). Based on current literature, average home range for this species is 45 acres (Zeiner et al., 1990b). Within the plan area, this species is known or expected to occur at R J. Donovan and San Diego II.

San Joaquin antelope squirrel (*Ammospermophilus nelsoni*)
California Threatened

A permanent resident of the western San Joaquin Valley, the San Joaquin antelope squirrel typically lives in colonies of 6 to 8 individuals. They usually colonize open grassy areas and saltbush scrub habitats where soils are sandy or gravely. Burrows, for nesting and cover, are excavated in loose gravel-textured soils under shrubs or in small drainages where it is easy to dig. Based on current literature, the average population density for this species is 1 per 1.72 acres (CDFG 1992). This species occurs in the eastern portions of San Luis Obispo and Santa Barbara counties, through Kings and Tulare counties, and in a small area in western Kern County. The squirrel's diet consists of insects, green vegetation and occasionally small vertebrates. Loss of suitable habitat and the effects of rodenticides have contributed to the decline of this species (Zeiner et al., 1990b). Within the plan area, San Joaquin antelope squirrels are known or expected to occur at 7 prison sites: WSP, NKSP, PVSP, ASP, and Delano II. CSTAF and CSP-Corcoran are located on the eastern boundary of this species' known range, and the squirrels would potentially be taken on the electrified fences only if this species' range expands within the next 50 years.

Mohave ground squirrel (*Spermophilus mohavensis*)
California Threatened

This species is found in open desert scrub, alkali desert scrub and Joshua tree habitats in San Bernardino, Los Angeles, Kern, and Inyo counties. Mohave ground squirrels live in underground burrows, where they spend approximately 7 months of the year (usually from August to February) in estivation (Zeiner et al., 1990b). Burrows are usually dug at the base of shrubs and breeding, which usually results in a litter of 4 to 6 young, occurs from March to May. These squirrels feed on green vegetation, seeds and fruits. The average home range for this species is 1 acre (Zeiner et al., 1990b). Within the plan area, Mohave ground squirrels are known or expected to occur at California City and CSP-Los Angeles.

San Joaquin pocket mouse (*Perognathus inornatus inornatus*)
California Species of Special Concern

This species inhabits dry, open grasslands or scrub areas on fine-textured soils, from the upper Sacramento Valley, Tehama County, southward through the San Joaquin and Salinas valleys and contiguous areas, to the Mojave Desert in Los Angeles, Kern and extreme San Bernardino counties (Best, 1993). The San Joaquin pocket mouse is nocturnal, spending the day below ground in a burrow and

foraging at night on the surface. Seeds constitute the majority of the diet, but green vegetation and insects are also consumed. Based on current literature, average densities for this species in areas grazed by cattle are 3 per acre, and 2 per acre in ungrazed sites (Best, 1993). This species breeds in spring and early summer, after which the young are born and raised in a nest built in the burrow. There is very little detailed information on this species' current range in California; it is assumed to occur throughout the Central Valley and, therefore, could be taken in the next 50 years at any one of the following prison sites: CSP-Sacramento, CSP-Solano, MCSP, NCWF, CCWF, VSPW, CSP-Corcoran, CSATF, ASP, PVSP, WSP, NKSP, and Delano II.

short-nosed kangaroo rat (*Dipodomys nitratoides brevinasus*)
California Species of Special Concern

This species is one of three subspecies of the San Joaquin kangaroo rat (*D. Nitratoides*). The historic range of the short-nosed kangaroo rat was from Panoche Creek in Fresno County to Kern County, including the foothills of Bakersfield. Current distribution includes grassland, valley sink scrub, and saltbush scrub habitats, primarily west of the California Aqueduct, which has become the dividing line between the Tipton and short-nosed subspecies (Williams 1987). This species typically digs burrows in sandy loam soils for cover or uses herbaceous vegetation for cover above ground. This taxon breeds between December and September with an average litter size of 2 to 3 young that are raised within the burrows. Their diet includes seeds of annual forbs and grasses which can be temporarily stored in cheek pouches or cached in small holes dug in sides of burrows. Within the plan area, this species is known or expected to occur at PVSP and ASP.

Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)
Federal Endangered, California Endangered

The Tipton kangaroo rat is one of three geographically separated subspecies of the San Joaquin kangaroo rat (*D. nitratoides*). Historically, this taxon ranged throughout much of the southern San Joaquin Valley, from Kings County to central Kern County. Currently, the species is limited to two unconnected habitat patches in Kings and Tulare counties, and scattered areas of Kern County, particularly between the Kern National Wildlife Refuge and the town of Delano. Because this species is unable to live in cultivated areas, the Tipton kangaroo rat occurs in alkali marshes and plains. They prefer areas with woody shrubs including spiny saltbrush, iodine bush, and mesquite, with scant to moderate ground cover of grasses and forbs (Williams 1985). This nocturnal kangaroo rat forages at night on seeds that are often cached in burrows that were created in friable soils. Based on current literature, average population densities for Tipton kangaroo rats are 1 per 17 acres (CDFG 1992). Tipton kangaroo rats can breed throughout the year, producing 1 to 3 young per litter. Within the plan area, this species is known or expected to occur at NKSP, WSP, and Delano II. CSP-Corcoran, CSATF, and ASP are located outside this species' known range, and the kangaroo rats would potentially be taken on the electrified fences only if this species' range expands within the next 50 years.

southern grasshopper mouse (*Onychomys torridus ramona*)
California Species of Special Concern

This mouse inhabits alkali desert scrub habitats in the Mojave Desert and San Joaquin Valley. They have also been found in coastal scrub, mixed chaparral, sagebrush, and bitterbrush habitats. Their diet is made up almost exclusively of arthropods, especially scorpions and other insects (Zeiner et al., 1990b). Based on current literature, average population densities for southern grasshopper mice are 1 per 0.74 acre (Zeiner et al., 1990b). The southern grasshopper mouse breeds from January to July; however, if

conditions are favorable, breeding may occur year-round. Nests are constructed in abandoned burrows or may be excavated. The average litter size is 4 young with as many as 6 litters per year. Within the plan area, this species is known or expected to occur at 19 prison sites: R.J. Donovan, San Diego II, California City, ISP, CVSP, Centinela, Calipatria, CIM, CSP-Los Angeles, CCI III, CCI IVA, CCI IVB, WSP, NKSP, Delano II, CSP-Corcoran ,CSATF, ASP, and PVSP.

Tulare grasshopper mouse (*Onychomys torridus tularensis*)
California Species of Special Concern

The Tulare grasshopper mouse, as with the southern grasshopper mouse, is a subspecies of *Onychomys torridus*. This subspecies is restricted to the southern San Joaquin Valley, including the Tulare sub-basin, Carizzo and Elkhorn plains, and Panoche Valley. This small mammal inhabits grassland, blue oak savanna, alkali sink scrub, and saltbush scrub. This is probably the rarest small mammal in the San Joaquin Valley region (Dames & Moore 1997). Their diet consists almost exclusively of arthropods, especially scorpions, and other insects. This subspecies also breeds from January through July, but if conditions are favorable, they may breed year-round. Females have as many as 6 litters per year with an average of 4 young per litter. They nest in abandoned rodent burrows or may construct their own burrows in scrub habitats with friable soils. This species is restricted to southern San Joaquin Valley and, therefore, is assumed to occur near WSP, NKSP, Delano II, CSP-Corcoran, CSATF, ASP, and PVSP.

San Diego desert woodrat (*Neotoma lepida intermedia*)
California Species of Special Concern

The San Diego woodrat occupies woodland or scrub habitats along the coast of southern California. This species range extends from San Luis Obispo county southward into Baja California. Their diet consists of buds, fruits, seeds, bark, leaves, and young shoots of many plant species. In coastal scrub habitats, this woodrat prefers live oak, chamise, and buckwheat for food. This woodrat constructs a house of twigs, sticks, and or rocks at the base of shrubs, in the lower branches of trees or in rock crevices. These houses provide escape cover, protection for their nests, and a place to cache food. Breeding season extends from October to May, resulting in an average litter size of 3 young (Zeiner et al., 1990b). Within the plan area, this species is known or expected to occur at R.J. Donovan and San Diego II.

white-footed vole (*Arborimus albipes*)
California Species of Special Concern

White-footed voles are known only from Humboldt and Del Norte counties, in redwood, Douglas fir, and riparian habitats. They prefer areas with small streams and dense alder and other deciduous trees and shrubs. All layers of this habitat are used by this species. The tree canopy layer is used for foraging, while nesting occurs on the ground under stumps, logs, or rocks (Williams 1985). Their diet consists of the leaves of green plants, including trees, shrubs, forbs, grasses, and aquatic plants. The white-footed vole breeds between mid-April and late July, with the female giving birth to an average of 3 young. Within the plan area, this species is known or expected to occur at PBSP.

San Joaquin kit fox (*Vulpes macrotis mutica*)
Federal Endangered, California Threatened

San Joaquin kit fox occurs in the dry plains of the San Joaquin Valley, from Tracy to southern Kern County. They inhabit grassland and other sparsely vegetated, shrubby habitats that allow easy mobility

and good visibility of ground-dwelling prey. This fox typically preys on species such as black-tailed jackrabbits, desert cottontails, rodents, insects, reptiles, and birds (Steinhart 1990). Based on current literature, the average population density for San Joaquin kit foxes is 1 per 450 acres (USFWS 1983). Dens, which provide shelter and escape cover, are excavated in friable soils or created by enlarging ground squirrel or badger burrows. Dens may also be man-made structures such as culverts and pipes. Litters may consist of as many as 7 pups, but the average is probably between 3 and 4 young per year. Habitat destruction, hunting, rodenticides, off-road vehicles, and trapping have contributed to the decline of this species (Zeiner et al., 1990b). Within the plan area, San Joaquin kit foxes are known or expected to occur at 7 prison sites: CSP-Corcoran, CSATF, PVSP, ASP, WSP, NKSP, and Delano II. CCI III, CCI IVA, and CCI IVB are located outside this species' known range, and the foxes would potentially be taken on the electrified fences only if this species' range expands within the next 50 years.

3 PROJECT DESCRIPTION/ACTIVITIES COVERED BY PERMIT

3.1 PROJECT OBJECTIVES

CDC is responsible for incarcerating California's most serious criminal offenders in secure institutional facilities. The security of state prison facilities is critical for preventing inmate escapes and protecting the safety of the public. The statewide inmate population has been expanding rapidly since the late 1970s. The number of convicted felons incarcerated in the state prison system has grown from about 23,500 in 1980 to over 156,000 in 1997. In light of this rapid population increase, CDC has been seeking ways to more cost-effectively provide the correctional facilities needed to house the growing number of inmates.

CDC and the state legislature have determined that substantial annual staff costs can be saved by installing electrified fences within the secured perimeter between two parallel, chain link and razor wire fences in lieu of 24-hour staffing of perimeter guard towers and berm surveillance positions. Most Level III (medium) and all Level IV (maximum) facilities have guard towers spaced at distances that allow correctional officers to survey the entire secured perimeter and use deadly force, if necessary, to prevent inmates from escaping. Some facilities conduct surveillance from perimeter berm positions. The project maintains the same level of perimeter security by adding the lethal electrified fence as a substitute for most of the 24-hour guard tower and berm staff surveillance. This approach allows substantial reduction of operational costs at each facility by eliminating the need for continuous staffing of most of the perimeter guard towers and berms. Operation of the electrified fences allows CDC to staff only vehicle and pedestrian sally ports (entrances/exits) and to eliminate staff at the remaining perimeter towers and berms. Roving vehicle patrol around the fenced perimeter was added as part of security operations. The objectives of the Statewide Electrified Fence Project are as follows:

- Reduce staffing costs by providing alternative perimeter security, allowing the deactivation of most guard towers.
- Maintain the same level of perimeter security as provided by the 24-hour staffing of guard towers, to prevent inmate escapes and to protect public safety.
- Maintain a cost-efficient system of perimeter security, in terms of both construction cost and life-cycle cost.
- Prevent accidental contact by staff, inmates, and the public, using methods based on the location, design, construction, and operation of the electrified fences.
- Avoid, to the maximum extent practicable, accidental and unintentional electrocution of wildlife, and mitigate the impacts of wildlife electrocution that cannot be avoided.

3.2 PROJECT LOCATION AND SETTING

Electrified fences are installed or planned to be installed at 29 existing or planned future prison sites throughout California as part of CDC's Statewide Electrified Fence Project. With a few exceptions, the

29 prison sites are generally located near rural communities or in isolated areas. All of the project sites are located on state property and public access is strictly regulated.

There are eleven sites in valley agricultural settings, with nine of those in agricultural areas of the San Joaquin Valley; two in Madera County (Central California Women's Facility and Valley State Prison for Women); one in Fresno County (Pleasant Valley State Prison); three in Kings County (Avenal State Prison, California State Prison - Corcoran, and California Substance Abuse Treatment Facility and State Prison at Corcoran); and three in Kern County (North Kern State Prison, Wasco State Prison, and California State Prison - Kern County at Delano II). In addition, one prison is located in an agricultural setting in the Salinas Valley of Monterey County (Salinas Valley State Prison), and another is in an agricultural area of the Imperial Valley in Imperial County (Calipatria State Prison). These sites are generally surrounded by agricultural fields, grazed lands, or other disturbed habitats.

Five prison sites are located in desert environs (Centinela State Prison, Ironwood State Prison, CSP - Los Angeles, Chuckawalla Valley State Prison, and CSP - Kern County at California City). The setting of these prisons is generally desert scrub or other desert habitats, with some adjacent areas altered by agricultural activities. Also, urban residential development is approaching CSP - Los Angeles.

Five prison sites are located in higher elevation settings at approximately 4,000 feet, either in the Modoc Plateau of Lassen County (California Correctional Center - Level III and High Desert State Prison) or the high desert plateau associated with the Tehachapi Mountains in Kern County (California Correctional Institution Levels III, IVA, and IVB). The facilities in Lassen County are in a sagebrush scrub and agricultural setting. The three Tehachapi Mountain facilities are located in a primarily sagebrush and blue oak woodland area.

Three prison sites are in coastal areas (Pelican Bay State Prison, R.J. Donovan Correctional Facility, and CSP - San Diego II). Pelican Bay is located generally within the coastal redwood forest of Del Norte County. R.J. Donovan and San Diego II are located in San Diego County on Otay Mesa, which is dominated by coastal scrub sage and non-native grasslands.

One prison site is in a Sierra Nevada foothill setting near Ione (Mule Creek State Prison). The area around this site in Amador County is dominated by typical lower foothill woodlands, consisting primarily of blue oak and digger pine.

Four prison sites are relatively close to urban development in an agricultural setting (CSP - Sacramento; California Institution for Men, West; Northern California Women's Facility; and CSP - Solano). In Sacramento County, the setting of CSP - Sacramento is dominated by oak woodland and non-native grassland. Much of the surrounding land is occupied by residential subdivisions or the Folsom Dam facilities. The California Institution for Men in San Bernardino County is located in Chino near the edge of residential, industrial, and agricultural areas. The Northern California Women's Facility is located in the Stockton area, generally surrounded by urban and agricultural uses. The setting of CSP - Solano also consists of mixed urban and agricultural uses, with residential development on the prison's east side.

3.3 PROJECT CHARACTERISTICS

The project involves the installation and activation of lethal electrified fences within the secured perimeter of existing facilities and planned future prisons. The electrified fence is installed between two parallel,

chain link security fences that are topped with razor wire. The parallel, chain link fences (without the electrified fence in between) are the standard perimeter design at all the subject prisons. The ground between the standard parallel fences is graded and generally kept clear of vegetation and debris. In the case of existing prisons, the electrified fences are retrofitted between the two existing security fences.

The installation and operation of the electrified fences does not change or affect the security levels or number of inmates at the subject prisons.

PHYSICAL DESIGN OF THE FENCE

The precise design of the fence varies somewhat to adjust to local site conditions; typical fence features are described in this section. The length of the electrified fences depends on the length of the prison perimeter. Typical fence lengths range from approximately 3,500 to 9,400 feet (except one prison where the fence length is 14,000 feet).

The fence consists of galvanized posts spaced approximately 30 feet apart, supporting 15 to 18 electrified wires. Exhibit 3-1 presents a typical cross-sectional view of the electrified fence design. The posts are 13 to 17 feet high, with insulators mounted on them to isolate the high-voltage wires from the grounding posts, grounding brackets, and a concrete grade beam. The electrified wires are spaced more closely near the ground and farther apart near the top of the fence, with an average separation of approximately 10 inches. The electrified fence design includes detection rings around the lower seven wires and grounding posts to a height of approximately 6 feet to ensure that contact is made if the electrified wires are spread apart. Exhibit 3-2, photograph of a representative electrified fence, illustrates a typical electrified fence design.

A concrete grade beam anchors the fence. The partially buried beam extends an average of 10 inches above the ground and has holes cut in it to allow drainage. The grade beam serves to reduce maintenance costs and the chance that small animals will contact the lowest wires. A pulsed, high-voltage rodent wire is strung on both sides of the grade beam near the ground to discourage animals from climbing onto or over the grade beam where they would be at risk of electrocution. The pulsed current is intended to be sufficient to shock, but not harm, small animals.

Warning signs are mounted on the inside of the inner perimeter fence and outside of the outer perimeter fence. The signs warn in English and Spanish of electrocution hazard and display a high-voltage symbol.

Modifications necessary for electrified fence operation at the 29 prison project sites vary depending on the characteristics of each site. The modifications involve changes to supporting utilities, infrastructure, access ways, and accessory security equipment (e.g., gate controls or television cameras). All modifications are to occur within the confines of the existing prison facility or, in the case of planned prisons, within the area already designed for the future prison.

Maintenance requirements include periodic inspections to check for wear and deterioration of the fence and replacement of electrical components as needed.

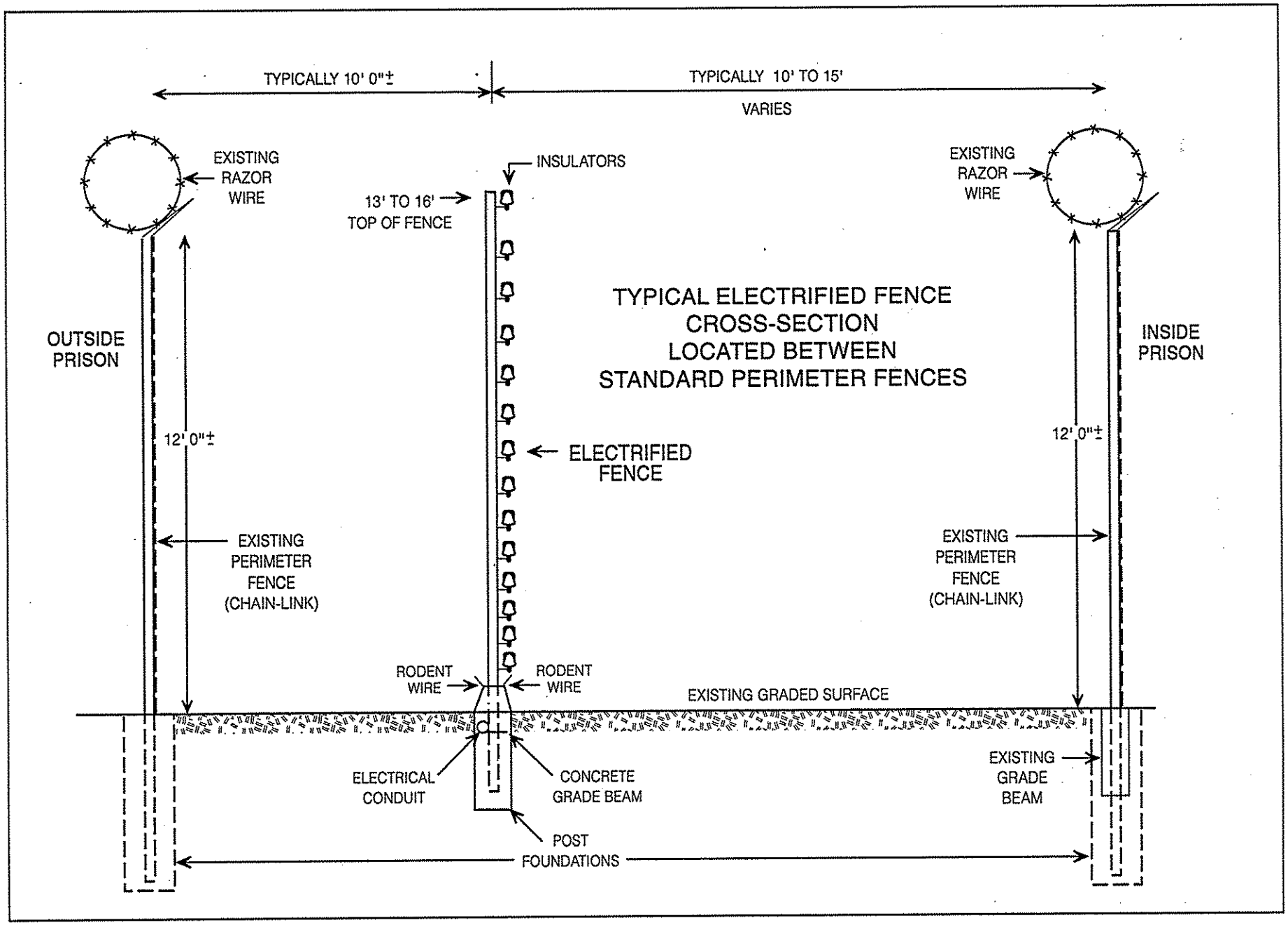
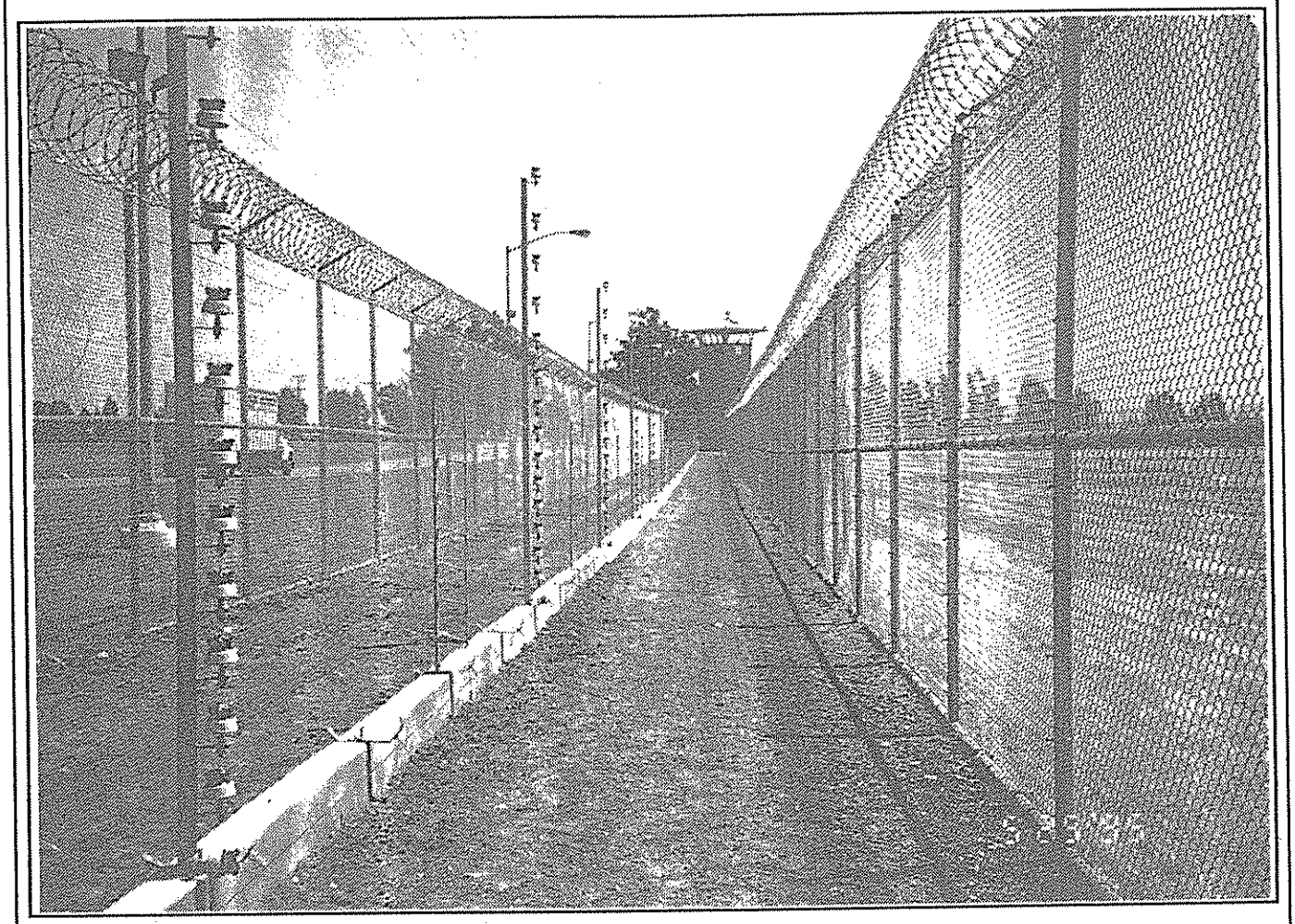


Diagram of Typical Electrified Fence

EXHIBIT 3-1



Electrified fence located between the chain link fences of a representative secured perimeter.

Representative Electrified Fence

EXHIBIT 3-2

California Department of Corrections
Habitat Conservation Plan

EDAW

ALARM AND ELECTRICAL CHARACTERISTICS

Operation of the electrified fence, which is between the perimeter fences of each prison, is typically divided into four zones (for a 4,000 to 5,000 foot perimeter; more zones for a longer perimeter). This allows an alarm to sound for a particular zone, and response to a specific location in the event of reported contact with the fence. Also, if contact occurs, usually only one or two zones need to be shut off for the responding officers to take action, allowing the remainder of the perimeter to remain electrified.

The fence voltage is sufficient to be lethal to any person who comes in contact with it. However, the electrified fence only carries an appreciable current flow (i.e., amperage) when an object contacts the wires or a wire and a ground; therefore, operation of the fence requires minimal electrical power consumption. Electrical power is drawn from the prison's existing transmission lines, so extension of new lines are not necessary. Back-up generators are available to energize the fence in the event of a power failure.

An internal alarm sounds when an object receives an electric charge by simultaneously contacting two wires, one wire and a detection ring or grounding post, or one wire and a ground. The alarm sounds at the central control room and the pedestrian and vehicle sally port (entrance/exit) towers. An alarm signal is also transmitted to the correctional officer in the 24-hour-a-day roving patrol vehicle on the outside perimeter road.

FENCE SAFEGUARDS FOR STAFF AND PUBLIC SAFETY

The fences have been planned, designed, and constructed to avoid accidental contact by staff, inmates, and the public. The electrified fence location between two 12-foot (or higher) chain link fences topped with razor wire prevents routine or accidental public contact. Also, public access on state prison property is strictly controlled.

Built-in safeguards minimize or eliminate risk of injury to prison staff or visitors. The fence cannot be touched at the sally ports because of security-glazed barriers. Access gates for custody and maintenance staff to access the electrified fence area are designed not to operate unless the electric current is turned off via a key interlock system. Staff who access the electrified fence must be properly trained, certified, and authorized.

The institutions have established detailed operational and maintenance procedures to ensure security, safe fence operation, and protection of the public and prison staff. Also, each institution has plans for maintaining perimeter security in the event of an emergency and/or power loss.

Occasionally, debris (e.g., blown litter) or wildlife comes in contact with the fence. When fence contact generates an alarm, prison staff respond to the affected zone and, if necessary, de-energize the fence zone until the contact is cleared and all staff are safely outside of the perimeter fences and access gates are closed. Correctional staff provide the backup needed to ensure perimeter security is maintained while the fence is de-energized.

Rain or fog do not affect the operation or safety of the electrified fence. The fence can conceivably be shorted if snow accumulates, or drainage problems cause localized ponding to a depth which would contact the bottom fence wires, although the fence drainage system is designed to avoid any water problems. However, a shortage would not cause a hazard to staff, inmates, or the public. If contact with standing water or accumulated snow occurred, electricity would discharge directly into the nearest part of the ground, typically right below the contact point, and dissipate harmlessly. There is no electrical effect beyond a few inches from the point of contact with snow or ponded water. If shorting of the fence by high water or snow took place, the affected zone would be deactivated until the water could be drained away or the snow removed.

3.4 ACTIVITIES COVERED BY PERMIT

This HCP addresses mortality or the potential for mortality of ESA/CESA-covered species and uncovered MBTA-protected species at each of the 29 prisons where electrified fences are or will be operational. Impacts to these species are the result of take via accidental electrocution on the electrified fence. Because the electrified fence is designed to be lethal, occasional killing or injury of these species through electrocution is possible and is addressed by the HCP. The HCP does not cover prison construction of any kind.

Because the electrified fences are installed and operated within the secured perimeters of existing (or future) prisons, project construction and operation does not result in any habitat loss. The area between the double chain link fences of a secured perimeter is kept free of vegetation for surveillance purposes as a standard practice, regardless of the presence of an electrified fence. Consequently, this area provides little to no habitat resources to the HCP's covered species, and no habitat loss or degradation is addressed in this HCP.

This HCP also addresses any incidental take of species covered by the permits that occurs during restoration activities at mitigation sites, and any intentional take of species covered by the permits during management of the sites. The first type of take is incidental and is authorized under Section 10(a)(1)(B) of ESA; it could occur during habitat restoration activities at mitigation sites (see Section 5.2), such as during earthmoving activities, ditch and drain maintenance, exotic vegetation control, and other temporary ground disturbing activities undertaken to improve habitat conditions at these sites. The second type of take is intentional and would be for scientific purposes (i.e., the propagation and enhancement of the species), such as when it is desirable to avoid the unnecessary take of animals during site preparation work by capturing them from the area to be disturbed and relocating them to an approved offsite location. Take for scientific purposes is authorized under Section 10(a)(1)(A) of ESA. Permission for both types of take are authorized by this HCP's incidental take permits, subject to the conditions described in Section 4.10.

4 POTENTIAL BIOLOGICAL IMPACTS/TAKE ASSESSMENT

4.1 OVERVIEW OF IMPACTS

The Statewide Electrified Fence Project involves the operation of lethal electrified fences within the secured perimeter of 29 existing and planned prison facilities. The perimeter is the area that circumscribes the secure portion of each prison facility; it is bounded on both sides by standard chain link fences that are 12 feet high (or higher) and topped with razor wire. For security reasons, the perimeter and adjacent areas (with or without an electrified fence) are generally maintained in a barren (i.e., vegetation-free) state.

Because vegetation within the perimeter is already sparse to absent, no native plant species are being directly or indirectly affected by the operation of electrified fences. Maintenance activities in and near the perimeter include periodic removal of vegetation, which involves elimination of typically non-native, invasive, and weedy plants. Habitat removal is, therefore, not an impact of the electrified fence project. Neither is prison construction, because this HCP does not cover construction activities of any kind.

The environmental impact caused by this project, which is the focus of this HCP, is mortality of wildlife by electrocution. This direct impact was, at first, unexpected because of the original design of the fence, and because habitat is sparse to nonexistent in the perimeters. However, as was already discussed, CDC found that accidental wildlife electrocution began to occur with operation of electrified fences at the initial prototype site (Calipatria State Prison) and subsequent installations. The effects of this mortality are described in Section 4.3.

No indirect impacts to wildlife caused by the Statewide Electrified Fence Project have been identified and none are expected. Nor will any federally designated critical habitat be affected by the Statewide Electrified Fence Project. *[Although not associated with this project, typical examples of "indirect" impacts include the effects of water quality degradation related to stormwater runoff, altered diurnal activity patterns caused by increased nighttime lighting, etc.]*

4.2 PRE-HCP IMPACT ANALYSIS

Prior to this HCP, wildlife mortality data collection involved correctional staff retrieving and photographing all carcasses, with subsequent species identifications being performed by a qualified wildlife biologist reviewing the photographs. The impact analysis in this HCP relies on the data collected under that methodology. Therefore, it is useful to provide a summary of this data collection methodology. As will be discussed in Section 5.3, a new monitoring program will be implemented concurrent with ESA and CESA final permitting that relies on first-hand inspection of all wildlife carcasses by a qualified wildlife biologist, with the data to be summarized and presented in an annual report to USFWS and CDFG.

Beginning in November 1993, with the activation of the first electrified fence at Calipatria State Prison, CDC began a process to document wildlife mortality at each of its sites with operational electrified fences. The purpose of this process was to document the wildlife impacts and to determine which species were being most affected. For security reasons, institution staff are required to investigate the cause of each fence alarm. In some instances, the cause is unknown or is determined to be the result of contact

by wind-blown vegetation or debris. However, the alarm is often the result of accidental wildlife electrocution.

With each incident of wildlife electrocution, institutional staff were required to locate and retrieve the carcass. Polaroid photographs were taken of the carcass as it was found. Several other photos were taken after removal for species identification. As part of the project start-up program at each prison, correctional staff were trained to respond to fence alarms and collect the needed data. They were also provided with a copy of Peterson's *Field Guide to Western Birds* (1990, 3rd ed.), and a regional list (developed by project biologists) of the wildlife species expected to frequent the perimeter. For each incident, the following data were collected: time, location, and date of alarm; fence zone number; name of watch commander; and preliminary species identification. The preliminary species identification made by CDC staff were later verified or corrected by biologists using the photographs taken of the carcasses. The final species identifications have been maintained by CDC in a database that has been updated monthly. Details regarding wildlife kills that have occurred at each prison, as well as summary statistics that include total kills to date, total kills for year to date, and total kills for the given month, have been distributed monthly since 1995 by CDC to CDFG and USFWS (refer to Appendix B for an example). This same data was also used in this HCP as part of the impact analysis for sites with operational fences.

All analyses and calculations were conducted using the wildlife mortality data collected through August 31, 1997 (as it appeared in CDC's monthly memorandum, dated September 12, 1997). Even though more current data are available, the August 31, 1997 data are reported here to show the level of species impact that was being evaluated at the time agency consultations were occurring; this represents the correct contextual setting under which the mitigation plan was being developed. This statewide data is summarized in Table 4-1. It includes data from 24 of the 25 existing electrified fence sites (data from the new Corcoran prison is not included because the prison was still under construction and no data was available at the time). It also represents a post-Tier 1 implementation setting, and it includes data from several sites that had Tier 2 netting and anti-perching devices already installed (by August 31, 1997, netting had been installed at the prototype netting site and 4 subsequent sites). For this presentation of data, which is intended as a depiction of the project's entire wildlife impact up to a single point in time (8/31/97), no attempt was made to separate out the benefit derived from Tier 1 implementation at all of the sites, nor the pre-net mortality at the several sites where Tier 2 measures had been installed. As described in section 5.1-1, Tier 1 measures were implemented at all sites as soon as possible following receipt by the wardens of site-specific recommendations. As described in section 5.1-2, Tier 2 netting and anti-perching devices were being installed throughout 1997 and the early part of 1998 (refer to Appendix C for the netting installation schedule).

It is particularly important to note that Table 4-1 covers <u>all</u> species affected by the project to date, which is well beyond the affected species being addressed by this HCP, the MBTA letter from CDFG/USFWS, and the Section 10(a)(1)(B) and Section 2081(b) incidental take permits. This complete presentation of wildlife mortality data is provided here for informational purposes only. It includes data for a number of species that are neither ESA/CESA-covered nor MBTA-protected, such as non-native species, and the more common mammal, amphibian, and reptile species. These categories of species are not protected by any state or federal laws that would be applicable for coverage under the ESA or CESA permitting processes. They are also not native birds, so they are not afforded protection by MBTA. Therefore, non-native birds and more common amphibian, reptile, and mammal species are not discussed further in this HCP.

Table 4-1
Summary Table of Wildlife Species Killed on Electrified Fences at California State Prisons - November 1993 through August 31, 1997 [1]

SPECIES	STATUS [2]	STATE TOTAL	STATE % [3]	ASP	CCC	CCI-III	CCI-IVA	CCI-IVB	CIM	CAL	CEN	CCWF	COR	LAC	SAC	SOL	CVSP	HDSP	ISP	MCSP	NKSP	PBSP	PVSP	RJD	SVSP	VSPW	WSP
BIRDS																											
horned grebe *Podiceps auritus*	MBTA	1	<0.1		1																						
cattle egret Bubulcus ibis	MBTA	2	<0.1							1									1								
green heron *Butorides striatus*	MBTA	1	<0.1														1										
black-crowned night heron *Nycticorax nycticorax*	MBTA	1	<0.1																				1				
turkey vulture *Cathartes aura*	MBTA R	1	<0.1												1												
sharp-shinned hawk *Accipiter striatus*	MBTA CSC, R	2	<0.1					1									1										
red-tailed hawk *Buteo jamaicensis*	MBTA R	5	<0.1						1				2			1										1	
American kestrel *Falco sparverius*	MBTA R	29	0.5	1		1	1			3	3	2				2			1				1	5	4	1	4
wild turkey *Meleagris gallopavo*	MBTA	2	<0.1												2												
sora *Porzana carolina*	MBTA	1	<0.1																1								
American coot *Fulica americana*	MBTA	7	0.1										7														
killdeer *Charadrius vociferus*	MBTA	21	0.4	1						3			5		3				2	3		2	1				1

Table 4-1
Summary Table of Wildlife Species Killed on Electrified Fences at California State Prisons - November 1993 through August 31, 1997 [1]

SPECIES	STATUS [2]	STATE TOTAL	STATE % [3]	ASP	CCC	CCI-III	CCI-IVA	CCI-IVB	CIM	CAL	CEN	CCWF	COR	LAC	SAC	SOL	CVSP	HDSP	ISP	MCSP	NKSP	PBSP	PVSP	RJD	SVSP	VSPW	WSP
ring-billed gull *Larus delawarensis*	MBTA	27	0.5		1					13	1			4	4			4									
herring gull *Larus argentatus*	MBTA	2	<0.1												1							1					
rock dove *Columba livia*	Non-Native	3	<0.1										1		2												
mourning dove *Zenaida macroura*	MBTA	33	0.6	19						2			2		4		1		2	2	1						
greater roadrunner *Geococcyx californianus*	MBTA	1	<0.1														1										
barn owl *Tyto alba*	MBTA R	28	0.5	1					1	2		4		3	1			1			2		5	1	2	4	1
great horned owl *Bubo virginianus*	MBTA R	8	0.1			2	3				1					2							2				
burrowing owl *Speotyto cunicularia*	MBTA CSC, R	134	2.3	2					1	95	2	1	4	3	4	2	1				4		2	2	5	2	4
common nighthawk *Chordeiles minor*	MBTA	1	<0.1																					1			
acorn woodpecker *Melanerpes formicivorous*	MBTA	1	<0.1				1																				
northern flicker *Colaptes auratus*	MBTA	1	<0.1												1												
black phoebe *Sayornis nigricans*	MBTA	29	0.5							1	2		3		6				1	7		3	2	1	2		1
Say's phoebe *Sayornis saya*	MBTA	38	0.6	1					2	12	3		1	1			1		8				8		1		

Table 4-1
Summary Table of Wildlife Species Killed on Electrified Fences at California State Prisons - November 1993 through August 31, 1997 [1]

SPECIES	STATUS [2]	STATE TOTAL	STATE %[3]	ASP	CCC	CCI-III	CCI-IVA	CCI-IVB	CIM	CAL	CEN	CCWF	COR	LAC	SAC	SOL	CVSP	HDSP	ISP	MCSP	NKSP	PBSP	PVSP	RJD	SVSP	VSPW	WSP
western flycatcher *Empidonax occidentalis*	MBTA	1	<0.1																								1
ash-throated flycatcher *Myiarchus cinerascens*	MBTA	10	0.2						1	1					2		2		4								
Cassin's kingbird *Tyrannus vociferans*	MBTA	3	<0.1	2					1																		
western kingbird *Tyrannus verticalis*	MBTA	322	5.4	55		1	2		7	49		12	23		26	3	3		3		45		22				71
tree swallow *Tachycineta bicolor*	MBTA	5	<0.1										2		1												2
violet-green swallow *Tachycineta thalassina*	MBTA	1	<0.1												1												
northern rough-winged swallow *Stelgidopteryx serripennis*	MBTA	2	<0.1										1								1						
bank swallow *Riparia riparia*	MBTA CT	1	<0.1																								1
cliff swallow *Hirundo pyrrhonota*	MBTA	1	<0.1																					1			
barn swallow *Hirundo rustica*	MBTA	15	0.3	1	6																1	5			2		
Steller's jay *Cyanocitta stelleri*	MBTA	1	<0.1												1												
yellow-billed magpie *Pica nuttalli*	MBTA	2	<0.1													1				1							
American crow *Corvus brachyrhynchos*	MBTA	21	0.4			1			4			1			8						6	1					

Table 4-1
Summary Table of Wildlife Species Killed on Electrified Fences at California State Prisons - November 1993 through August 31, 1997 [1]

SPECIES	STATUS [2]	STATE TOTAL	STATE % [3]	ASP	CCC	CCI-III	CCI-IVA	CCI-IVB	CIM	CAL	CEN	CCWF	COR	LAC	SAC	SOL	CVSP	HDSP	ISP	MCSP	NKSP	PBSP	PVSP	RJD	SVSP	VSPW	WSP
common raven *Corvus corax*	MBTA	26	0.4			4	3	7	1					9								1	1				
plain titmouse *Parus inornatus*	MBTA	2	<0.1												1					1							
house wren *Troglodytes aedon*	MBTA	1	<0.1				1																				
ruby-crowned kinglet *Regulus calendula*	MBTA	1	<0.1												1												
western bluebird *Sialia mexicana*	MBTA	43	0.7			1	4								36	2											
American robin *Turdus migratorius*	MBTA	9	0.2			1							2		4	1						1					
northern mockingbird *Mimus polyglottos*	MBTA	16	0.3	2					5		1		1			3			2		1				1		
Bendire's thrasher *Toxostoma bendirei*	MBTA CSC	1	<0.1																1								
American pipit *Anthus rubescens*	MBTA	11	0.2																	1	3						7
loggerhead shrike *Lanius ludovicianus*	MBTA CSC	107	1.8	6		5	1		7	3	1	24	4	2		19	2	2	6		3		21	1			
European starling *Sturnus vulgaris*	Non-Native	436	7.4	98	14	8	2		78	18		3	11	7	10	3	1		2	8	28		60	64	8	3	10
yellow-rumped warbler *Dendroica coronata*	MBTA	324	5.5	45			1		1	24	1	14	92		62	1	2			12	2		26		23		18
common yellowthroat *Geothlypis trichas*	MBTA	4	<0.1														4										

Table 4-1
Summary Table of Wildlife Species Killed on Electrified Fences at California State Prisons - November 1993 through August 31, 1997 [1]

SPECIES	STATUS [2]	STATE TOTAL	STATE % [3]	CCC	CCI-III	CCI-IVA	CCI-IVB	CIM	CAL	CEN	CCWF	COR	LAC	SAC	SOL	CVSP	HDSP	ISP	MCSP	NKSP	PBSP	PVSP	RJD	SVSP	VSPW	WSP
Wilson's warbler *Wilsonia pusilla*	MBTA	3	<0.1							1						1			1							
western tanager *Piranga ludoviciana*	MBTA	8	0.1									8														
black-headed grosbeak *Pheucticus melanocephalus*	MBTA	1	<0.1									1														
Lazuli bunting *Passerina amoena*	MBTA	1	<0.1																		1					
lark sparrow *Chondestes grammacus*	MBTA	31	0.5									2		16			1		2			1		2		3
savannah sparrow *Passerculus sandwichensis*	MBTA	19	0.3									2		3					1	3	1	4		1		4
song sparrow *Melospiza melodia*	MBTA	3	<0.1																1							
white-crowned sparrow *Zonotrichia leucophrys*	MBTA	32	0.5	1								1			2							26		1		
dark-eyed junco *Junco hyemalis*	MBTA	1	<0.1																			1				
red-winged blackbird *Agelaius phoeniceus*	MBTA	29	0.5			1	1	1				1			2			2				5	7	3		
tricolored blackbird *Agelaius tricolor*	MBTA CSC	34	0.6											1									10			
western meadowlark *Sturnella neglecta*	MBTA	2	<0.1											1		1										
Brewer's blackbird *Euphagus cyanocephalus*	MBTA	192	3.2	1	6	3	1	12			1	4	1	14	7			2	30	1	1	48	3	13		

Table 4-1
Summary Table of Wildlife Species Killed on Electrified Fences at California State Prisons - November 1993 through August 31, 1997 [1]

SPECIES	STATUS [2]	STATE TOTAL	STATE % [3]	ASP	CCC	CCI-III	CCI-IVA	CCI-IVB	CIM	CAL	CEN	CCWF	COR	LAC	SAC	SOL	CVSP	HDSP	ISP	MCSP	NKSP	PBSP	PVSP	RJD	SVSP	VSPW	WSP
great-tailed grackle *Quiscalus mexicanus*	MBTA	2	<0.1							2																	
brown-headed cowbird *Molothrus ater*	MBTA	27	0.5	7	1										1				16				1	1			
northern oriole *Icterus galbula*	MBTA	27	0.5		1	5	6	2		1			1		3	3	1	1	1	2							
house finch *Carpodacus mexicanus*	MBTA	1395	23.6	167	44	2		3	26	2	3	34	49	7	759	16		20		62	22		52	6	36	7	78
lesser goldfinch *Carduelis psaltria*	MBTA	22	0.4				1								13					7		1					
American goldfinch *Carduelis tristis*	MBTA	6	0.1												4							2					
house sparrow *Passer domesticus*	Non-Native	2340	39.5	530	248	42	3	4	203	112	12	24	456	48	72	13	15	38	7	99	175	2	65	25	23	1	123
BIRDS - SPECIES UNKNOWN	--	377	--	56	2	2			6	5	8	16	50	3	46	15	5	41	2	13	56	3	18	12	1	6	11
Mammals																											
Virginia opossum *Didelphis virginiana*		6	2.9									1			3									1	1		
Audubon's cottontail *Sylvilagus audubonii*		64	31.4	2		12	1			18	11	2		2		2							10	3			1
black-tailed jackrabbit *Lepus californicus*		2	1.0																				1			1	
California ground squirrel *Spermophilus beecheyi*		33	16.2	1		3	4	1	9				1	2	2			4		2			2		1	1	

Table 4-1
Summary Table of Wildlife Species Killed on Electrified Fences at California State Prisons - November 1993 through August 31, 1997 [1]

SPECIES	STATUS [2]	STATE TOTAL	STATE %[3]	ASP	CCC	CCI-III	CCI-IVA	CCI-IVB	CIM	CAL	CEN	CCWF	COR	LAC	SAC	SOL	CVSP	HDSP	ISP	MCSP	NKSP	PBSP	PVSP	RJD	SVSP	VSPW	WSP
Botta's pocket gopher *Thomomys bottae*		5	2.5							1			1		1						1						1
desert kangaroo rat *Dipodomys deserti*		2	1.0											1					1								
deer mouse *Peromyscus maniculatus*		1	0.5																	1							
dusky footed woodrat *Neotoma fuscipes*		1	0.5															1									
roof rat *Rattus rattus alexandrinus*		1	0.5										1														
Norway rat *Rattus norvegicus*		1	0.5										1														
red fox *Vulpes vulpes*		2	1.0																		2						
desert kit fox *Vulpes macrotis*		1	0.5																1								
raccoon *Procyon lotor*		6	2.9												4	1								1			
mink *Mustela vison*		1	0.5																			1					
striped skunk *Mephitis mephitis*		13	6.4						3						9	1											
domestic cat *Felis domesticus*	Non-Native	65	31.9	3	2	11	1	2	5		1	4	2	4	6	7	5	3			2		2		3		2

Table 4-1
Summary Table of Wildlife Species Killed on Electrified Fences at California State Prisons - November 1993 through August 31, 1997 [1]

SPECIES	STATUS [2]	STATE TOTAL	STATE %[3]	ASP	CCC	CCI-III	CCI-IVA	CCI-IVB	CIM	CAL	CEN	CCWF	COR	LAC	SAC	SOL	CVSP	HDSP	ISP	MCSP	NKSP	PBSP	PVSP	RJD	SVSP	VSPW	WSP
MAMMALS - SPECIES	--	21	--						1		2				1	1	2	4			1		4	4			1
Amphibians																											
bullfrog *Rana catesbeiana*		2	33.3																			2					
Reptiles																											
western fence lizard *Sceloporus occidentalis*		2	33.3												1												1
gopher snake *Pituophis melanoleucus*		2	33.3								1												1				
SUMMARY STATISTICS																											
Total Wildlife Kill		6528	100	1080	322	107	39	22	376	368	54	143	742	97	1142	110	50	120	66	255	360	28	391	149	134	27	346
Subtotal: Non-native Species [4]		2844	43.6	631	264	61	6	6	286	130	13	31	470	59	90	23	21	41	9	107	205	2	127	89	34	4	135
Subtotal: Species Unknown		398	6.1	56	2	2			7	5	10	16	50	3	47	16	7	45	2	13	57	3	22	16	1	6	12
Subtotal: Common Native Species [5]		2936	45.0	360	56	36	28	15	73	130	24	65	212	27	998	45	18	31	47	135	89	23	213	25	88	9	189
Subtotal: Listed Species [6]		1	<0.1																								1
Subtotal: Other Sensitive Species [7]		349	5.3	33		8	5	1	10	103	7	31	10	8	7	26	4	3	8		9		29	19	11	8	9
Weeks Since Fence Activation				152	105	134	104	102	136	200	151	108	156	146	143	128	95	112	144	148	150	135	154	133	70	82	140
Average Weekly Kill of Native Species				2.6	0.5	0.3	0.3	0.2	0.6	1.2	0.2	0.9	1.4	0.2	7.0	0.6	0.2	0.3	0.4	0.9	0.7	0.2	1.6	0.3	1.4	0.2	1.4

Table 4-1

Summary Table of Wildlife Species Killed on Electrified Fences at California State Prisons - November 1993 through August 31, 1997 [1]

SPECIES	STATUS [2]	STATE TOTAL	STATE % [3]	ASP	CCC	CCI-III	CCI-IVA	CCI-IVB	CIM	CAL	CEN	CCWF	COR	LAC	SAC	SOL	CVSP	HDSP	ISP	MCSP	NKSP	PBSP	PVSP	RJD	SVSP	VSPW	WSP

[1] Last updated to include data collected through August 31, 1997 (see California Department of Corrections (CDC) September 12, 1997 memo). Total kills per species are provided for the entire project (State totals) and separately for each of the 24 institutions with operational electrified fences. The acronyms used for each of the 24 prisons are defined below.

[2] Status refers to legal protection afforded under state and federal Endangered Species Acts, the Migratory Bird Treaty Act, and portions of the Fish and Game Code of California. Status abbreviations are explained as follows:

CT California -listed as Threatened species.
CSC California Species of Special Concern; the state's equivalent of a candidate species.
R Section 3503.5 of the Fish and Game Code of California makes it unlawful to take, possess, or destroy any birds-of-prey ("raptors"), which generally includes all hawks, falcons, owls, and vultures (in the taxonomic orders Falconiformes and Strigiformes).
MBTA Refers to all native species of birds protected by the federal Migratory Bird Treaty Act.

[3] Percentages shown are for percent of total identifiable bird kill (N=5,920), total identifiable reptiles and amphibians, and total identifiable mammal kill). Kills which could not be identified to species because of missing photographs or a lack of data were excluded from this analysis.

[4] Includes species that are not native to the United States: house sparrow, rock dove, European starling, and house cat.

[5] Includes all native species except for raptors and those listed (or considered for listing, i.e., CSC) under the state or federal Endangered Species Acts. This category includes migratory birds and all mammals (except house cat) killed to date.

[6] Includes all species listed or proposed for listing as rare, threatened, or endangered under the state and/or federal Endangered Species Acts.

[7] Includes all raptors, and species that are being considered as candidates for protection under the federal or state Endangered Species Acts.

[8] Does not include non-native species and species unknown.

ASP: Avenal State Prison; Kings County
CCI-III: California Correctional Institution - Level III; Tehachapi, Kern County
CCI-IVA: California Correctional Institution - Level IVA; Tehachapi, Kern County
CCI-IVB: California Correctional Institution - Level IVB; Tehachapi, Kern County
CIM: California Institute for Men; Chino, San Bernardino County
LAC: California State Prison - Los Angeles; Lancaster, Los Angeles County
SAC: California State Prison - Sacramento; Folsom, Sacramento County
SOL: California State Prison - Solano; Vacaville, Solano County
CAL: Calipatria State Prison; Imperial County
CEN: Centinela State Prison; Imperial County
COR: California State Prison - Corcoran; Kings County
CCC: California Correctional Center, Level III; Susanville, Lassen County

CVSP: Chuckawalla Valley State Prison; Blythe, Riverside County
ISP: Ironwood State Prison; Blythe, Riverside County
MCSP: Mule Creek State Prison; Ione, Amador County
NKSP: North Kern State Prison; Delano, Kern County
CCWF: Central California Women's Facility; Chowchilla, Madera County
PBSP: Pelican Bay State Prison; Del Norte County
PVSP: Pleasant Valley State Prison; Coalinga, Fresno County
RJD: R.J. Donovon Correctional Facility at Rock Mountain; San Diego County
SVSP: Salinas Valley State Prison; Soledad, Monterey County
VSPW: Valley State Prison for Women; Chowchilla, Madera County
WSP: Wasco State Prison - Reception Center; Kern County
HDSP: High Desert State Prison; Susanville, Lassen County

4.3 SUMMARY OF IMPACT

As described in Section 4.1, the effects of the Statewide Electrified Fence Project on wildlife consists primarily of mortality due to electrocution. No habitat loss, including direct or indirect effects on critical habitat, are expected as a result of the project. However, prior to Tier 1 site modifications and Tier 2 fence modifications, as described in Sections 5.1.1 and 5.1.2 , respectively, wildlife mortalities at the fences were substantial. Wildlife mortalities since implementation of the Tier 1 and Tier 2 measures continue, but in significantly reduced numbers.

Mortality data has been collected at CDC's electrified prison fences from the beginning of their installation to the present. Table 4-1 shows mortality data by species for each prison from November 1993 through August 31, 1997. As shown, 6,528 incidents of accidental wildlife electrocution occurred at the fences within this time period. Based on these data, and the observations of biologists on site, birds are clearly the taxa at greatest risk, comprising 95% of all fence-related mortalities. This is most likely explained by their ability to access the fences via flight. The remaining 5% of mortalities are comprised of a few mammal, reptile, and amphibian species.

Tables 4-2 and 4-3 compare "pre-net" and "post-net" mortality data at the fences (i.e., compares mortality data prior to and after implementation of Tier 1 and Tier 2 measures) for uncovered MBTA-protected species and ESA/CESA-covered species, respectively. The percent reduction in mortality rates after implementation of Tier 1 and Tier 2 modifications varies, from 90% to 95% for most perching birds, to about 60% for most raptors. A few species are expected to have a mortality reduction of only 30% (e.g., turkey vulture, red-tailed hawk, barn owl, and great-horned owl); however, the sample size for these species is relatively low and mortality reduction over the long-term remains, to some extent, to be seen. According to Table 4-2, the total post-net statewide average annual kill for MBTA-protected species is expected to be 279.85 animals (compared to a pre-net figure of 1,464.83 animals). The post-net statewide average annual kill for ESA/CESA-covered species is expected to be 65.07 animals (compared to a pre-net figure of 167.70 animals). The effects of this "residual" wildlife mortality (i.e., mortality rates after implementation of Tier 1 and Tier 2 measures) are described in this section.

EFFECTS ON ESA/CESA-COVERED SPECIES

Listed ESA/CESA Species

There are 17 currently listed ESA/CESA-covered species addressed in this HCP. As shown in Table 4-3, of several thousand mortalities at CDC's electrified fences over the past five years, to date only one individual of a federally or state listed species has been killed. This was a single bank swallow (state listed as threatened) which was killed during migration at Wasco State Prison. Generally, it is expected that this pattern of very low mortality rates for state and federally listed species will continue. These low mortality rates (past documented rates as well as anticipated future rates) are probably due to several factors: (1) state and federally listed species tend to be habitat specialists that would not be attracted to the heavily altered landscapes in and around state prisons; (2) with some exceptions (noted below) many state prisons addressed in this HCP are located some distance from the types of native habitats that support state and federally listed species; and (3) any state or federally listed species that do access the vicinity of the fences will be protected to a large extent by the Tier 2 exclusion and deterrent devices.

Nevertheless, it is expected that over the 50-year term of the permits, federally or state listed species will occasionally be incidentally taken as a result of CDC's Statewide Electrified Fence Project. This is due to several factors. First, the sheer numbers involved in the project--up to 29 prisons with electrified fences, the 50-year term of the permits, and several hundred state or federally listed species within the state of California--indicate that occasional electrocution of a state or federally listed species is statistically probable. Second, the locations of some prisons make it more likely that state or federally listed species will periodically find their way to or near the electrified fences. Examples of these are prisons in the San Joaquin Valley (e.g., NKSP, WSP, ASP, PVSP, and CSP-Corcoran), which may be located near saltbush scrub habitats supporting Tipton kangaroo rats, San Joaquin kit foxes, blunt-nosed leopard lizards, and San Joaquin antelope squirrels; the Mojave Desert prisons (e.g., ISP, CVSP, and CSP-Los Angeles), which may be located near desert scrub habitat supporting desert tortoises and Mojave ground squirrels; prisons within the nesting range of Swainson's hawk (CCWF, VSPW, CSP-Soloano, and NCWF); and R.J. Donovan Correctional Facility in San Diego County, which is within one mile of coastal sage scrub habitat supporting coastal California gnatcatchers and other NCCP-type species. Mortality rates at these prisons may be somewhat higher than at other prisons but, with the Tier 1, Tier 2, and Tier 3 mitigation measures, overall expected mortality rates, as described in Table 4-3, are expected nevertheless to be within acceptable levels.

To summarize, the factors discussed above suggest that occasional mortalities of state and federally listed species will occur during CDC's Statewide Electrified Fence Project, but that the numbers of such mortalities will be very low. Furthermore, CDC's proposed Tier 3 habitat mitigation program will benefit all ESA/CESA-covered species through the protection and long-term management of habitat, including, in many cases, breeding habitat (see Section 5.2.1). Also, this HCP sets incidental take limits for these species (see Table 4-4) which, if exceeded, require CDC to meet and confer with USFWS and CDFG to correct any deficiencies that may be resulting in excessively high endangered or threatened species mortality. In light of these considerations, it is believed the effects of mortality rates of state and federally listed species at CDC's electrified fences will be minor to negligible, and that no state or federally listed species is likely to be jeopardized as a result of the Statewide Electrified Fence Project. In fact, considering the Tier 3 habitat program, most listed ESA/CESA-covered species are likely to receive an overall net benefit as a result of the program.

Unlisted ESA/CESA Species

There are an additional 45 ESA/CESA-covered species addressed in this HCP that are currently unlisted but that could be listed over the life of the 50-year permits. These are nearly all either California Species of Special Concern or CDFG-protected raptors (birds of prey). The risk of mortality at the fences for these unlisted ESA/CESA-covered species varies according to species. Of the 45, three are reptiles, 21 are raptors, 14 are other birds, and seven are mammals.

For most unlisted ESA/CESA-covered species, post-net mortality at the electrified fences is expected to be very low. Of the three reptile ESA/CESA-covered species that are unlisted (San Diego horned lizard, orange-throated whiptail, and northern red diamond rattlesnake), none have been taken at the fences to date, and a pattern of low mortality for these species is expected to continue. The latter expectation is based on: (1) the fact that the barren, highly altered state of the prison sites will tend to deter these species from accessing the fence area; (2) even if some animals do approach the fence areas, Tier 2 fence modifications will help prevent contact; and (3) according to Table 4-1, to date only four reptiles (two fence lizards and two gopher snakes) have been electrocuted at the fences statewide between 1993

and August 31, 1997. This indicates that reptile species are generally at negligible risk. Similarly, of the seven unlisted ESA/CESA-covered species that are mammals (San Diego black-tailed jackrabbit, San Joaquin pocket mouse, short-nosed kangaroo rat, southern grasshopper mouse, Tulare grasshopper mouse, San Diego desert woodrat, and white-footed vole), none have been electrocuted to date. Furthermore, according to Table 4-1, the total number of mammals killed statewide has been 225 individuals, or 3.5% of the total statewide take between 1993 and August 31, 1997. And, four common species comprise the majority of these (78%): Audubon's cottontail, California ground squirrel, striped skunk, and domestic cat. This suggests that mammals too are generally at low risk of electrocution at the fences and that mortality rates for the unlisted covered mammals will be very low. In addition, CDC's proposed habitat mitigation program will benefit all unlisted ESA/CESA-covered species through the protection and long-term management of habitat, including breeding habitat. For these reasons, it is believed the effects of mortality rates on unlisted reptile and mammal ESA/CESA-covered species will be minor to negligible, and that no state or federal candidate species is likely to be jeopardized as a result of the Statewide Electrified Fence project.

Of the 45 unlisted ESA/CESA-covered species, however, some will remain at substantial risk of electrocution. These are all bird species and consist mostly of raptors (especially the kestrel, barn owl, and burrowing owl) and loggerhead shrike. The reason for this is that even with implementation of the Tier 2 measures, the top six electrified wires on CDC's fences remain exposed--i.e., are not covered by the netting (see Section 5.1.2). Because of this, birds that tend to be top perchers or that hunt from elevated perches, such as raptors and shrikes, have continued, even post-netting, to be subject to higher mortality rates than most other species. This pattern is expected to continue. For example, of the raptor species known to have been killed at the fences between 1993 and August 31, 1997, the predicted post-net mortality reduction varies, from 30% for the red-tailed hawk, barn owl, and great horned owl, to 75% for the loggerhead shrike, compared to post-net mortality reductions of 80% to 95% for most other species (see Table 4-3). Furthermore, post-net statewide average annual kill for the these species remains relatively high--7.62 for kestrel, 12.91 for barn owl, 3.21 for great horned owl, 14.71 for burrowing owl, and 21.75 for loggerhead shrike (Table 4-3).

However, balancing these mortality rates are several factors. First, none of these species is currently state or federally listed and most are relatively common throughout California, though a few are locally rare in some areas. Because of these relatively high numbers, residual mortality rates of the magnitude expected would be unlikely to appreciably affect statewide populations of these species. Second, most of these species are widely distributed within the state. This means that residual mortality rates for these species likewise will tend to be widely distributed, thus "diluting" the effects of the take across the species' statewide populations. Third, the Tier 3 mitigation program focuses heavily on raptors and will provide a total of 2,363 acres of protected raptor habitat (see Section 5.2 and Exhibit 5.2-11), thus mitigating the effects of residual mortality on these species. Finally, this HCP provides for a stringent monitoring program (see Section 5.4), an important component of which is to provide continuing data to be used in evaluating the effectiveness of CDC's fence design, future wildlife mortality rates, and how predicted mortality rates compare to observed data. The plan also establishes specific take limits for these species which, if exceeded, will trigger further consultation between CDC, USFWS, and CDFG to determine if additional fence modifications or other corrective measures are needed. In light of these considerations, CDC believes that the residual mortality of raptors, shrikes, and other top perchers at the prison fences, though higher than most species, will not result in significant population declines or other appreciable effects.

EFFECTS ON UNCOVERED MBTA-PROTECTED SPECIES

In addition to the 62 ESA/CESA-covered species, this HCP addresses an additional 57 bird species that are only protected by the federal Migratory Bird Treaty Act (see Table 1-3). Mortality of uncovered MBTA-protected birds at the electrified fences has varied a great deal, depending on the species. For example, mortalities recorded between 1993 and August 31, 1997 varied from a single individual for many species (e.g., horned grebe, turkey vulture, greater roadrunner, violet-green swallow, house wren, and lazuli bunting) to 322 for western kingbird and 324 for yellow-rumped warbler, to 1,395 for the house finch (see Table 4-1). These variations are most likely due to differences in species habits, habitats frequented, and abundance. For example, large species with secretive or roving habits have rarely been electrocuted (e.g., the turkey vulture and wild turkey), while small, common to very common species have exhibited high mortality rates (e.g., yellow rumped warble, brewers blackbird, and house finch). Another group of migratory birds exhibiting somewhat higher mortality rates are the flycatchers, most likely because these birds hunt for insects from elevated perches (e.g., the black phoebe, with 29 recorded mortalities, Say's phoebe, with 38 mortalities, and western kingbird, with 322 mortalities).

However, the figures cited in Table 4-1 are largely reflective of an unmitigated level of take. Implementation of Tier 1 and Tier 2 measures is expected to reduce this level of take by as much as 90% for most migratory birds. Although comparative data (i.e., pre-net vs. post-net) are still limited for most groups of species, it is useful to consider the responses to netting predicted by the Working Group (based on available data at the time) for various categories of wildlife (refer to Section 4.8 for further details). For flycatchers, mortality rates are expected to fall somewhat less (80%) because, like shrikes and raptors, they are probably more likely to perch on the upper, exposed fence wires. Likewise, mortality rates for the two gull species (ring-billed gull and herring gull) are expected to decline by 80%, while mortality rates for the turkey vulture and wild turkey should fall by only 30% and 60%, respectively. However, the latter two figures are somewhat misleading, since only one individual of each of these species has actually been killed at the fences, and, due to their habits, very few turkey vultures and wild turkeys are expected to be killed at the fences in the future.

Overall, these figures illustrate that Tier 1 site modifications and Tier 2 exclusion and deterrent devices are expected to be highly effective in reducing bird mortality at CDC's electrified fences, and that most species can be expected to be taken in only small numbers over the life of the HCP. The only species expected to be taken in substantial numbers post-netting are the western kingbird (with a predicted post-net average annual kill of 32.96--see Table 4-2), the common raven (post-net average annual kill of 13.48), yellow-rumped warbler (post-net average annual kill of 23.76), brewer's blackbird (post-net average annual kill of 24.41), and house finch (post-net average annual kill of 96.92). As shown in Table 4-2, all other migratory birds are expected to have a post-net average annual kill of less than 10.

Balancing the effects of this "residual," post-netting mortality is the Tier 3 habitat enhancement program, which has been designed to benefit uncovered MBTA-protected species as well as ESA/CESA-covered species. As described in Section 5.2, each migratory bird species likely to be occasionally killed at the fences will receive a corresponding benefit as a result of CDC's proposed habitat mitigation program. This benefit will be in the form of improved breeding habitat, which will lead to increased reproductive success, and improved foraging opportunities at the mitigation sites. Thus, by comparing predicted migratory bird mortality figures to expected mitigation benefits under the HCP, CDC draws the following conclusions with respect to the effects of the Statewide Electrified Fence Project on migratory birds. First, for common species–which constitute the majority of uncovered MBTA-protected species affected by the

fences (e.g., mourning dove, acorn woodpecker, northern flicker, barn swallow, yellow-billed magpie, robin, western meadowlark, Brewer's blackbird, and house finch)–predicted mortality rates will either be relatively high (e.g., house finch, with an annual average kill of 96.92, as shown in Table 4-2) or very low (e.g., acorn woodpecker and robin, with annual average kills of 0.50 and 1.21, respectively); however, in either case these predicted mortality rates are expected to be insignificant when compared to overall statewide abundance (i.e., numbers killed will be small compared to the overall size of the population). In other cases, the affected species may be less common but will likewise be taken only in small numbers. For example, predicted average annual kill for the horned grebe, green heron, sora, greater roadrunner, common nighthawk, rough-winged swallow, American pipit, Wilson's warbler, and western tanager is expected to be less than one each (Table 4-2). Finally, for those species expected to be taken in higher numbers that may not be as abundant (e.g., the western kingbird and yellow-rumped warbler, with predicted average annual kills of 32.96 and 23.76, respectively), the effects on overall statewide populations are nevertheless expected to be minimal. This is because even these higher predicted annual mortality rates should be relatively insignificant compared to overall state population sizes, and the Tier 3 mitigation program will help offset this residual mortality.

In summary, migratory bird populations are not expected to experience significant adverse effects as a result of the Statewide Electrified Fence Project because migratory birds are relatively abundant, and because of the reduction in mortality afforded by Tiers 1 and 2 and the benefits provided by the Tier 3 habitat enhancement efforts.

4.4 EXPLANATION OF RISK OF ELECTROCUTION

An important objective of the supporting field studies was to evaluate potential impacts of the electrified fences on all wildlife species. This is also a requirement of CEQA, and was thus a focus of the EIR. As the study progressed, a list of species at "substantial" risk of electrocution was developed. This was based, in part, on an understanding of species presence and behavior, on actual field observations, and on incoming data from prisons with operational electrified fences. The EIR's impact analysis was designed to address all wildlife, including sensitive and common species. A species was determined to be "at substantial risk" if it is expected to periodically contact the electrified fence. This analysis of risk was an inherent part of the project's impact analysis and mitigation program: it helped explain why certain common species were more vulnerable than others; it provided the direction needed in developing Tier 2 mitigation devices aimed at reducing the majority of impacts; and it served to guide the project biologists and agency staff in choosing target species that would be most representative in defining the Tier 3 compensatory mitigation program.

Finally, the risk analysis facilitated the selection of ESA/CESA-covered species to be included in the Federal Section10(a)(1)(B) and state Section 2081(b) incidental take permits, which would be mitigated by implementation of measures described in this HCP. It is important to note, though, that some species considered in the EIR analyses to be "at negligible risk" are being included in the permits, because the long time frame of the permits makes predicting future take more difficult, as the probability for chance mortality (i.e., anomalies) increases with time. Consequently, a number of species considered to be at negligible risk (e.g., desert tortoise, bald eagle, greater sandhill crane, coastal California gnatcatcher) are included in the permit coverage because of the low (but possible) risk that they may be infrequently taken over the 50-year term of the permits.

4.5 CRITERIA FOR RISK CONSIDERATION

There are many species of wildlife within the State of California, but not all are expected to be affected by the Statewide Electrified Fence Project. In an effort to focus the risk of electrocution analysis on species that truly are vulnerable to accidental electrocution, a series of criteria were developed. In order for species to be considered "at substantial risk" of , or susceptible to, electrocution, they would first need to meet all three of the following criteria:

(a) *they occur in habitats at one or more of the 29 prison sites;*

Because the 29 State prisons that are included in this project are scattered throughout various biotic regions of the State, a wide variety of plant community types are considered. However, the wildlife species using these communities must be present year-round (non-avian species), or at least breed or winter in the vicinity of a prison (avian species), to be considered at substantial risk of electrocution. Species whose presence is more temporally limited than this would not have enough of an opportunity to be electrocuted to be considered at substantial risk.

(b) *they have the opportunity to periodically enter the secured perimeter (i.e., access the area between the two chain link fences); and*

Opportunity is affected by both physical and behavioral constraints. Wildlife that fly generally face no physical barriers to entering the perimeter. On the other hand, terrestrial species that are at substantial risk must either be small enough to squeeze through the two-inch chain links, or they must be able to burrow, dig, or use gaps that occasionally develop under the chain link fences to periodically gain access into the perimeter. Strong behavioral tendencies, including strict habitat affinities, may also prevent a species from being at substantial risk of electrocution. Wildlife that rarely stray from native habitats, as well as those that avoid human contact, confined spaces, or disturbed, well-lit areas would not be expected to venture into the fenced perimeter, so they would not be considered at substantial risk.

(c) *they must be capable of either spanning two lethal wires, or making contact between a grounded surface and one lethal wire.*

Assuming that the above two criteria are satisfied, for a species to be considered at substantial risk of electrocution, it must be a flying species that is large enough to span two lethal wires (or a lethal wire and a detection ring), or it must be able to span the distance between a lethal wire and a grounded surface while perching, crawling, sitting, standing, etc. The distance between lethal wires is variable, although the average is about 10 inches; larger birds and bats may, therefore, be killed by flying into the fence wires.

More likely, though, most species at substantial risk are electrocuted by simultaneously touching a single lethal wire and a grounded surface. By design (to prevent inmate escape), grounded surfaces are numerous (especially associated with the lower 9 of 15 lethal wires) and include the concrete grade beam, steel fence posts, steel grounding bracket, and the earth itself. There is opportunity for most perching birds to be electrocuted, regardless of their size; for instance, many are likely killed by landing on a wire or insulator and simultaneously touching either a post or grounding bracket (a distance that can be as little as 2-3 inches). Terrestrial wildlife, on the other

hand, must be large enough to make contact with the lowest wires from the ground or top of the grade beam. Because the height of the buried grade beam varies (approximately 10-16 inches from the ground surface), the distance to the lowest wire also varies, although it is typically about 13 inches above ground level. For wildlife that gain access to the top of the grade beam, the lowest wire is approximately 6 inches away (it is 3 inches above the grade beam, but offset horizontally by 5 inches). Small, metallic loop brackets that are attached to the grade beam are also believed to cause mortality with small species; these encircle the lowest lethal wire, and are spaced at 7.5- or 15-foot intervals. Small birds and mammals that might climb or hop into the lower loop brackets would only be 3 inches away from a lethal wire.

The above criteria were applied to every resident wildlife species in California. For species to be determined at substantial risk of accidental electrocution, they would need to meet all three criteria.

4.6 SPECIES AT SUBSTANTIAL RISK

The discussion and explanation of species at substantial risk of electrocution is best conducted at the most general taxonomic level; this is where broad life history patterns that relate to level of risk are most easily found. The paragraphs below describe why many birds, some mammals, and only a few reptiles and amphibians are believed to be at substantial risk.

Avian Species at Substantial Risk - As a group, avian wildlife generally has the highest risk of electrocution because they are more "wide ranging" (i.e., can move long distances; are very mobile), often abundant, and many tend to perch on wires or fences; thus, even when not present in large numbers on a site, many bird species are at substantial risk because their exposure to the hazard is higher. Avian wildlife considered at negligible risk includes those species that rarely stray from preferred habitats or dense cover, those that are wetland-dependent, those that rarely perch on man-made structures, or those that only occur in very low numbers in California.

Mammalian Species at Substantial Risk - Mammalian wildlife is another group at substantial risk, but their degree of risk is considerably less than electrocution risks for birds. Mammals tend to be wide-ranging. Mammals that are considered at substantial risk typically include species that burrow or are small enough to pass through the 2-inch chain links of the perimeter fences; also included are those that tend to frequent disturbed habitats and are opportunistic enough to find a way into the perimeter while wandering and foraging. Mammalian species considered at negligible risk include those that are not able to gain access to the electrified fence (e.g., too large), species that are extremely wary, those that require dense cover, and those with a strong aversion to altered habitats or human disturbance.

The bat species are a noteworthy exception within the mammal taxa. Early in the impact analyses, bats were believed to not be at substantial risk. It was believed that most bat species would be able to avoid the narrow electrified wires via echolocation. However, four bats have been killed (through August 31, 1997; none identifiable to species). Putting this into perspective shows that the risk is still small. In the 20,000+ nights (all prisons combined) that electrified fences have been operating at State prisons in California, there have only been four instances of bat kills reported. There are more than 20 species of bats in California, plus several subspecies, many of which are quite common, widespread, and known to frequent urban areas (e.g., foraging on insects under street lights). As a reasonable approach for considering the risks to bats, this project focused its impact assessment on the four most common and widespread species in California: big brown bat (*Eptesicus fuscus*), California myotis (*Myotis californicus*),

western pipistrelle (*Pipistrellus hesperus*), and Brazilian free-tailed bat (*Tadarida brasiliensis*). Assuming that their risk of electrocution is based on chance encounters with fence wires, then the odds of mortality for most other bat species is lower because they are less common and/or their range in California is more localized. This does not preclude the possibility that other bat species may be electrocuted, but it represents a reasonable approach for considering the potential for environmental impacts on this group of species.

Amphibians and Reptiles at Substantial Risk - The final wildlife taxa being considered, the amphibians and reptiles, were also not originally believed to be at substantial risk of electrocution. The early hypothesis that they were not at substantial risk was somewhat different for the two groups. Amphibians are wetland dependent for at least part of their life cycle, and would not be expected to occur in the non-aquatic environment of the prison perimeter; also, most are too small to make contact with the electrified fence. For reptiles, most are not wide-ranging, most are not large enough to span the distance between the grade beam and lowest lethal wire, and most are too wary to occur within the perimeter. As with the bats, however, a few individuals within this taxa have been killed, which has caused a reconsideration of amphibian and reptile risks. Within the 20,000+ days that electrified fences have been operational, there have been only six documented incidents of amphibian and reptile electrocution (through August 31, 1997). Subsequently, the project's impact analysis of amphibian species at substantial risk has been expanded to include bullfrog (*Rana catesbeiana*) and western toad (*Bufo boreas*). Both are abundant and widespread in California, have been observed in or near drainage ditches at some of the prisons, and are large enough to theoretically contact the lowest lethal wire (if sitting in the anti-rodent wire loop bracket). Approximately ten reptile species are also considered to be at substantial risk; these include species, such as the common gopher snake, that could conceivably occur within the perimeter and make contact with the lowest wire.

4.7 SPECIES AT NEGLIGIBLE RISK

For the purposes of this HCP, species were considered to be "at negligible risk" of accidental electrocution if they did not meet the criteria for being "at substantial risk" (see above). Species were determined to be at negligible risk if range restrictions prevented them from occurring at or near one of the 29 prison sites. For example, impacts to most montane species were not considered because none of the electrified fences occur at high elevations. (The Susanville and Tehachapi properties are the highest, being at 4,100 feet above sea level). For other species at negligible risk, many possess behavioral tendencies or strict habitat affinities that would preclude them from using the perimeter where the electrified fences are located. However, as stated in section 4.4, a few species generally considered to be at negligible risk are included in the incidental take permit coverage because of the low (but possible) risk that they may infrequently be taken over the 50-year term of the permit.

Species believed to be at negligible risk have been grouped into eleven categories, as described below. To avoid adding substantially to the length of this discussion, only a few examples are given for species included in each category. Also, these categories were devised to provide the reader with representative explanations as to why certain species are at negligible risk. Therefore, they were not intended to be inclusive; that is, species were often at negligible risk for multiple reasons (e.g., Trowbridge's shrew is at negligible risk because it is fossorial [adapted to a subterranean existence] and it is too small to make contact with the lowest lethal wire).

Mammals that are too large to squeeze through the chain link fencing - Wildlife species such as black bear (*Ursus americanus*), mule deer (*Odocoileus hemionus*), and pronghorn (*Antilocapra americana*) are too large to gain access into the fenced perimeter. Also, these and other large mammals tend to avoid areas where food availability is low and protective cover is sparse.

Non-avian species that are too small to be electrocuted - While their small size allows them access into the perimeter, ground-dwelling vertebrates smaller than 3-6 inches are too small to be electrocuted; the distance to the lowest lethal wire is 3 inches from inside the loop bracket, or 6 inches from the top of the grade beam. Most old and new world mice, shrews, moles, and voles fall into this category, as do many reptiles. Many of the small mammals are also partly or entirely fossorial, which further protects them from exposure to electrocution risks above ground.

Avian species that are too small to be electrocuted - A few avian species are too small to make contact between a grounded surface and lethal wire. Examples here include Anna's hummingbird (*Calypte anna*), bushtit (*Psaltriparus minimus*), and verdin (*Auriparus flaviceps*). These small birds also tend to avoid foraging on artificial structures (such as wires and fence posts), which further diminishes their chances for electrocution.

Secretive species that avoid human activity - Secretive species, which have an aversion to human activity and disturbance, are not expected to venture into the perimeter. Species such as grasshopper sparrow (*Ammodramus savannarum*), common yellowthroat (*Geothlypis trichas*), and ringtail (*Bassariscus astutus*) would not occur near the fenced perimeter because they are extremely wary and avoid disturbed areas. Although they were of potential concern only at Pelican Bay State Prison, martens (*Martes americana*) are another example of a species that is so secretive that it is at negligible risk of electrocution.

Raptors that are principally aerial foragers - Raptors that hunt "on the wing," rather than from a perch, are at negligible risk because they would avoid attempting to catch prey in the close confines of the fenced perimeter. The northern harrier (*Circus cyaneus*), for example, seeks prey while flying close to the ground, and Swainson's hawks (*Buteo swainsoni*) soar at high altitudes in search of prey. Birds-of-prey that forage while in flight are at negligible risk of electrocution.

Woodland bird species that typically do not forage from metallic posts or wires - The brown creeper (*Certhia americana*), white-breasted nuthatch (*Sitta carolinensis*), acorn woodpecker (*Melanerpes formicivorus*), hairy woodpecker (*Picoides villosus*), and red-breasted sapsucker (*Sphyrapicus ruber*) are all woodland birds that may occasionally occur at several of the state prisons. However, because these species are primarily bark "gleaners" (i.e., forage on woody trees and shrubs for sap, insects, nuts, seeds or fruit), they would be at negligible risk because they tend to avoid foraging from metallic posts or wires.

Nocturnal species that avoid well-lit areas - Many nocturnal species are at negligible risk of electrocution because they tend to avoid well-lit areas. Species such as the western screech owl (*Otus kennicottii*), short-eared owl (*Asio flammeus*), and long-eared owl (*Asio otus*) are not adapted to urban settings; so, they are expected to avoid the well-lit prison perimeters at night. Also, many small mammals such as old world mice and rats, pocket mice, voles, and kangaroo rats are preyed upon by a variety of nocturnal predators; therefore, as a survival mechanism, most of these small mammals tend to avoid well-lit areas because they are more vulnerable there. It is important to note that some nocturnal species

are at substantial risk. In fact, because they are opportunistic and not bothered by urban settings at night, a number of barn owls (*Tyto alba*) and great horned owls (*Bubo virginianus*) have been killed.

Fossorial species - Includes burrowing species such as shrews, moles, and voles that spend most of their time below ground. Because of this behavioral habit and their small size, they have little opportunity and a limited capability to come into contact with the lethal wires of the electrified fences, thus their risk of electrocution is negligible. Representative species in this category include gray shrew (*Notiosorex crawfordi*), dusky shrew (*Sorex obscurus*), Trowbridge's shrew (*Sorex trowbridgei*), ornate shrew (*Sorex ornatus*), California mole (*Scapanus latimanus*), and California vole (*Microtus californicus*).

Species that require the dense cover of native habitats - There are a number of species which have specific habitat requirements that typically preclude them from leaving the secure cover of native habitat. Some examples include willow flycatcher (*Empidonax traillii*), California gnatcatcher (*Polioptila californica*), and yellow-breasted chat (*Icteria virens*). Willow thickets and riparian habitat, dense coastal sage scrub, or dense brush must be present in close proximity to an electrified fence for these birds to be vulnerable, and this situation is not present at any of the prison sites. These and other species that require dense, native habitats for protective cover are at negligible risk, because the perimeter areas at most state prisons are well-maintained and kept free of vegetation.

Species that are water-dependent - Man-made drainage ditches and water storage/treatment ponds occur on nearly every state prison property; these often attract wildlife because most function as wetland equivalents for at least part of the year. These man-made features are known to provide marginally suitable habitat for a variety of amphibians, waterbirds, and waterfowl. Water-dependent species such as mallard (*Anas platyrhynchos*), canvasback (*Aythya valisineria*), redhead (*Aythya americana*), northern pintail (*Anas acuta*), black-necked stilt (*Himantopus mexicanus*), and American avocet (*Recurvirostra americana*) have been observed using these man-made aquatic features at the state prisons. However, water-dependent species such as these are at negligible risk of electrocution, because they tend not to stray far from open water unless protective cover is available, and vegetation is usually lacking near the electrified fence.

Species that require aquatic foraging habitat - Certain avian species are at negligible risk because prison perimeter environs lack the wetland features that support important prey items. For example, bald eagles (*Haliaeetus leucocephalus*) are generally at negligible risk because they require large bodies of water that contain fish. Several wading or probing birds such as great blue heron (*Ardea herodias*), great egret (*Casmerodius albus*), and snowy egret (*Egretta thula*) are also at negligible risk, because they require shallow wetland habitats that support small fish, aquatic insects, amphibians, or crustaceans.

4.8 ESTIMATED TAKE OF UNCOVERED MBTA-PROTECTED SPECIES

This section deals with uncovered MBTA-protected species only. ESA/CESA-covered species are addressed in the subsequent section - *"Estimated Take of ESA/CESA-Covered Species."*

Estimates of take for the uncovered MBTA-protected species that are addressed by this HCP can be derived from data collected from prisons with operational electrified fences. It is, however, useful to conduct this analysis in a manner that allows a comparison between the pre- and post-Tier 2 condition. That is, to identify what the annual take of uncovered MBTA-protected species was before Tier 2

installation, and then to compare it to annual take that is expected after all nets and anti-perching devices are installed.

Using "pre-net" data from all prisons that currently have electrified fences in operation (i.e., excluding data collected after net installation), and then adjusting those numbers so that they reflect the anticipated take for the full project (i.e., 29 electrified fences, some of which are not yet constructed), it is estimated that approximately 1,465 uncovered MBTA-protected-only birds would have been accidentally electrocuted per year statewide; this equates to about 51 takes per prison per year of MBTA species. Refer to the following Table 4-2 for species-by-species take estimates, pre- and post-net, for each of the uncovered MBTA-protected species. The text following the table offers a summary explanation of how Tier 2 benefits were predicted, and what the post-net take levels are expected to be for each of the uncovered MBTA-protected species.

With implementation of Tier 1 and 2 mitigation measures, the predicted take of uncovered MBTA-protected species has been substantially decreased. Because Tier 1 mitigations were implemented by prison staff as part of their routine maintenance and management activities, there is little before-and-after data to compare; therefore, it is impossible to numerically calculate the benefits of those measures. On the other hand, the benefits of the Tier 2 net installations are more easily predictable using test results from the California Institution for Men (CIM; in Chino, San Bernardino County), the prototype test site. It was the conclusion of that first study that netting was both feasible and effective, having initially achieved an 87% reduction in all wildlife take over a 9-month period (see Table 5.1-1).

Subsequent post-net data collection at CIM, CSP-Corcoran, CSP-Sacramento, CSP-Solano, SVAP, CCWF, and VSPW have substantiated these early results (see Table 5.1-1). With the benefits of netting proving to be so significant, it is reasonable to adjust the anticipated future take downward to reflect netting benefits. The remainder of this section is devoted to explaining how Tier 2 take predictions were developed. For further details concerning netting test results and implementation of Tier 1 and Tier 2 mitigation measures, refer to Section 5.1 of this HCP.

In August 1996, the "Working Group" for the Statewide Electrified Fence Project (composed largely of biologists from EDAW, CDFG, and USFWS, with representatives from CDC) began meeting to discuss a variety of technical topics related to the project's mitigation development and permitting strategy. A central issue at this time was the results of the netting test being conducted at CIM; in particular, how the results were to be interpreted and applied to develop predictions of future take. In looking at mortality rates for the 5.5-month period between February and mid-July for 1995 (before netting) and 1996 (after netting), an overall 87% decline in take for all species (native and non-native) had been realized (from 214 in 1995 to 27 in 1996).

Table 4-2
Uncovered MBTA-Protected Species Affected by the Statewide Electrified Fence Project: *Pre- and Post-net Mortality Rates*

SPECIES[1]	Expected Netting Benefit[2] (% Mortality Reduction)	MORTALITY STATISTICS			
		Total Number Killed[3]	Number of Prisons Where Killed	Pre-Net Statewide Average Annual Kill[4]	Post-Net Statewide Average Annual Kill[5]
horned grebe *Podiceps auritus*	-90%	1	1	0.50	0.50
cattle egret *Bubulcus ibis*	-90%	2	2	0.62	0.39
green heron *Butorides striatus*	-90%	1	1	0.55	0.55
turkey vulture *Cathartes aura*	-30%	1	1	0.62	0.44
wild turkey *Meleagris gallopavo*	-60%	2	1	1.24	0.50
sora *Porzana carolina*	-90%	1	1	0.36	0.36
American coot *Fulica americana*	-90%	7	1	5.02	0.50
killdeer *Charadrius vociferus*	-90%	21	9	9.85	3.28
ring-billed gull *Larus delawarensis*	-80%	27	6	11.45	6.75
herring gull *Larus argentatus*	-80%	2	2	1.01	0.51
mourning dove *Zenaida macroura*	-90%	33	8	13.65	3.15
greater roadrunner *Geococcyx californianus*	-90%	1	1	0.55	0.55
common nighthawk *Chordeiles minor*	-90%	1	1	0.78	0.08
acorn woodpecker *Melanerpes formicivorous*	-90%	1	1	0.50	0.50
northern flicker *Colaptes auratus*	-90%	1	1	0.62	0.06
black phoebe *Sayornis nigricans*	-80%	29	11	13.56	6.46
Say's phoebe *Sayornis saya*	-80%	38	10	13.93	6.95

Table 4-2
Uncovered MBTA-Protected Species Affected by the Statewide Electrified Fence Project: *Pre- and Post-net Mortality Rates*

SPECIES[1]	Expected Netting Benefit[2] (% Mortality Reduction)	MORTALITY STATISTICS			
		Total Number Killed[3]	Number of Prisons Where Killed	Pre-Net Statewide Average Annual Kill[4]	Post-Net Statewide Average Annual Kill[5]
western flycatcher *Empidonax occidentalis*	-80%	1	1	0.37	0.07
ash-throated flycatcher *Myiarchus cinerascens*	-80%	10	5	5.11	3.06
Cassin's kingbird *Tyrannus vociferans*	-80%	3	2	0.69	0.14
western kingbird *Tyrannus verticalis*	-80%	322	14	148.29	32.96
tree swallow *Tachycineta bicolor*	-90%	5	3	2.80	0.28
violet-green swallow *Tachycineta thalassina*	-90%	1	1	0.62	0.06
northern rough-winged swallow *Stelgidopteryx serripennis*	-90%	2	2	1.41	0.14
cliff swallow *Hirundo pyrrhonota*	-90%	1	1	0.78	0.08
barn swallow *Hirundo rustica*	-90%	15	5	7.48	5.17
Steller's jay *Cyanocitta stelleri*	-90%	1	1	0.62	0.06
yellow-billed magpie *Pica nuttalli*	-90%	2	2	0.77	0.39
American crow *Corvus brachyrhynchos*	-90%	21	6	15.11	2.21
common raven *Corvus corax*	-90%	26	7	13.79	13.48
plain titmouse *Parus inornatus*	-90%	2	2	0.35	0.35
house wren *Troglodytes aedon*	-95%	1	1	0.50	0.50
ruby-crowned kinglet *Regulus calendula*	-90%	1	1	0.62	0.06
western bluebird *Sialia mexicana*	-80%	43	4	25.61	7.03

Table 4-2
Uncovered MBTA-Protected Species Affected by the Statewide Electrified Fence Project: *Pre- and Post-net Mortality Rates*

SPECIES[1]	Expected Netting Benefit[2] (% Mortality Reduction)	MORTALITY STATISTICS			
		Total Number Killed[3]	Number of Prisons Where Killed	Pre-Net Statewide Average Annual Kill[4]	Post-Net Statewide Average Annual Kill[5]
American robin *Turdus migratorius*	-90%	9	5	5.12	1.21
northern mockingbird *Mimus polyglottos*	-90%	16	8	10.48	2.01
American pipit *Anthus rubescens*	-95%	11	3	5.05	0.59
yellow-rumped warbler *Dendroica coronata*	-90%	324	15	181.95	23.76
common yellowthroat *Geothlypis trichas*	-90%	4	1	2.20	2.20
Wilson's warbler *Wilsonia pusilla*	-90%	3	3	1.25	1.25
western tanager *Piranga ludoviciana*	-90%	8	1	5.74	0.57
black-headed grosbeak *Pheucticus melanocephalus*	-90%	1	1	0.72	0.07
lazuli bunting *Passerina amoena*	-95%	1	1	0.39	0.39
lark sparrow *Chondestes grammacus*	-95%	31	8	16.91	1.96
savannah sparrow *Passerculus sandwichensis*	-95%	19	8	9.73	1.19
song sparrow *Melospiza melodia*	-95%	3	2	1.45	0.07
white-crowned sparrow *Zonotrichia leucophrys*	-95%	32	6	11.98	1.07
dark-eyed junco *Junco hyemalis*	-95%	1	1	0.34	0.02
red-winged blackbird *Agelaius phoeniceus*	-90%	29	10	15.87	3.15
western meadowlark *Sturnella neglecta*	-90%	2	2	1.17	0.61
Brewer's blackbird *Euphagus cyanocephalus*	-90%	192	18	88.71	24.41

Table 4-2
Uncovered MBTA-Protected Species Affected by the Statewide Electrified Fence Project: *Pre- and Post-net Mortality Rates*

SPECIES[1]	Expected Netting Benefit[2] (% Mortality Reduction)	MORTALITY STATISTICS			
		Total Number Killed[3]	Number of Prisons Where Killed	Pre-Net Statewide Average Annual Kill[4]	Post-Net Statewide Average Annual Kill[5]
great-tailed grackle *Quiscalus mexicanus*	-90%	2	1	0.52	0.05
brown-headed cowbird *Molothrus ater*	-90%	27	6	10.45	6.71
northern oriole *Icterus galbula*	-90%	27	12	9.06	9.42
house finch *Carpodacus mexicanus*	-95%	1395	20	779.42	96.92
lesser goldfinch *Carduelis psaltria*	-95%	22	4	3.36	3.76
American goldfinch *Carduelis tristis*	-95%	6	2	3.26	0.89
TOTALS		**2,791**	**n/a**	**1,464.83**	**279.85** [6]

[1] Species in this category are all native birds that are protected by the federal Migratory Bird Treaty Act (MBTA). They are generally fairly common; they are not listed under the ESA or CESA; and they are not covered by the ESA Section 10(a)(1)(B) or CESA Section 2081 (b) incidental take permits (refer to Section 1-4 of this HCP). Species are organized here taxonomically, and only species that have been killed to date (through August 31, 1997) are included in this analysis.

[2] Expected Netting Benefit, or % reduction in electrocution mortality as a result of net installation. These predictions were developed by the electrified fence Working Group for categories of wildlife; they are based on both actual netting test results and expected netting benefits. Individual species expected behavioral response to netting is determined by which of the following groups it occupies:

-95% Small Ground-gleaning Birds
-95% Small Terrestrial Mammals
-90% Aquatic and Semi-aquatic Birds
-90% Foliage-gleaning Birds
-90% Large Ground-gleaning Birds
-90% Nighthawks and Swallows
-80% Gulls
-80% Aerial-foraging/Perching Birds
-75% Ground-foraging Raptors (i.e., burrowing owl)
-75% Loggerhead Shrike
-60% Small Raptors
-60% Large Game Birds (i.e., wild turkey)
-30% Large Raptors

[3] Based on data collected through August 31, 1997 (see California Department of Corrections (CDC) September 12, 1997 *Electrified Fence-Monthly Report on Wildlife Deaths* memorandum).

Table 4-2 (*continued*)
Uncovered MBTA-Protected Species Affected by the
Statewide Electrified Fence Project: *Pre- and Post-net Mortality Rates*

[4] Pre-Net Statewide Average Annual Kill is calculated as the sum of the "annualized kill rates" (total kill ÷ # of years; with # of years expressed as a fraction) for prisons where the species has been killed. This calculation assumes that the history of pre-net take provides an accurate basis for predicting future take. Not all of the 29 prisons included in the project have activated electrified fences; i.e, some of the prisons have not been authorized. Also, as of August 31, 1997, several of the prisons already had nets installed, so adjustments were needed to to make the data homogeneous to a pre-net condition. In order to adjust the data to reflect the "statewide" total pre-net take (29 prisons), it was necessary to predict mortality rates for future prisons and prisons under construction (by equating their take to that of an existing, nearby site) and to cease collecting pre-net data at netted sites just prior to the net installation date, as follows:

(a) Northern California Women's Facility - An existing women's facility that will only receive an electrified fence if it is converted to a men's institution. Future kill rates are being equated to those at the Central California Women's Facility.

(b) California Substance Abuse Treatment Facility and CSP - A site that was still under construction in August 1997 (see footnote 4 above). Future kill rates are being equated to those at nearby CSP-Corcoran.

(c) California State Prison - San Diego County II - A future site. Future kill rates are being equated to those at the nearby R.J. Donovan facility.

(d) California State Prison - Kern County at Delano II - A future site. Future kill rates are being equated to those at the nearby North Kern State Prison.

(e) California State Prison - Kern County at California City - A future site. Future kill rates are being equated to those at CSP-Lancaster.

(f) California Institution for Men, West - Site of the prototype net installation. The net was installed in January 1996 so data collected through December 31, 1995, reflects the pre-net conditions.

(g) California State Prison - Corcoran - Net installation began on June 16, 1997. Pre-net data includes data collected through June 15, 1997.

(h) California State Prison - Sacramento - Net installation began on July 11, 1997. Pre-net data includes data collected through July 10, 1997.

(i) California State Prison - Solano - Net installation began on August 4, 1997. Pre-net data includes data collected through August 3, 1997.

(j) Salinas Valley State Prison - Net installation began on August 25, 1997. Pre-net data includes data collected through August 24, 1997.

[5] Post-Net Statewide Average Annual Kill is calculated as the sum of the adjusted annualized kill rates, with the adjustment being the predicted reduction in mortality due to netting (see footnote 3). For each species, the first step in this calculation was to take the pre-net species-specific kill rates for each prison and multiply them by the netting benefit number, but only for prisons where nets are being installed. For prisons not receiving nets, the kill rate was not adjusted. The post-net statewide kill rate for each species was then calculated as the sum of both the adjusted (for netted sites) and unadjusted (for un-netted sites) numbers. The 12 prisons not receiving nets because of certain weather conditions -or- because mortality rates to date have been extremely low are:

Table 4-2 (*continued*)
Uncovered MBTA-Protected Species Affected by the
Statewide Electrified Fence Project: *Pre- and Post-net Mortality Rates*

- *California Correctional Center (Susanville; Lassen County)*
- *High Desert State Prison (Susanville; Lassen County)*
- *California Correctional Institution, Level III (Tehachapi; Kern County)*
- *California Correctional Institution, Level IVA (Tehachapi; Kern County)*
- *California Correctional Institution, Level IVB (Tehachapi; Kern County)*
- *Pelican Bay State Prison (Del Norte County)*
- *Chuckawalla Valley State Prison (Blythe; Riverside County)*
- *Ironwood State Prison* (Blythe; Riverside County)
- *Mule Creek State Prison* (Ione; Amador County)
- *Centinela State Prison* (west of El Centro; Imperial County)
- *California State Prison - Los Angeles* (Lancaster; Los Angeles County)
- *California State Prison - Kern County at California City* (California City; Kern County)

The following is an example (for house finch: 95% reduction) of how post-net statewide average annual kill was calculated:

Post-Net Statewide			Chino (Net)		Centinela (No Net)		Folsom (Net)		26 Other *Prisons*
Average Annual Kill	=	$\sum$	[(48.6)x.95]	+	1.4	+	[(124.2)x.95]	+	etc.

[6] This post-net number equates to an 81% reduction over the pre-net statewide average annual kill, and only amounts to approximately 10 kills (or takes) of uncovered MBTA-protected species per prison per year after all nets are installed.

Species-specific mortality rates were used to gain insight into how various types of wildlife would benefit differently from netting. For all species where multiple kills had been documented at CIM during this time period, the following reduction in mortality rates had occurred (comparing 1996 "post-net" take to 1995 "pre-net" take): 80% for house sparrow (22/108); 100% for European starling (0/58); 100% for house finch (0/16); 90% for Brewers blackbird (1/10); 100% for house cat (0/4); 100% for western kingbird (0/3); 75% for loggerhead shrike (1/4); 100% for northern mockingbird (0/3); and 100% for American crow (0/3). *This analysis excluded species for which only one take occurred either before or after nets were installed.*

Collection of wildlife mortality data from netted sites is ongoing (see Section 5.4). And, the effectiveness of the netting will be evaluated concurrently with collection of these data. Preliminary results indicate netting has proven to be effective for reducing take. The overall (statewide) take of ESA/CESA-covered and uncovered MBTA-protected species, combined, has decreased by approximately 93% in the post-net period (when compared to the same pre-net time frame). For further details of this analysis, including a species-by-species summary, refer to Table 5.1-1.

In order to develop predictions of statewide take after netting is fully installed throughout the prison system, the Working Group began to evaluate species-specific netting results from CIM (and other sites as data became available). Because netting benefits are largely attributable to species behavior and life history patterns, species being electrocuted and those that could be electrocuted were organized into

groups based on similarities in these areas. A total of 16 groups of wildlife were identified as being affected, to varying degrees, by CDC's Statewide Electrified Fence Project. The following are the estimated benefits of netting, expressed as a predicted *percent reduction* in mortality attributed to net installation; also included are the rationales that were developed to help explain each prediction, as well as examples of species being addressed by this HCP for each group. The predictions are rough estimates, being partly based on actual species response to netting (limited data) and expected species benefits (as determined by the Working Group). A group of species with a 90% reduction in mortality (i.e., a remaining 10% mortality after net installation) would be at higher risk of electrocution and have a lower benefit from netting than a species with a 95% reduction in mortality (5% post-net mortality).

Large Raptors, 30% Reduction - HCP species in this category include turkey vulture, bald eagle, Swainson's hawk, Cooper's hawk, osprey, golden eagle, northern harrier, osprey, merlin, ferruginous hawk, long-eared owl, short-eared owl, red-shouldered hawk, red-tailed hawk, barn owl, and great horned owl. This is the group with the greatest amount of post-net (i.e., "residual") risk. When using the perimeter, these perching birds-of-prey will hunt from the utility poles, razor wire, and fence posts. Most of the kills to date have probably been the result of these large birds hitting the fence (spanning two wires) while searching for or pursuing prey on the ground. And, given their size and patterns for foraging, many of the kills have probably occurred on the upper half of the fence. Although the anti-perching wire that has or will be installed on post tops (as part of the netting system) will remove some of the risk, these species are still vulnerable to electrocution on the un-netted upper 6 wires.

Small Raptors, 60% Reduction - HCP species in this category include American kestrel, peregrine falcon, prairie falcon, and sharp-shinned hawk. The behavior of the smaller raptors is similar to the large raptors, except that these smaller birds-of-prey are slightly more maneuverable. Thus, they would tend to spend more time in the narrow confines of the perimeter, especially foraging down low, so the benefits of netting the lowest 9 (of 15) wires would be higher.

Large Game Birds, 60% Reduction - The only HCP species included here is wild turkey. This large game bird is not known for its maneuverability in flight. When attempting to land in the perimeter, it can bump into the upper, un-netted wires. Once inside the perimeter though, the netting will largely protect this ground-foraging species.

Aquatic and Semi-aquatic Birds, 90% Reduction - HCP species in this category include Aleutian Canada goose, greater sandhill crane, brown pelican, western snowy plover, long-billed curlew, killdeer, black-crowned night heron, sora, and American coot. Killdeer is the only species believed to be at substantial risk. Most of the prisons do not have permanent standing water or wetlands very close to the perimeter. Killdeer, though, will use the damp drainages for feeding and the landscaped beds, gravel fill areas, and lawns for nesting. Although they fly into the perimeter, this species probably spends most of its time on the ground once inside. Because killdeer is not a perching species, its low post-net vulnerability is reflective of the slight risk that remains from flying into (striking) two upper wires simultaneously.

Gulls, 80% Reduction - HCP species in this category include ring-billed gull, herring gull, and California gull. A few gulls have been killed to date prior to netting, most of which were probably the result of contacts with the lower wires while ground feeding. Similar to killdeer, this group's post-net risk will be mostly the result of simultaneously striking two wires while attempting

to land in the perimeter to forage. The post-net risk for gulls is higher than that for killdeer, because gulls are larger.

Small Ground-gleaning Birds, 95% Reduction - HCP species in this category include southern California rufous-crowned sparrow, California horned-lark, San Diego cactus wren, Bell's sage sparrow, horned lark, American pipit, lark sparrow, savannah sparrow, song sparrow, white-crowned sparrow, dark-eyed junco, house finch, lesser goldfinch, and American goldfinch. Because of their small size and foraging habits, most of these species were being killed on the lower portion of the fence prior to netting. These species are mostly too small to span the distance between two of the un-netted upper wires. Therefore, netting will be most effective with this group of species. The small, residual, post-net risk reflects the slight chance that these species may be occasionally killed by perching on an upper insulator and touching a wing, tail, or bill to a post. The residual risk also takes into account infrequent entries into the lower fence area through tears or gaps in the netting that could periodically occur.

Large Ground-gleaning Birds, 90% Reduction - HCP species in this category include tricolored blackbird, red-winged blackbird, western meadowlark, Brewer's blackbird, brown-headed cowbird, mourning dove, white-winged dove, scrub jay, black-billed magpie, yellow-billed magpie, American crow, common raven, American robin, northern mockingbird, great-tailed grackle, northern flicker, Steller's jay, and Bendire's thrasher. The risks to the large ground-gleaning birds is the same as with small ground-gleaning birds, except that this group's larger overall size makes them more vulnerable to electrocution on the exposed upper insulators. The slight increase in post-net risk reflects this difference.

Foliage-gleaning Birds, 90% Reduction - HCP species in this category include yellow warbler, western yellow-billed cuckoo, yellow-breasted chat, coastal California gnatcatcher, ruby-crowned kinglet, yellow-rumped warbler, northern oriole, Wilson's warbler, black-headed grosbeak, and western tanager. Yellow-rumped warblers have been electrocuted in fairly large numbers prior to netting, primarily because of the abundance of insects found on the electrified fence structures. This species' small size would suggest that most of those kills probably occurred on the lower fence, where shorter distances occur between lethal wires and grounded surfaces, or between two lethal wires. Although most members of this group are relatively small, their post-net risk is somewhat higher than the small ground-gleaning birds because, while in the perimeter, these species will spend most of their time on the fence in search of spiders and other insects.

Ground-foraging Raptors, 75% Reduction - The only HCP species in this group is burrowing owl. Although similar in size to birds-of-prey in the small raptor group, burrowing owls were separated out because of their tendency to feed on the ground and perch on structures. Field observations strongly suggest that this species is most vulnerable on the lower portions of the fence, where it bumps into the lowest 2 wires in attempts to move over the grade beam, and where it uses the rungs of the grounding bracket as perch sites. By netting the lowest 9 wires, much of its risk of electrocution while feeding is eliminated. However, as with the wild turkey and gulls, burrowing owls are still vulnerable to contacts with the upper wires on flights into the perimeter (usually beginning from an elevated perch site, such as utility poles or razor wire coils). The anti-perching devices on the tops of all electrified fence posts help to reduce the residual risk, but this species' tendency to perch and the possibility that it could still land on the un-netted, upper insulators keeps the residual risk fairly high (i.e., slightly higher than wild turkey and gulls).

Aerial-foraging/Perching Birds, 80% reduction - HCP species in this category include southwestern willow flycatcher, black phoebe, Say's phoebe, ash-throated flycatcher, Cassin's kingbird, western kingbird, and western bluebird. This group of species is vulnerable to electrocution because of their tendency to "fly-catch"; i.e., they pursue aerial insect prey after spotting them from elevated perch sites. While in the perimeter, they are therefore vulnerable to being electrocuted at their perch sites, or by bumping into two wires while in flight. By netting 9 of the 15 wires and installing anti-perching devices on all electrified fence post tops, the risks to this group are substantially reduced (i.e., more than half of the electrified fence becomes unavailable to them). The explanation for this group's post-net residual risk is comparable to the foliage-gleaning birds; however, these species are more vulnerable because they are larger, which makes their risk slightly higher.

Nighthawks and Swallows, 90% Reduction - HCP species in this category include bank swallow, Vaux's swift, purple martin, lesser nighthawk, common nighthawk, tree swallow, violet-green swallow, northern rough-winged swallow, cliff swallow, and barn swallow. Most of the species in this category have not been observed perching in the perimeter and, to date, only a few have been killed. For the most part, the nighthawks and swallows fly through the perimeter only in search of flying insects. Because they are less likely to land on the fence, their vulnerability to electrocution after netting is less than the aerial-foraging/perching birds. Also, because of their small size, they were mostly vulnerable to electrocution on the lower fence where wires are spaced closer together. Netting the lower fence substantially reduces this risk. The reduction in mortality was estimated at 90% to take into account the infrequent incidents of swallows and nighthawks flying into two un-netted wires on the upper fence while foraging.

Loggerhead Shrike, 75% Reduction - Loggerhead shrike, an HCP species, was assigned to its own group because this species' feeding behavior near the prison perimeters is somewhat unique. Similar to small raptors, such as kestrels, shrikes prefer to hunt from elevated positions, and will (occasionally) prey on small birds, mammals, etc. More often, though, they forage on large insects (their primary prey) by fly-catching. Loggerhead shrikes are vulnerable to being electrocuted at their perch sites, or by flying into two wires while foraging. Netting the lower nine wires and insulators, and installing anti-perching wires on post tops, will substantially reduce this species' risk of electrocution. However, because of their large size, frequent use of the prison perimeter, and their tendency to hunt from the electrified fence wires, nearby utility lines, and razor wire coils, this species is likely to still be killed on the un-netted upper fence. The mortality reduction achieved by Tier 2 was set at 75%, which is comparable to the other aerial-foraging birds.

Small Terrestrial Mammals, 95% Reduction - HCP species in this category include San Diego black-tailed jackrabbit, Tipton kangaroo rat, short-nosed kangaroo rat, southern grasshopper mouse, and Tulare grasshopper mouse. Because they are ground-dwellers, nearly all of the small mammals are at substantial risk (pre-net) of being electrocuted on the lowest two wires. With this group, however, the net is likely to represent an impenetrable barrier, and most will be deterred by it. The reduction in mortality resulting from netting was set at 95%, equivalent to small ground-gleaning birds, to take into account infrequent entries into the lower fence area through tears or gaps in the netting that could periodically occur.

Medium Terrestrial Mammals, 90% Reduction - The only HCP species in this category is San Joaquin kit fox. Except for six raccoons, two red foxes, and one desert kit fox, very few larger

mammals have been electrocuted prior to netting. Species in this category can only gain access into the perimeter through gaps under the outer chain link fence; once inside, they probably become trapped and disoriented, eventually getting electrocuted on one of the lowest three wires. For reasons similar to the small mammal group, netting the lower nine wires should prevent most medium-sized mammal kills from occurring. However, their larger body mass, coupled with the determination of a trapped individual, could lead to occasional failure of the netting and slightly higher risks for this group.

Gnawing Mammals, 80% Reduction - HCP species in this category include Mohave ground squirrel, San Joaquin antelope squirrel, San Joaquin pocket mouse, San Diego desert woodrat and white-footed vole. The gnawing mammals were assigned to their own group, primarily because of their known or expected ability to chew through netting. Six California ground squirrels have already chewed through the netting at CIM, and HCP species in this group are capable of doing the same. Of all the mammals at substantial risk of electrocution, this group was assigned the highest residual post-net risk because they are persistent and tenacious, and they are capable of gnawing through netting.

Reptiles and Amphibians, 80% Reduction - HCP species in this category include blunt-nosed leopard lizard, desert tortoise, San Diego horned lizard, orange-throated whiptail, and northern red-diamond rattlesnake. Species in this catch-all category are likely to experience variable benefits from netting the lower wires. The post-net reduction in kills was estimated at 80%, primarily because it seems to be a conservative average for this group. Some hopping species, such as the toads and frogs, will likely be deterred by 3/4-inch mesh netting; therefore contacts with the lowest wire while moving over the grade beam should be prevented. The lizards in this group may still be at some risk after netting is installed, as their climbing abilities may allow them access to the un-netted upper insulators. The snakes may be even more at risk, as they are capable of squeezing under the lower edge of the net, and determined individuals could gain access to the top of the grade beam and lowest lethal wire.

In summary, the above 16 groups are listed in descending order of percent reduction in mortality (i.e., the estimated benefit derived from netting the lowest 9 of the 15 wires, and installing anti-perching devices on all fence post tops):

95%	Small Ground-gleaning Birds
95%	Small Terrestrial Mammals
90%	Aquatic and Semi-aquatic Birds
90%	Large Ground-gleaning Birds
90%	Foliage-gleaning Birds
90%	Nighthawks and Swallows
90%	Medium Terrestrial Mammals
80%	Gulls
80%	Aerial-foraging/Perching Birds
80%	Gnawing Mammals
80%	Reptiles and Amphibians
75%	Ground-foraging Raptors (i.e., burrowing owl)
75%	Loggerhead Shrike
60%	Small Raptors
60%	Large Game Birds (i.e., wild turkey)
30%	Large Raptors

The predicted benefits of netting, as summarized above for the 16 wildlife groupings, can be applied to the collected pre-net wildlife mortality data to arrive at post-net take estimates. That is, the trends of historical, unmitigated, pre-net take provide the baseline for predicting the future level of "fully-mitigated" take (i.e., after all nets are installed). However, in order to calculate future rates of post-net take, several steps must first be taken:

(1) First, pre-net species mortality rates for each prison must be adjusted, or "annualized", to reflect the length of time the electrified fence has been in operation at that institution.

(2) Second, the post-net rate of take must take into consideration that not all of the prisons are scheduled to receive nets. As described in Section 5.1, netting was found to be infeasible at some locations due to extreme weather conditions (e.g., snow and ice accumulations), or it was determined to be unwarranted at some sites due to unusually low mortality rates. At sites where nets will not be installed, the post-net rate of take remained unchanged from the pre-net rate.

(3) Third, at sites where there is no history of take (because the prison is not built yet or the fence has only been active for a short period of time), the post-net rate of take was equated to that of the nearest prison with similar habitat types.

These three steps were incorporated into the post-net take, which was calculated separately for each species killed to date. The estimated rates of post-net take, along with a number of other statistics, are provided in the preceding Table 4-2. One statistic worth noting is that an 81% reduction in statewide uncovered MBTA-protected species loss is being predicted once all 17 nets are installed (12 of the 29 sites will not receive nets); this can be calculated by dividing the statewide post- and pre-net total take numbers shown at the bottom of the table. Furthermore, the 279.85 MBTA-protected birds that are predicted to be killed each year once all nets are installed only amounts to approximately 10 uncovered MBTA-protected birds lost per year per prison (not including ESA/CESA-covered species that may also be MBTA-protected; these are addressed in the following section).

4.9 ESTIMATED TAKE OF ESA/CESA-COVERED SPECIES

This section deals with the second group of species addressed by the HCP, the ESA/CESA-covered species. These are the species for which future take will be authorized under the federal Section 10(a)(1)(B) and state Section 2081(b) incidental take permits.

It is useful to first note that no Threatened or Endangered wildlife species listed under the federal ESA have been killed to date as a result of the operation of CDC's Statewide Electrified Fence Project. And, only one individual of a state-listed Threatened species has been killed (a single bank swallow was electrocuted at Wasco State Prison during migration). While this pattern of minimal impact is likely to continue, the possibility remains that species heretofore unaffected by the project could be taken in the future, including additional listed species. It is also possible that any of the non-listed species being addressed by this HCP could be listed in the future under ESA and/or CESA. In either case, such incidental take and would require prior authorization from USFWS and CDFG, pursuant to the requirements of Section 10(a) of ESA and Section 2081 of CESA, respectively. This HCP and its accompanying EA have consequently been prepared to secure the necessary Section 10(a)(1)(B) and Section 2081(b) incidental take permits.

Because the estimated "future" take of ESA/CESA-covered species is anticipated to be fairly low, it is also useful to review what the history of take has been for these species, and how that data can be used to predict future take. In a manner identical to that used in Table 4-2 for uncovered MBTA-protected species, the following Table 4-3 offers a summary of pre-net mortality rates for the 11 ESA/CESA-covered species that have a history of being accidentally electrocuted. Using pre-net data from sites with operational electrified fences, and adjusting those numbers so that they reflect the anticipated take of 29 electrified fences, it is estimated that approximately 170 individuals of ESA/CESA-covered species would have been accidentally electrocuted per year statewide; this equates to about six takes per prison per year of covered species. Over 90% of this prior take can be attributed to the annual mortality of American kestrels (about 16 takes per year/statewide), barn owls (17/year), burrowing owls (49/year), loggerhead shrikes (62/year), and tricolored blackbirds (16/year). Because many of the ESA/CESA-covered species are larger bird species that remain vulnerable on the un-netted upper wires, the overall netting benefit is less than the 81% reduction in mortality calculated for the uncovered MBTA-protected species. For the 11 ESA/CESA-covered species that have been previously taken, the overall post-net annual take is estimated to be 61% lower than the annual pre-net losses statewide. This equates to about two takes per prison per year after all nets are installed.

Table 4-3
ESA/CESA-Covered Species Affected by the
Statewide Electrified Fence Project: *Pre- and Post-net Mortality Rates*

SPECIES[1]	Legal Status[2]	Expected Netting Benefit[3] (% Mortality Reduction)	MORTALITY STATISTICS			
			Total Number Killed[4]	Number of Prisons Where Killed	Pre-Net Statewide Average Annual Kill[5]	Post-Net Statewide Average Annual Kill[6]
black-crowned night heron *Nycticorax nycticorax*	MBTA	-90%	1	1	0.34	0.03
sharp-shinned hawk *Accipiter striatus*	CSC R	-60%	2	2	1.06	1.06
red-tailed hawk *Buteo jamaicensis*	R	-30%	5	4	2.49	1.74
American kestrel *Falco sparverius*	R	-60%	29	13	15.61	7.62
barn owl *Tyto alba*	R	-30%	28	13	17.32	12.91
great horned owl *Bubo virginianus*	R	-30%	8	4	3.46	3.21
burrowing owl *Athene cunicularia*	CSC R	-75%	134	16	48.66	14.71
bank swallow *Riparia riparia*	CT	-90%	1	1	0.37	0.04
Bendire's thrasher *Toxostoma bendirei*	CSC	-90%	1	1	0.36	0.36

Table 4-3
ESA/CESA-Covered Species Affected by the
Statewide Electrified Fence Project: *Pre- and Post-net Mortality Rates*

SPECIES[1]	Legal Status[2]	Expected Netting Benefit[3] (% Mortality Reduction)	MORTALITY STATISTICS			
			Total Number Killed[4]	Number of Prisons Where Killed	Pre-Net Statewide Average Annual Kill[5]	Post-Net Statewide Average Annual Kill[6]
loggerhead shrike *Lanius ludovicianus*	CSC	-75%	107	16	61.68	21.75
tricolored blackbird *Agelaius tricolor*	CSC	-90%	34	3	16.35	1.64
TOTALS			**350**	**n/a**	**167.70**	**65.07**[7]

[1] Species in this category are covered by the ESA Section 10(a)(1)(B) and CESA Section 2081 (b) incidental take permits (issued in association with this HCP). They are covered by ESA/CESA because they are either listed, they are candidates for listing, they are protected raptors, or they are otherwise considered sensitive. "Covered" by the permits means that any incidental take of these species would be legally authorized under the permits. Species are organized taxonomically, and only species that have been killed to date (through August 31, 1997) are included in this analysis.

[2] Legal status indicates levels of protection afforded by state or federal statutes, as follows:

- CT California-listed as Threatened.
- CSC California Species of Special Concern; the state's equivalent of a candidate species.
- R Raptor species covered by Section 3503.5 of the Fish and Game Code of California, which makes it unlawful to take, possess, or destroy any birds-of-prey ("raptors"), which generally includes all hawks, falcons, owls, and vultures (in the taxonomic orders Falconiformes and Strigiformes).
- MBTA Refers to all native species of birds protected by the federal Migratory Bird Treaty Act. Here, this applies only to the black-crowned night heron, which is included as an ESA/CESA-covered species because it is the only heron killed that is also considered sensitive by both Audubon (Local Concern) and CDFG (colonies are monitored).

No federally listed, proposed, or candidate species have been electrocuted.

[3] Expected Netting Benefit, or % reduction in electrocution mortality as a result of net installation. These predictions were developed by the electrified fence Working Group for categories of wildlife; they are based on both actual netting test results and expected netting benefits. Individual species expected behavioral response to netting is determined by which of the following groups it occupies:

- -95% Small Ground-gleaning Birds
- -95% Small Terrestrial Mammals
- -90% Aquatic and Semi-aquatic Birds
- -90% Foliage-gleaning Birds
- -90% Large Ground-gleaning Birds
- -90% Nighthawks and Swallows
- -80% Gulls
- -80% Aerial-foraging/Perching Birds
- -75% Ground-foraging Raptors (i.e., burrowing owl)
- -75% Loggerhead Shrike
- -60% Small Raptors
- -60% Large Game Birds (i.e., wild turkey)
- -30% Large Raptors

Table 4-3 (*continued*)
ESA/CESA-Covered Species Affected by the
Statewide Electrified Fence Project: *Pre- and Post-net Mortality Rates*

[4] Based on data collected through August 31, 1997 (see California Department of Corrections (CDC) September 12, 1997 *Electrified Fence-Monthly Report on Wildlife Deaths* memorandum).

[5] Pre-Net Statewide Average Annual Kill is calculated as the sum of the "annualized kill rates" (total kill ÷ # of years; with # of years expressed as a fraction) for prisons where the species has been killed. This calculation assumes that the history of pre-net take provides an accurate basis for predicting future take. Not all of the 29 prisons included in the project have activated electrified fences; i.e, some of the prisons have not been authorized. Also, as of August 31, 1997 (*when these take projections were last calculated*), several of the prisons already had nets installed, so adjustments were needed to make the data homogeneous to a pre-net condition. In order to adjust the data to reflect the "statewide" total pre-net take (29 prisons), it was necessary to predict mortality rates for future prisons and prisons under construction (by equating their take to that of an existing, nearby site) and to cease collecting pre-net data at netted sites just prior to the net installation date, as follows:

(a) Northern California Women's Facility - An existing women's facility that will only receive an electrified fence if it is converted to a men's institution. Future kill rates are being equated to those at the Central California Women's Facility.

(b) California Substance Abuse Treatment Facility and CSP - A site that was still under construction in August 1997 (see footnote 4 above). Future kill rates are being equated to those at nearby CSP-Corcoran.

(c) California State Prison - San Diego County II - A future site. Future kill rates are being equated to those at the nearby R.J. Donovan facility.

(d) California State Prison - Kern County at Delano II - A future site. Future kill rates are being equated to those at the nearby North Kern State Prison.

(e) California State Prison - Kern County at California City - A future site. Future kill rates are being equated to those at CSP-Lancaster.

(f) California Institute for Men, West - Site of the prototype net installation. The net was installed in January 1996 so data collected through December 31, 1995, reflects the pre-net conditions.

(g) California State Prison - Corcoran - Net installation began on June 16, 1997. Pre-net data includes data collected through June 15, 1997.

(h) California State Prison - Sacramento - Net installation began on July 11, 1997. Pre-net data includes data collected through July 10, 1997.

(i) California State Prison - Solano - Net installation began on August 4, 1997. Pre-net data includes data collected through August 3, 1997.

(j) Salinas Valley State Prison - Net installation began on August 25, 1997. Pre-net data includes data collected through August 24, 1997.

Table 4-3 (*continued*)
ESA/CESA-Covered Species Affected by the
Statewide Electrified Fence Project: *Pre- and Post-net Mortality Rates*

[6] Post-Net Statewide Average Annual Kill is calculated as the sum of the adjusted annualized kill rates, with the adjustment being the predicted reduction in mortality due to netting (see footnote 3). For each species, the first step in this calculation was to take the pre-net species-specific kill rates for each prison and multiply them by the netting benefit number, but only for prisons where nets are being installed. For prisons not receiving nets, the kill rate was not adjusted. The post-net statewide kill rate for each species was then calculated as the sum of both the adjusted (for netted sites) and unadjusted (for un-netted sites) numbers. The 12 prisons not receiving nets because of certain weather conditions or because mortality rates to date have been extremely low are:

- *California Correctional Center (Susanville; Lassen County)*
- *High Desert State Prison (Susanville; Lassen County)*
- *California Correctional Institution, Level III (Tehachapi; Kern County)*
- *California Correctional Institution, Level IVA (Tehachapi; Kern County)*
- *California Correctional Institution, Level IVB (Tehachapi; Kern County)*
- *Pelican Bay State Prison (Del Norte County)*
- *Chuckawalla Valley State Prison (Blythe; Riverside County)*
- *Ironwood State Prison (Blythe; Riverside County)*
- *Mule Creek State Prison (Ione; Amador County)*
- *Centinela State Prison (west of El Centro; Imperial County)*
- *California State Prison - Los Angeles (Lancaster; Los Angeles County)*
- *California State Prison - Kern County at California City (California City; Kern County)*

The following is an example (for house finch: 95% reduction) of how post-net statewide average annual kill was calculated:

		Chino		Centinela		Folsom		26 Other
Post-Net Statewide		(Net)		(No Net)		(Net)		Prisons
Average Annual Kill	$= \sum$	[(48.6)x.95]	+	1.4	+	[(124.2)x.95]	+	etc.

[7] This post-net number equates to a 61% reduction over the pre-net statewide average annual take and only amounts to approximately 2 takes of ESA/CESA-covered species per prison per year after all nets are installed.

The incidental take permits requested by CDC cover 62 species (see Table 4-4) that have the highest probability of being electrocuted during operation of electrified fences statewide. Not all 62 species are currently federally or state-listed. Many are candidates for listing, but they are included because: (a) they have already been affected by the project, and extending coverage to them is a safeguard against the possibility of future listing and take; and (b) they are being satisfactorily mitigated by conservation measures developed under this HCP for other species in the permit. Some of the 62 covered species are not even candidates for listing, but they are potentially sensitive enough to warrant attention under the plan's conservation program (e.g., unlisted raptor species).

Table 4-4
Level of Take Requested for ESA/CESA-Covered Species

Common Name	Scientific Name	Legal Status[1]		Five[2] Year Take
		Federal	State	
Federally-listed Species (Some with State Listing)				
Reptiles				
desert tortoise	*Gopherus agassizi*	FT	CT	5
blunt-nosed leopard lizard	*Gambelia silus*	FE	CP CE	10*
Birds				
California brown pelican	*Pelecanus occidentalis californicus*	FE	CP CE	10*
Aleutian Canada goose	*Branta canadensis leucopareia*	FT	-	10
bald eagle	*Haliaeetus leucocephalus*	FT	CP CE	5*
American peregrine falcon	*Falco peregrinus anatum*	FE	CP CE	5*
western snowy plover	*Charadrius alexandrinum nivosus*	FT	CSC	5
southwestern willow flycatcher	*Empidonax traillii extimus*	FE	CE	10
coastal California gnatcatcher	*Polioptila californica californica*	FT	CSC	5
Mammals				
Tipton kangaroo rat	*Dipodomys nitratoides nitratoides*	FE	CE	10
San Joaquin kit fox	*Vulpes macrotis mutica*	FE	CT	5

Table 4-4
Level of Take Requested for ESA/CESA-Covered Species

Common Name	Scientific Name	Legal Status[1]		Five[2] Year Take
		Federal	State	
Species with State Listing Only				
Birds				
greater sandhill crane	*Grus canadensis tabida*	-	CP CT	5*
Swainson's hawk	*Buteo swainsoni*	-	CT	5
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	-	CE	5
bank swallow	*Riparia riparia*	-	CT	10
Mammals				
San Joaquin antelope squirrel	*Ammospermophilus nelsoni*	-	CT	10
Mohave ground squirrel	*Spermophilus mohavensis*	-	CT	10
Currently "Unlisted" Species				
Reptiles				
San Diego horned lizard	*Phrynosoma coronatum blainvillei*	-	CSC	10
orange-throated whiptail	*Cnemidophorus hyperythrus*	-	CSC	10
northern red-diamond rattlesnake	*Crotalus ruber ruber*	-	CSC	10
Birds				
black-crowned night heron	*Nycticorax nycticorax*	-	-	10
osprey	*Pandion haliaetus*	-	CSC	10
white-tailed kite	*Elanus leucurus*	-	CP	10*
northern harrier	*Circus cyaneus*	-	CSC	10
northern goshawk	*Accipiter gentilis*	-	CSC	10
sharp-shinned hawk	*Accipiter striatus*	-	CSC	15
Cooper's hawk	*Accipiter cooperii*	-	CSC	10
red-shouldered hawk	*Buteo lineatus*	-	-	15
red-tailed hawk	*Buteo jamaicensis*	-	-	50
rough-legged hawk	*Buteo logopus*	-	-	10
ferruginous hawk	*Buteo regalis*	-	CSC	10

Table 4-4
Level of Take Requested for ESA/CESA-Covered Species

Common Name	Scientific Name	Legal Status[1]		Five[2] Year Take
		Federal	State	
golden eagle	*Aquila chrysaetos*	-	CP CSC	10*
American kestrel	*Falco sparverius*	-	-	50
merlin	*Falco columbarius*	-	CSC	10
prairie falcon	*Falco mexicanus*	-	CSC	10
long-billed curlew	*Numenius americanus*	-	CSC	10
California gull	*Larus californicus*	-	CSC	15
barn owl	*Tyto alba*	-	-	50
western screech-owl	*Otus kennicottii*	-	-	10
great horned owl	*Bubos virginiana*	-	-	50
northern pygmy owl	*Glaucidium gnoma*	-	-	10
burrowing owl	*Athene cunicularia*	-	CSC	80
long-eared owl	*Asio otus*	-	CSC	10
short-eared owl	*Asio flammeus*	-	CSC	10
Vaux's swift	*Chaetura vauxi*	-	CSC	10
California horned lark	*Eremophila alpestris actia*	-	CSC	15
purple martin	*Progne subis*	-	CSC	10
Bendire's thrasher	*Toxostoma bendirei*	-	CSC	10
San Diego cactus wren	*Campylorhynchus brunneicappillus sandiegensis*	-	CSC	10
loggerhead shrike	*Lanius ludovicianus*	-	CSC	110
yellow warbler	*Dendroica petechia*	-	CSC	10
yellow-breasted chat	*Icteria virens*	-	CSC	10
southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	-	CSC	10
Bell's sage sparrow	*Amphispiza belli belli*	-	CSC	10
tricolored blackbird	*Agelaius tricolor*	-	CSC	25

Table 4-4
Level of Take Requested for ESA/CESA-Covered Species

Common Name	Scientific Name	Legal Status[1]		Five[2] Year Take
		Federal	State	
Mammals				
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*	-	CSC	10
San Joaquin pocket mouse	*Perognathus inornatus inornatus*	-	CSC	10
short-nosed kangaroo rat	*Dipodomys nitratoides brevinasus*	-	CSC	10
southern grasshopper mouse	*Onychomys torridus ramona*	-	CSC	10
Tulare grasshopper mouse	*Onychomys torridus tularensis*	-	CSC	10
San Diego desert woodrat	*Neotoma lepida intermedia*	-	CSC	10
white-footed vole	*Arborimus albipes*	-	CSC	10

[1] Legal Status:
U.S. Fish and Wildlife Service (USFWS) Federal Listing Categories:
FE Federal Endangered
FT Federal Threatened

California Department of Fish and Game (CDFG) State Listing Categories:
CE California Endangered
CT California Threatened
CP California Fully-Protected
CSC California Species of Special Concern

Unlisted species included on this list are mostly state Species of Special Concern. Except for black-crowned night neron, which is an Audubon species of "Local Concern", the other unlisted species are all CDFG-protected raptors.

[2] Five-Year Take: Maximum allowable take within a 5-year period, which is reset to the number shown at the end of each 5-year cycle for the life of the permit. For California fully-protected species, as indicated by an asterisk, the take is federally-authorized only; that is, CDFG can not authorize take for California fully-protected species.

Given that the pattern of extremely low listed species take is expected to continue, the level of take that CDC is requesting for each of the 62 permit species is similarly minimal (see Table 4-4). For the ESA/CESA-covered permit species, take limits are set on a 5-year rotation for the life of the permit. That is, take limits are set for a 5-year period; at the end of the 5-year period, all unused take allowances are canceled and may not be carried over to the next 5-year period. In the event that a take threshold is exceeded in any 5-year period for any Section 10(a)(1)(B) or Section 2081(b) permit species, CDC would consult with USFWS and CDFG to determine what, if any, corrective actions would be needed.

CDFG can not authorize take of California "Fully Protected" species (refer to Sections 3511, 4700, and 5050 of the state Fish and Game Code). However, CDC has implemented all feasible mitigation measures to avoid take of these species to the extent practicable, and CDC has committed to continue investigating ways to further minimize and avoid take of these species. As shown in Table 4-4, there are seven ESA/CESA-covered species that are also California Fully Protected species for which CDC is seeking federal take authorization; these include blunt-nosed leopard lizard, California brown pelican, bald eagle, American peregrine falcon, greater sandhill crane, white-tailed kite, and golden eagle. In the event that any of these species are actually taken in the future, CDC has agreed to consult with CDFG to understand why the take occurred, and to identify ways to increase the effectiveness of Tier 2 exclusion and deterrent devices at the specific where the take occurred.

This HCP outlines a compensatory mitigation program that is intended to offset the expected take of ESA/CESA-covered species, plus provide benefits to all other uncovered MBTA-protected species.

4.10 TAKE RESULTING FROM HABITAT MITIGATION ACTIVITIES

In addition to occasional inadvertent electrocution of wildlife at CDC's electrified prison fences, some take of ESA/CESA-covered species may occur at the mitigation sites described in Section 5.2. Such take may occur in association with habitat restoration and management activities at these sites (including earthmoving activities, ditch and drain maintenance, exotic vegetation control, and other temporary ground disturbing activities undertaken to improve habitat conditions at these sites), and in association with efforts to prevent the unnecessary take of animals during mitigation site enhancement or improvement (e.g., through the capture of individual animals to remove them from the path of ground disturbance). Section 5.2 contains a complete description of mitigation activities proposed for each site. Overall, the effects of such take is expected to be minor to negligible, because: (1) the benefit of these activities in creating, enhancing, or maintaining habitat for the ESA/CESA-covered species is expected to more than offset any such minor take levels; and (2) measures to avoid such take will be implemented during this work. Specific measures to minimize take of the covered species during habitat enhancement activities will be provided in the Restoration and Design Plans as described in Section 5.2.

Thus, some operations associated with habitat enhancement activities on the HCP's mitigation sites (e.g., earth moving to create microtopography) could result in incidental take of the ESA/CESA-covered species, and other activities (e.g., trapping of kangaroo rats for temporary relocation away from a work area) could result in intentional (as opposed to "incidental") take. The first type of take is accidental and is authorized under Section 10(a)(1)(B) of ESA, while the second type is take for scientific purposes, or species propagation and survival enhancement, and is authorized under Section 10(a)(1)(A) of ESA. Both types of take are authorized by this HCP's associated Section 10(a)(1)(B) permit, subject to the conditions described below.

For purposes of habitat enhancement activities, the federal Section 10(a)(1)(B) permit and state Section 2081(b) permit issued pursuant to this HCP shall authorize all take of ESA/CESA-covered species resulting from mitigation activities, provided that: (1) such take results from mitigation measures (e.g., capture/relocation) specifically intended to minimize more serious forms of take (e.g., killing/injury) or that are part of a habitat enhancement or improvement program specifically described in the HCP; (2) such activities are directly associated in time or place with activities authorized under the permits; (3) such take occurs during activities conducted by the agents or employees of the USFWS, CDFG, CDC, or any person acting under the direct guidance or authority of these entities ; and/or (4) such take occurs during habitat enhancement activities specifically described in this HCP or its associated Restoration and Design Plans described in Section 5.2. These provisions are consistent with USFWS policy as described in the USFWS "Habitat Conservation Planning Handbook" (December 1996).

With respect to activities requiring take for scientific purposes (e.g., trapping and handling of ESA/CESA-covered species), the federal permit issued pursuant to this HCP shall be considered a joint Section 10(a)(1)(B) / 10(a)(1)(A) permit. However, the permit shall only authorize take during those activities provided that: (1) the activities are directly associated with habitat enhancement or similar requirements under the HCP; (2) the person(s) undertaking or retained to undertake the activities submits a resume to the USFWS describing their relevant qualifications; (3) the USFWS authorizes the person(s) to undertake the activities via a written letter or memorandum; and (4) the person(s) implements such additional terms and conditions as may be described in the USFWS's letter of authorization.

4.11 CUMULATIVE IMPACTS

INTRODUCTION TO CUMULATIVE IMPACTS

The cumulative wildlife mortality effects of the Statewide Electrified Fence Project have been considered within the context of the effect of electrified fences at 29 prison sites in California, combined with the wildlife mortality from other known or reasonably foreseeable sources of mortality by electrocution and collision.

Wildlife mortality, particularly avian mortality, is caused by many other sources, including accidental electrocution from high-voltage transmission lines and other electrical wires, and collisions with various obstacles and structures such as tall buildings, towers, window glass, electrical and utility wires, wind turbines, airplanes, and automobiles. To understand the project's effects in terms of its contribution to overall wildlife electrocution and collision mortality occurring from other sources, an extensive literature search was conducted for articles and studies documenting occurrences of avian and other wildlife mortality. The information obtained from this search was compiled and summarized as the basis of considering the cumulative impacts of the Statewide Electrified Fence Project with other sources of wildlife mortality.

The wildlife mortality caused by other sources of electrocution and collision has been selected for cumulative impact analysis because it represents a similar type of impact; i.e., the long-term, continuing accidental kill of animals caused by man-made structures. This approach has also been used because some research exists about the nature and magnitude of wildlife mortality from these sources. There are, of course, many other sources of wildlife mortality, such as habitat loss, weather, disease, or environmental contaminants. However, as explained below, it is not feasible to attempt to compare a

project's specific impacts on wildlife species with all other forms of mortality that normally contribute to and affect the dynamics of species populations statewide.

Conducting an analysis of cumulative impacts involving a broader array of wildlife mortality sources or using a species population approach was considered and determined to not be reasonably feasible to perform. Although some site-specific studies about selected species may exist, comprehensive data about population changes caused by various sources of mortality on a species-by-species basis is not available. Therefore, it is not feasible to attempt to reliably characterize how a broad array of mortality sources would generally affect the populations of species. Developing such an analysis would require many years of original research and intensive investigation about the population dynamics of individual species and specific types of mortality, well beyond what is feasible in the context of this HCP. Even limiting the investigation to special-status and sensitive species would require years of research involving more than a dozen species, some with ranges extending throughout California and beyond. Rather, comparing the project's effect with similar types of wildlife mortality sources represents a reasonable analysis of the cumulative impacts of relevant projects.

Presented below is a discussion of the combined wildlife mortality effect of all prison facilities with activated fences in the context of wildlife mortality occurring from other collision and electrocution sources.

STATEWIDE WILDLIFE MORTALITY FROM ELECTRIFIED FENCES

Sections 4.8 and 4.9 of this HCP provide an analysis estimating the overall rate of "unmitigated" (i.e., does not take into account the benefits of netting) wildlife mortality occurring when all 29 electrified fence sites are operational. The total number of individuals of HCP species electrocuted statewide per year is estimated in that analysis to be a little more than 1,600 animals (estimated by combining the column totals from Tables 4-2 and 4-3). The installation of netting at 17 of the 29 prisons is expected to reduce this estimated annual statewide take by about 78%, or from about 1,600 to 345 animals per year, which also equates to annually taking an average of 12 individuals of HCP species at each of the 29 prison sites after all nets are installed.

Eleven ESA/CESA-covered species have been electrocuted system-wide (a total of 350 individuals, or 6% of the total recorded mortality, from November 1993 through August 31, 1997) with burrowing owls comprising the largest kill component of this category (38%, or 134 individuals). Among the species killed, only one, the state-listed Threatened bank swallow, is fully listed or proposed as Threatened or Endangered by the state or federal government.

Although it is not considered to be a precise estimate of cumulative wildlife mortality, this data is useful in describing the order of magnitude of expected wildlife mortality. It is intended to disclose whatever information is known in order to help decision-makers and the public understand the potential order of magnitude of the cumulative impact.

OTHER SOURCES OF WILDLIFE MORTALITY

Studies related to wildlife mortality caused by electrocution and collision were reviewed for this HCP. Most studies address avian mortality. Also, most studies of wildlife mortality tend to cover short time

periods and focus on a specific structure or obstacle. A few studies provided data over a longer time frame and for wider geographic areas.

Wildlife mortality rates and numbers varied widely from one study to the next and depended on a variety of factors such as weather, season, and location of the obstacle. In most cases, data on wildlife mortality were collected from single instances of large, mass mortality over short time periods, often as the result of an unusual weather pattern affecting a small geographic area. Very little information is available on the number of wildlife killed annually from a particular collision source under normal weather conditions. Of the relevant information that was available, some of the more recent data on wildlife collision mortality is as follows:

- As estimated 1,332 birds were killed during two spring and two fall migrations by collisions with transmission lines in North Dakota prairie habitat. The mortality was not considered biologically significant by this USFWS study at the sites examined, but the cumulative effect may be important (Lewis 1993).

- An estimated annual average collision mortality rate of 2,500 birds occurs per tower structure in the U. S. (Banks 1979).

- An estimated annual loss of between 5 million and 10 million birds occurs due to collisions with tower structures in the U.S. (Jaroslow 1979).

- An estimated 3.5 million birds are killed each year from collisions with windows throughout the U.S. (Banks 1976).

- An estimated 600 to 800 raptors per year are killed in California, as a result of collisions with wind energy turbines (Anderson 1995).

- A total of 1,034 birds were electrocuted in 1989 along the 115-kV transmission line serving the Mare Island Naval Shipyard in California (Dedon, Byrne, Aycrigg, and Hartman 1989).

- An estimated 400 birds per fall season were killed per year by collision with overhead power lines at an Illinois power plant during 1973-75 (Anderson 1978).

- Over a 3-month period, 244 birds were killed by collision with a high-voltage transmission line in North Dakota (McKenna and Allard 1976).

- An estimated 57 million birds and other animals are killed each year from collisions with motor vehicles in the U.S. (Banks 1975).

A comprehensive study of wildlife mortality from all sources of electrocution and collision has not been conducted in California or the United States. Nonetheless, it is evident from the site-specific and source-specific studies in the literature that the annual rate of wildlife mortality from electrocution and collision with obstacles is in the order of magnitude of multi-millions of animals per year.

SUMMARY OF CUMULATIVE IMPACTS

While it is not feasible to precisely estimate the statewide annual mortality rate of all 29 prisons, the relative magnitude of unmitigated statewide wildlife loss appears to be on the order of approximately 1,600 animals per year for species addressed in this HCP. These numbers are indicative of the total annual kill without implementation of mitigation measures. Mitigation measures described in Sections 5.1 and 5.2 of this HCP are expected to reduce mortality of HCP species by about 78%. However, the continued loss of some number of listed species, or other sensitive species that may be listed in the future, is also a reasonable expectation given the history of mortality to date.

Given the numerous biological and geographical factors that complicate the issue of accidental wildlife electrocution with this project, it is difficult to make direct comparisons between this project's wildlife mortality and other electrocution- and collision-related mortality elsewhere in California and the United States. Studies estimating the total number of wildlife lost in California alone are not available, and studies addressing the nation do not comprehensively evaluate all sources.

From a cumulative impact perspective, however, it is important to consider the numbers of wildlife electrocuted at the prison facility fences in California in light of the apparent order of magnitude of overall electrocution- and collision-related wildlife mortality throughout the United States. The wildlife killed on an annual basis throughout the United States as a result of electrocution and collision with various man-made structures appears to be on the order of multi-millions of animals per year, as discussed above. This compares to the order of magnitude of approximately 1,600 animals electrocuted per year from the Statewide Electrified Fence Project (for HCP species). The contribution of the State's electrified fences to wildlife mortality nationally is small in relation to the overall impact of electrocution and collision-related mortality. While this does not diminish the significance of the combined wildlife mortality effect at the 29 prison sites, it does help decision-makers and the public to put the wildlife loss caused by the project into perspective.

5 CONSERVATION STRATEGY/MEASURES TO MINIMIZE AND MITIGATE FOR IMPACTS

Section 10(a)(2)(B), subpart (ii) of the Federal Endangered Species Act requires that the applicant for an incidental take permit will, to the maximum extent practicable, minimize and mitigate the impacts of the taking of endangered and threatened species. Section 804(a)(2) of the California Endangered Species Act regulations for incidental take permits requires the applicant to minimize and fully mitigate the impacts of the authorized take, and that the measures required to meet this obligation shall be roughly proportional in extent to the impact. This section of the HCP describes several types of measures that will either minimize or avoid take of wildlife at the electrified fences (Tier 1 and Tier 2 measures), or will mitigate impacts to ESA/CESA-covered species for such "residual" take as cannot be avoided (Tier 3 measures). These measures have been or will be implemented by CDC to satisfy the ESA and CESA requirements for those species designated in Section 1.4 as ESA/CESA-covered species. These measures have also been designed to benefit those species designated in Section 1.4 as uncovered MBTA-protected species. Uncovered MBTA-protected species will benefit through significant reductions in mortality rates as a result of the take avoidance measures described in Section 5.1, and through the acquisition and/or enhancement of offsite wildlife habitats as described in Section 5.2. Considered in combination, the multiple tiers of this program demonstrate that CDC has minimized and mitigated impacts of the project to ESA/CESA-covered species, and has minimized the impacts to, and benefitted, uncovered MBTA-protected birds.

The Statewide Electrified Fence Project is the first of its kind in the United States. There are no directly analogous circumstances from which to draw experience for mitigation of wildlife electrocution. Other projects have caused bird deaths, by electrocution on high-voltage transmission lines, or by other causes, such as collision with wind energy turbine propellers (refer to subsection 4.10 for further details regarding cumulative impacts), but the environmental circumstances and the feasibility of solutions related to these types of facilities are considerably different from those associated with the secured perimeter of a State prison and the associated needs for security. Consequently, detailed evaluation and field testing of potential measures has been necessary to determine whether they can feasibly be implemented to reduce the risk of threatened or endangered species take and loss of migratory birds by electrocution. This section summarizes the program that resulted from the EIR process, extensive research and development testing of devices on electrified fences, other feasibility studies, and several years of consultation with USFWS and CDFG.

In developing a program for the Statewide Electrified Fence Project, the highest priority was placed on exploring means of avoiding wildlife electrocution by creating an impenetrable barrier that completely excludes wildlife contact with the fence. The only measure that offered any promise for total exclusion was "vertical netting to the top" and, as discussed in Section 7.4 of this HCP, this measure proved infeasible for a number of reasons. Because electrocution could not be completely avoided, the objective next became one of minimizing wildlife electrocution to the extent practicable. Measures included in the program to minimize wildlife mortality impacts, which are discussed below in Section 5.1, are: 1) altering the habitat in and near the perimeter to make the area less hospitable to wildlife; and 2) installing exclusion or deterrent devices to reduce wildlife contacts with the electrified fence. While effective in minimizing wildlife mortality at the fences, these measures would not achieve complete elimination of mortality. Therefore, a final set of measures was devised to benefit uncovered migratory birds and to compensate for the unavoidable loss of ESA/CESA-covered species that would occur

"residually" (i.e., after all other measures are implemented); this compensatory package is discussed below in Section 5.2. All aspects of the program have involved consultation with CDFG, USFWS, and various technical experts.

5.1 MEASURES TO MINIMIZE IMPACTS

A three-tiered approach has been developed to implement measures that minimize and mitigate impacts to ESA/CESA-covered species, and that minimize impacts to, and benefit, uncovered MBTA-protected birds. These tiers are: Tier 1 - measures to minimize or reduce wildlife attractants near the perimeter; Tier 2 - exclusion and deterrent devices installed in the perimeter; and Tier 3 - the compensatory program of offsite habitat enhancement.

The first tier of mitigation (Tier 1) has been implemented at all prisons with electrified fences, and will be implemented at all future prisons where the electrified fence is installed. This tier includes maintenance measures, operational measures, and non-native habitat modification and removal measures designed to reduce wildlife attraction and habitat values, which in turn reduces wildlife use of the perimeter and nearby areas. A general (i.e., applicable statewide) set of prison maintenance and operations measures was developed and presented to each of the wardens in a CDC memorandum dated June 28, 1995. The objective of these measures was to assist each institution in controlling wildlife activity near the electrified fences, using standard maintenance practices and protocols. Wardens for each prison were also given site-specific recommendations designed to correct problems identified during field surveys by CDC consultant biologists, and they were required to respond in writing with a plan to implement the recommendations. CDC is committed to ensuring the implementation of these measures at prisons with electrified fences and future electrified fence sites. A description of Tier 1 measures is provided in Section 5.1.1.

Certain feasible (Tier 2) fence devices have been implemented at sites where wildlife mortality is high, and where winter weather conditions do not make them impracticable. The EIR presented complete discussions of Tier 2 feasibility analyses and device testing. Second tier measures found to be feasible and effective include exclusion and deterrent devices: partial vertical netting, anti-perching wire on post tops, and anti-rodent fencing. The primary Tier 2 measure is the vertical netting option that envelops the lower portion of the electrified fence. These measures are described in Section 5.1.2.

To offset all remaining (residual) electrocution risks at electrified fence sites after implementation of Tier 1 and 2 mitigation, a compensatory (Tier 3) program of habitat enhancement efforts will be implemented. This program is discussed in detail in Section 5.2 of this HCP.

5.1.1 MEASURES TO MINIMIZE IMPACTS - SUMMARY OF TIER 1

The first tier mitigation measures consist of maintenance and operations activities, an urban wildlife control program, and a landscape modification program, as described below. Tier 1 involves alteration to the most "highly disturbed" portions (e.g., areas that are paved, graded, etc.) of the State prison setting; that is, the areas in and around the actual prison facilities. All Tier 1 measures are directed at reducing wildlife use of the areas nearest the electrified fence, which will be accomplished primarily through use of maintenance and operations procedures. These procedures have been implemented at all prisons with electrified fences. They are incorporated into a handbook and training module for use by each institution. The landscape modification and urban wildlife control programs are aimed mostly

at reducing the attractiveness of existing landscaping to wildlife, and at limiting the numbers of certain urbanized wildlife that tend to occur in large numbers at many sites.

Maintenance and Operations Activities

The implementation of several maintenance and operations activities will reduce the attractiveness of the fenced perimeters to many wildlife species. By making the perimeters less hospitable to wildlife, species will frequent this area less often, thus reducing their exposure to accidental electrocution. These activities include:

Vegetation Removal in the Perimeter - Weedy, non-native vegetation provides escape cover for wary wildlife, and food for many songbirds and small mammals. Weeds left growing between and adjacent to the chain link fences will attract these species, exposing them to an increased risk of electrocution. The area between the perimeter chain link fences, and the areas immediately adjacent to the outer and inner perimeter fences, are kept free of vegetation to decrease the attractiveness to wildlife of these areas. For security reasons, CDC guidelines also require that this area continue to be maintained in as barren a state as possible (i.e., free of vegetation).

Vegetation Removal Near the Perimeter - The first 100 feet of vacant land outside the patrol road is generally being kept free of weeds and/or planted crops. Existing landscaping or other non-native vegetation in this area is hand-trimmed, mowed, or disced to reduce the attractiveness of these areas to wildlife. Alternatively, gravel is being placed in this zone. Native habitats within this area will not be removed. In addition to reducing the attractiveness of this area to wildlife, vegetation control here also represents a security enhancement (i.e., improves visibility near the fence line and patrol road).

Reduce Standing Water Near the Perimeter - Water-dependent species that would not normally frequent the fenced perimeter, and wildlife in search of drinking water, are exposed to increased risks if water is left standing near the chain link fences. Measures have been employed so that rainwater is not left standing in or near the perimeter for more than 24 hours following a storm. In some cases, puddles are alleviated with localized recontouring (grading) or hand-filling. In other instances, small ditches are excavated to convey water away from the perimeter to the nearest ditch or storm drain. Gravel is also used to prevent deep puddles from forming in areas where drainage has been difficult to achieve.

Correct Erosion Under the Fences - Gaps and spaces under chain link fences (inner and outer) provide access into the perimeter for small mammals such as ground squirrels, rabbits, and hares, as well as ground-feeding birds, thereby increasing the risk of electrocution for these species. The erosion may be caused by water, wind, or burrowing rodents. The inner and outer chain link fences are inspected on a weekly basis to ensure that no gaps or spaces have formed. All eroded areas are filled with soil or stone within a day of being found, or as soon thereafter as feasible.

Improve Drainage Maintenance - Many species use man-made ditches as travel corridors because of the cover they provide. Earthen ditches often provide nesting and burrowing opportunities for small mammals. Also, predators and water-dependent wildlife will frequent wet ditches because of the foraging opportunities and cover they afford; this is particularly true if these ditches contain weeds, grasses, or emergent vegetation (such as cattails and bulrushes). Man-made ditches such as those located near the perimeter fence area generally increase the risk of electrocution for all wildlife attracted to them. All man-made ditches are periodically inspected to remove any weedy and non-native

vegetation, and to ensure that standing water is not occurring within the channel. During the rainy season, if rain puddles or standing water persist beyond 24 hours following storm events, corrective measures are taken to reduce the problem.

Routine Removal of Litter/Debris - Trash provides cover, foraging, and perch sites for wildlife, especially for the more "cosmopolitan" (urban) species such as starlings, house sparrows, ground squirrels, cottontails, and hares. All trash, litter, and construction debris is removed from areas within 200 feet of the perimeter.

Improve Food Waste Storage - Exposed garbage, kitchen trash, and storage dumpsters attract opportunistic wildlife in search of food. Edible food waste is problematic because it tends to attract large numbers of urban-adapted species. Garbage cans and Dumpsters are covered at all times and are emptied as often as needed to prevent an overflow of excess waste. All loose food waste (e.g., orange peels, bread crusts, etc.) is quickly removed from all areas as part of routine grounds maintenance.

Relocate/Reduce Materials Storage Areas - The equipment, supplies, and discarded materials that are often stored outside in Corps yards, near warehouses, and in recycling centers provide cover, foraging, and nesting opportunities for many species, particularly for urban wildlife. To the extent feasible, equipment, supplies, rubble, pallets, etc., are no longer being stored (temporarily or permanently) within 200 feet of either side of the perimeter.

Urban Wildlife Control Program

Many species of birds and mammals are well-adapted to the urban setting of the prison environment. Some will even successfully breed and nest in institutional buildings and on structures, such as chain link fences, razor wire, air vents, guard tower eaves, and loading bay overhangs. Implementation of an urban wildlife control program has helped to reduce species numbers in and around the perimeter fence area, thus minimizing the risk of electrocution. General procedures being implemented to control these urban-adapted species include measures such as instructing staff and inmates not to feed any wildlife; regularly inspecting all external building structures and voids (such as chain link fences, guard tower eaves, patio roofs, warehouse overhangs, and nearby dairy buildings) for bird nests and removing accessible nests (during the non-breeding season); installing screening, netting, and other exclusion devices to prevent future nesting in these areas; and screening off culvert openings that provide drainage under the perimeter to prevent use by small mammals as localized travel corridors.

Landscape Modification Program

Many native birds will frequent landscaped areas which provide cover, perching, roosting, nesting, or foraging opportunities. Open shrubs and trees provide roost locations and nest sites, and fruit and nut-bearing trees offer foraging opportunities for several wildlife species. Over-irrigating tends to create saturated soils and ponding, which leads to increased insect populations (which represent food to insectivorous wildlife). To minimize its value to wildlife, future landscaping will be designed to provide as little cover, foraging, and nesting opportunities as possible. CDC has developed a program to design prison landscaping to make it less attractive to wildlife, and has prepared a handbook to explain the approach to each institution. The program includes a regionalized plant palette (i.e., by eco-region or growth zones) which can be adjusted to accommodate site-specific planting limitations and variables, and general design and maintenance guidelines that can be implemented statewide. By designing and

implementing a landscape plan which is less hospitable to wildlife, fewer species will be attracted to the landscaped areas near the fence, thus reducing the risk of electrocution. New landscaping materials will not be installed or planted at electrified fence prison facilities without first consulting with CDC's Planning and Construction Division in Sacramento regarding guidance for plant materials to use.

CDC is committed to continue implementation of Tier 1 measures throughout the life of the electrified fences. Also, as part of the monitoring effort (see Section 5.4), CDC plans to inspect each prison site several times a year to ensure that Tier 1 measures are being properly implemented.

5.1.2 MEASURES TO MINIMIZE IMPACTS - SUMMARY OF TIER 2

Second tier mitigation measures consist of both exclusion and deterrent devices, which have been installed in the secured perimeter of existing electrified fence sites and will be installed at some future electrified fence prison sites, as described below. The purpose of these devices is to reduce the likelihood that wildlife will contact the electrified fences, even if they are in the vicinity of the fences.

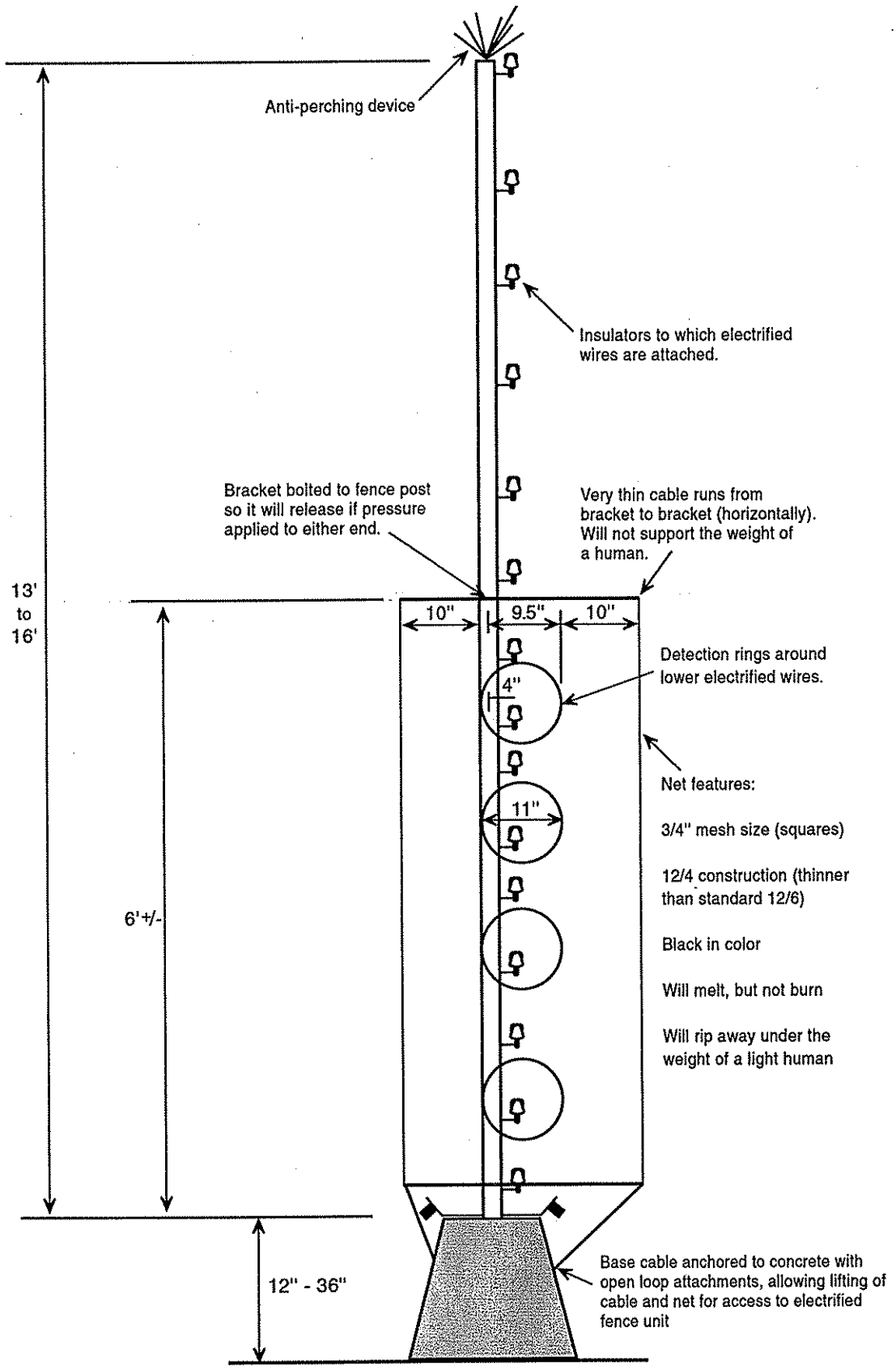
Each exclusion and deterrent fence device in the program has been evaluated for biological effectiveness, as well as whether or not it presents feasibility concerns, such as jeopardizing prison security, posing maintenance problems, or causing technical problems for fence operation. Costs for materials, installation, maintenance, and monitoring have also been taken into account because CDC, like all government agencies, operates under budget restrictions.

For the fence devices in the program, extensive research, development, and field testing was performed to assess their biological effectiveness when it was not already known from documented experience. Because CDC is required to house inmates in a secure correctional setting, any mitigation measure that would jeopardize security is not viable. Therefore, field testing was also conducted to ascertain whether or not fence devices represented a prison security risk, such as providing a potential aid to inmate escape, limiting the surveillance of the perimeter by staff, or causing false alarms. Finally, field testing was important for determining engineering and long-term maintenance issues for these devices, including materials and labor costs for periodic repair and replacement.

Vertical Netting

An analysis of carcass photographs in which kill location could be discerned showed that wildlife kills were typically the result of animals contacting the lowest 9 wires, because most opportunities for birds to contact two lethal wires or a wire and a ground are located there. Refer to Sections 4.6 and 4.7 of this HCP for respective discussions of why various groups of species are and are not at risk.

The installation of 3/4-inch mesh vertical netting enveloping both sides of the electrified fence, from the ground to the ninth wire, will prevent most birds from contacting the fence. CDC has installed the vertical netting at 14 existing prisons, and will install it at 3 future electrified fence sites, where kills were recorded or are projected to be high enough to make it cost-effective, and where snow and ice accumulations do not make it infeasible. Refer to Exhibit 5.1-1 for a schematic diagram of the vertical net design, and see Exhibit 5.1-2 for a photograph depicting a typical net.



Drawing of Vertical Netting Design

EXHIBIT 5.1-1

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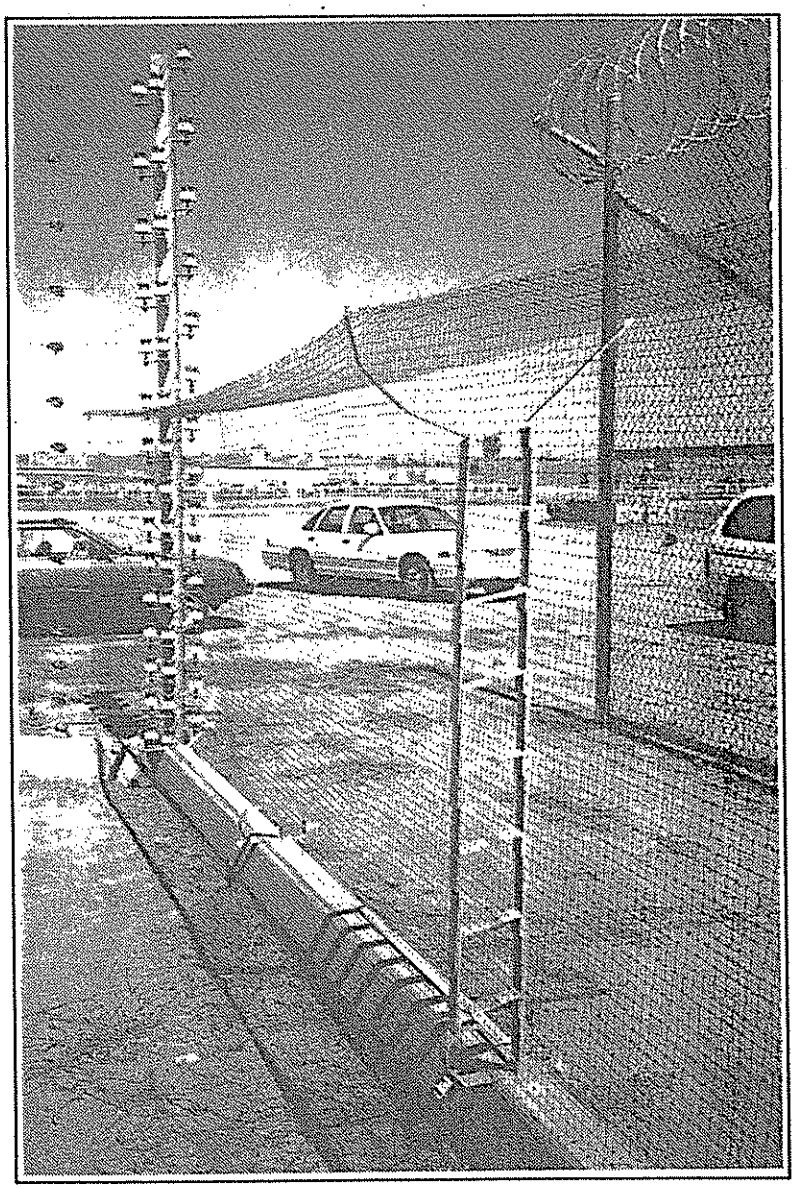

Prototypical mock-up of vertical netting option, as seen on a non-functional electrified fence test section. Note that the 3/4-inch netting completely envelops the lower 9 wires, leaving only the upper 6 wires exposed.

Photograph of Vertical Netting

EXHIBIT 5.1-2

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A prototypical, 9-month full-scale test of this netting at the California Institution for Men's West Reception Center (CIM--a facility with an activated electrified fence) has been conducted to address security, maintenance, and electrical engineering feasibility issues. Based on this test, vertical netting was determined to be feasible, except at institutions with certain adverse weather conditions. For security purposes, the netting system must be designed so it collapses under the weight of a person and sets off the alarm. Consequently, it cannot support the weight of snow and ice accumulation. Because of snow and ice accumulations, netting is not viable at 6 existing sites: the Susanville prisons in Lassen County (CCC Level III and High Desert State Prison), at the Tehachapi Mountains facilities in Kern County (CCI Levels III, IV-A, and IV-B), and at CSP-Los Angeles County (near Lancaster).

Test results from CIM and other prisons where netting is being installed are demonstrating that this Tier 2 device can reduce much of the mortality that has been occurring. At the first seven sites where netting had been installed, as shown in Table 5.1-1, an overall 93% reduction in take has been achieved after netting; this is based on pre- and post-net data sets that cover comparable time periods and equivalent numbers of months. This analysis was limited to these seven sites because nets had not yet been installed elsewhere as of August 31, 1997.

The preliminary conclusion from this data is that netting significantly reduces contact by many species with the lower 9 wires, thus preventing much of the electrocution-related mortality that had been occurring. These results help validate the assumptions that various species would benefit from netting. They also support the magnitude of reduction in statewide take predicted for the project after all nets are installed. As shown in Table 4-2 (Section 4.8), post-net take of MBTA-protected native bird species is calculated at 279.85 animals per year, when all prisons are considered; i.e., factoring in 17 netted sites and 12 un-netted sites. This equates to an 81% reduction when compared to the 1,464.83 takes of MBTA-protected species that were predicted to occur each year if nets were not installed. The mitigated (i.e., post-net) take can also be converted to a predicted annual take per prison, which would be about 10 takes of MBTA-protected native bird species per year per prison (for each of the 29 locations), after all nets are installed and all future prisons are built. A similar pre- and post-net take analysis was conducted for ESA/CESA-covered species. As shown in Table 4-3 (Section 4.9), post-net take of ESA/CESA-covered species is calculated at 65.07 animals per year, when all prisons are considered. This equates to a 61% reduction when compared to the 167.70 pre-net takes of ESA/CESA-covered species that were predicted to occur. This also equates to only about 2 post-net takes of ESA/CESA-covered species per year per prison (for each of the 29 locations).

Based on favorable test results from the prototype site (CIM), CDC decided to install vertical netting at other prisons where it was warranted and feasible. Of the 29 prison sites included in this project, a total of 14 have received nets to date. Of the four future electrified fence sites, three are scheduled to receive nets, for an ultimate total of 17 netted sites. Two of these three are associated with future prisons (Delano II and San Diego County II) and will be installed only if funding for the prison and fence is authorized and the prisons are constructed; one is a women's prison (NCWF) where an electrified fence with net will be installed only if the site is approved for conversion to a men's prison. Refer to Appendix C for a complete list of the 17 locations where vertical netting has been or will be installed, and the construction schedule.

Table 5.1-1
Comparisons of "Pre-Net" and "Post-Net" Wildlife Mortality Data [1]

Part A: By Prison *Prison Name*	Actual Pre-Net Take	Actual Post-Net Take	% Change [2]
California Institution for Men, West [3]	58	9	-84.5%
California State Prison, Corcoran [4]	5	0	-100%
California State Prison, Sacramento [5]	79	1	-98.7%
California State Prison, Solano [6]	6	1	-83.3%
Salinas Valley State Prison [7]	12	1	-91.7%
Central California Women's Facility [8]	4	0	-100%
Valley State Prison for Women [9]	6	0	-100%
TOTALS	170	12	-92.9%
Part B: By Species [10] *Species Name*	Actual Pre-Net Take	Actual Post-Net Take	% Change [2]
American coot	1	0	-100%
American crow	11	1	-90.9%
ash-throated flycatcher	1	0	-100%
Audubon's cottontail	1	0	-100%
barn owl	3	0	-100%
Brewer's blackbird	11	1	-90.9%
burrowing owl	7	0	-100%
California ground squirrel	0	2	n/a [11]
Cassin's kingbird	0	1	n/a
house finch	104	3	-97.1%
lesser goldfinch	2	0	-100%
loggerhead shrike	8	1	-87.5%
mourning dove	1	0	-100%
northern mockingbird	5	0	-100%

Table 5.1-1
Comparisons of "Pre-Net" and "Post-Net" Wildlife Mortality Data [1]

Part B: By Species *Species Name*	Actual Pre-Net Take	Actual Post-Net Take	% Change [2]
red-tailed hawk	0	1	N/a
red-winged blackbird	1	0	-100%
savannah sparrow	0	1	N/a
Say's phoebe	1	0	-100%
striped skunk	3	1	-66.7%
tree swallow	1	0	-100%
western bluebird	1	0	-100%
western kingbird	4	0	-100%
white-crowned sparrow	1	0	-100%
yellow-rumped warbler	3	0	-100%
TOTALS	170	12	-92.9%
Part C: By Wildlife Category [1,2] *Wildlife Category Name (Original Predicted Reduction)*	Actual Pre-Net Take	Actual Post-Net Take	% Change [2]
"Large Raptors" (-30%)	3	1	-66.7%
"Small Raptors" (-60%)	0	0	n/a
"Large Game Birds" (-60%)	0	0	n/a
"Aquatic and Semi-aquatic Birds" (-90%)	1	0	-100%
"Gulls" (-80%)	0	0	n/a
"Small Ground-gleaning Birds" (-95%)	107	4	-96.3%
"Large Ground-gleaning Birds" (-90%)	29	2	-93.1%
"Foliage-gleaning Birds" (-90%)	3	0	-100%
"Ground-foraging Raptors" (-75%)	7	0	-100%
"Aerial-foraging/Perching Birds" (-80%)	7	1	-85.7%
"Nighthawks and Swallows" (-90%)	1	0	-100%
"Loggerhead Shrike" (-75%)	8	1	-87.5%
"Small Terrestrial Mammals" (-95%)	4	1	-75%

Table 5.1-1
Comparisons of "Pre-Net" and "Post-Net" Wildlife Mortality Data [1]

Part C: By Wildlife Category [12] *Wildlife Category Name (Original Predicted Reduction)*	Actual Pre-Net Take	Actual Post-Net Take	% Change [2]
"Medium Terrestrial Mammals" (-90%)	0	0	n/a
"Gnawing Mammals" (-80%)	0	2	n/a
"Reptiles and Amphibians" (-80%)	0	0	n/a
TOTALS	170	12	-92.9%

[1] Based on data collected through October 31, 1997 (as reported in CDC's memorandum dated 11/17/97), and limited to the seven sites where netting had been installed. This analysis was further limited so that pre- and post-net data sets for each site contained comparable time periods and equal numbers of months. This is the actual data that the Working Group used to develop predictions for wildlife response to netting, which became an integral part of the post-net statewide take calculations (refer to Section 4.8).

[2] The percent decrease in post-net take compared to pre-net take.

[3] California Institution for Men, West - Netting was installed in January, 1996. A total of 11 months is involved in the comparison; pre-net period covers February-December, 1995, while post-net includes the same months in 1996. The time period involved in the comparison could not be longer because of a limited pre-net period (the electrified fence was only activated in January 1995).

[4] California State Prison, Corcoran - Netting was installed on June 16-July 10, 1997. A total of about 4 months is involved in the comparison; post-net period covers July 11 through October 31, 1997, while pre-net covers the same period in 1996.

[5] California State Prison, Sacramento - Netting was installed on July 11-August 1, 1997. A total of 3 months is involved in the comparison; post-net period covers August 2 through October 31, 1997, while pre-net covers the same period in 1996.

[6] California State Prison, Solano - Netting was installed on August 4-22, 1997. A total of about 2 months is involved in the comparison; post-net period covers August 23 through October 31, 1997, while pre-net covers the same period in 1996.

[7] Salinas Valley State Prison - Netting was installed on August 25-September 12, 1997. A total of about 1.5 months is involved in the comparison; post-net period covers September 13 through October 31, 1997, while pre-net covers the same period in 1996.

[8] Central California Women's Facility - Netting was installed on September 15-30, 1997. A total of 1 month is involved in the comparison; post-net period covers October 1 through October 31, 1997, while pre-net covers the same period in 1996.

[9] Valley State Prison for Women - Netting was installed on October 1-15, 1997. A total of about 0.5 months is involved in the comparison; post-net period covers October 16 through October 31, 1997, while pre-net covers the same period in 1996.

[10] Part B is a species-by-species comparison of post- and pre-net take. Species are organized alphabetically by common name.

[11] "Not Applicable" (n/a) is shown where a percent change is not mathematically calculable; that is, dividing zero by zero, or dividing a number by zero, are both invalid arithmetic functions.

[12] Part C is a pre- and post-net take comparison by "categories" of wildlife. These categories, which are described in Section 4.8 of this HCP, were developed to assist in predicting the variable benefits of netting for groups of species. The original prediction is shown in parentheses. The variation between groups is believed to be largely due to differences in species size, activity patterns, and foraging behaviors.

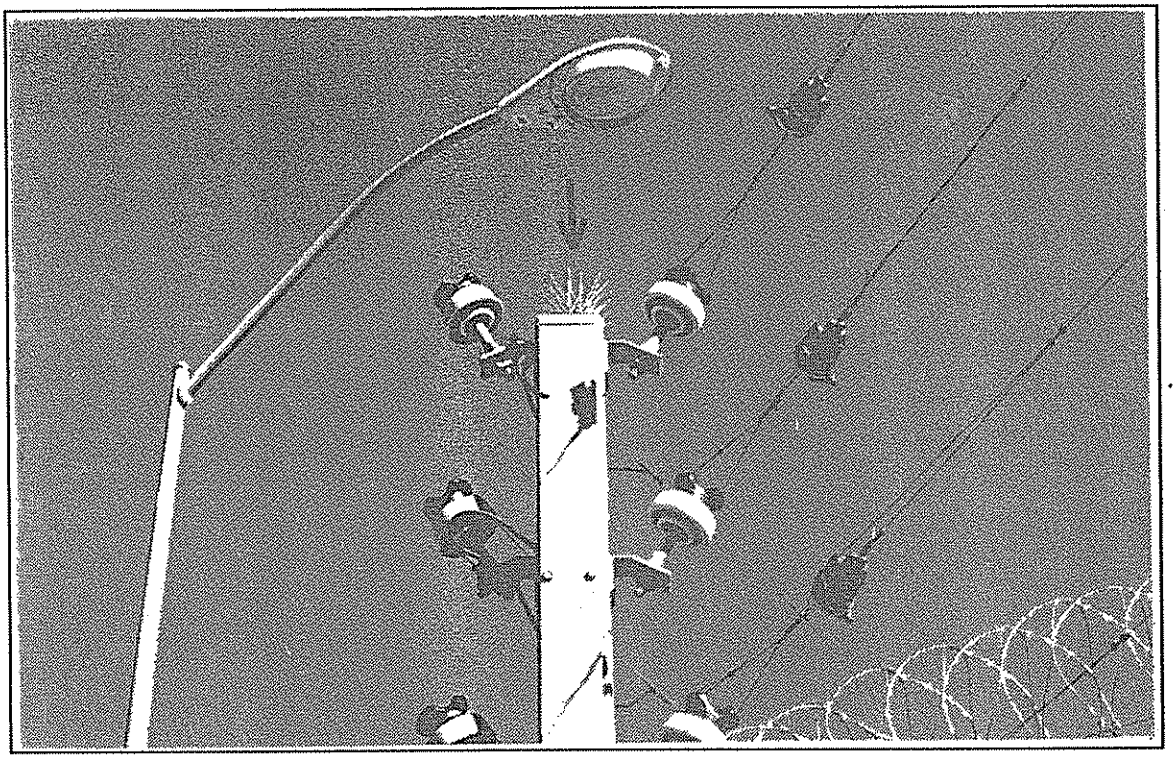
Anti-Perching Wire

A number of bird electrocutions have occurred as a result of contacting electrified wires while perching, or attempting to perch, on the grounding brackets and fence posts of the electrified fence. Anti-perching wire (also called "porcupine wire"), which consists of 2- to 4-inch lengths of stiff wire connected to an aluminum or plastic base (1/4" wide x 2" long), can be attached to strategic perching sites in and near the perimeter. Once installed, this wire will reduce the ability of birds to perch near the electrified fence, thus reducing exposure to accidental electrocution. This wire was installed and monitored for effectiveness at Calipatria State Prison. The results of the study indicated that anti-perching devices were not effective in substantially reducing burrowing owl mortality at Calipatria State Prison, but that its installation on post tops would at least partially deter other species from perching within the perimeter. Therefore, installation of porcupine wire, by itself (i.e., without netting), is not being considered as a primary deterrent device. Instead, it will be installed, in conjunction with vertical netting, on the tops of all electrified fence posts (see Exhibit 5.1-3 and Exhibit 5.1-1), where it will be an added deterrent.

Anti-Rodent Fencing

Because the chain link fences extend only to ground level, "fossorial" (i.e., burrowing) wildlife such as gophers, skunks, and foxes can burrow under the outer fence, or crawl under the fence in eroded areas, thus increasing the potential for electrocution. In addition, smaller mammals (e.g., small rabbits, ground squirrels, and other rodents), and some ground-foraging birds (e.g., doves, blackbirds, killdeer), can squeeze through the chain links at ground level, also gaining access to the electrified fence. Small mesh (one inch or less) "hardware cloth" or similar fencing, installed to at least 2 feet above the ground along the outer chain link fence would prevent these wildlife species from entering the perimeter. A prototypical, full-scale test of anti-rodent fencing has occurred at Ironwood State Prison to evaluate effectiveness, security, and maintenance feasibility issues. Although it was difficult to reach a definitive effectiveness conclusion due to the lack of baseline data (i.e., pre-installation take), the test showed that the fencing would not be feasible under certain extreme weather conditions. Specifically, because of problems with wind-blown sand and snow accumulations, anti-rodent fencing is not viable at the high-elevation prisons and most desert sites. Accumulated sand or snow on the anti-rodent fencing would obstruct ground-level surveillance. The sites where anti-rodent fencing is not viable are: CCC Level III and High Desert State Prison in Susanville; CSP-Los Angeles near Lancaster; CCI Levels III, IV-A, and IV-B in Tehachapi; Chuckawalla Valley State Prison near Blythe; and CSP-Kern County at California City.

Ironwood State Prison is currently the only electrified fence site where anti-rodent fencing has been installed. Although the results of the field test at Ironwood were inconclusive, anti-rodent fencing is presumed to be effective at reducing entry into the perimeter by ground-dwelling and burrowing wildlife. CDC will install anti-rodent fencing, similar to the manner depicted in Exhibit 5.1-4, if CDFG and USFWS



Anti-perching devices, or "porcupine wire", as installed at Calipatria State Prison.

Photograph of Anti-Perching Devices

EXHIBIT 5.1-3

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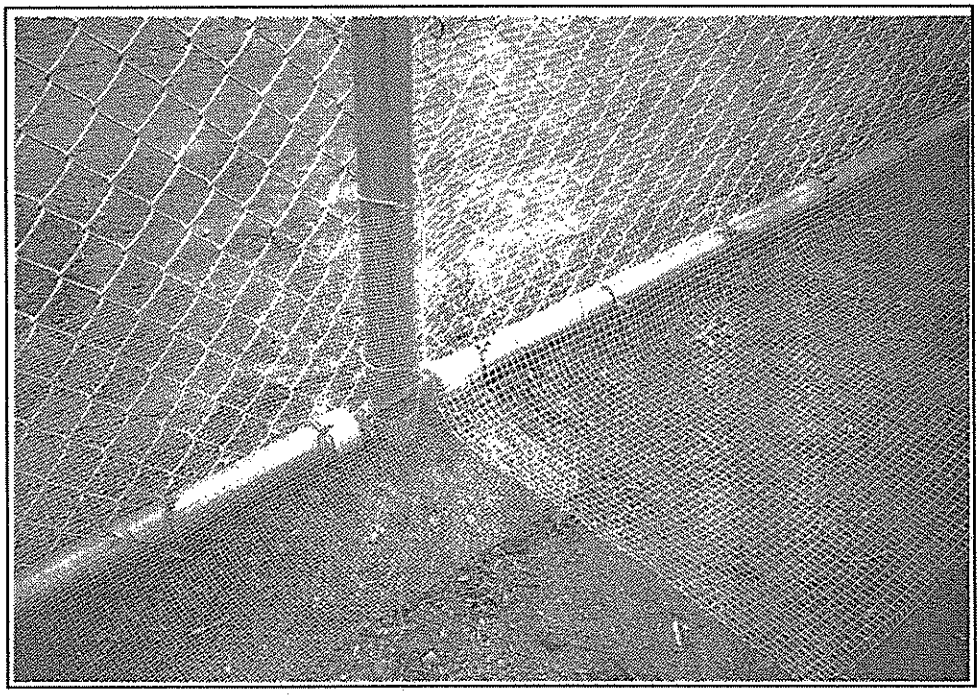

Two samples of anti-rodent fencing. The material is simply 3 or 4-foot wide, galvanized hardware cloth (or chicken wire) that is attached to the bottom of the chain link fence and folded over.

Photograph of Anti-Rodent Fencing

EXHIBIT 5.1-4

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Habitat Conservation Plan

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determine that its site-specific use would avoid unnecessary take of ground-dwelling animals. This determination by the agencies would be made after their review of the annual report (see Section 5.4: Monitoring/Reporting Program), or if any terrestrial wildlife that are California Fully-Protected species are taken (e.g., blunt-nosed leopard lizard). Anti-rodent fencing would not be needed, though, at sites where the vertical netting is installed, because the netting already functions as an effective barrier to ground-dwelling wildlife (i.e., the netting envelops the lowest wire and anchored to the grade beam, thereby preventing movement under the fence).

5.2 MEASURES TO MITIGATE UNAVOIDABLE IMPACTS - SUMMARY OF TIER 3

Tier 3 is the project's mitigation program, designed to compensate for residual wildlife mortality impacts. After implementation of Tier 1 and Tier 2 measures, a small amount of residual wildlife mortality risk is unavoidable, primarily because the upper lethal wires must be left outside the vertical net (for security reasons) at electrified fence sites with Tier 2 mitigation, and certain electrified fence sites will not receive Tier 2 nets for feasibility or cost-effectiveness reasons.

The Tier 3 habitat mitigation package is intended to achieve two regulatory objectives. First, it is designed to mitigate impacts of the predicted future take of the ESA/CESA-covered species addressed in this HCP. Second, it is intended to minimize impacts to and benefit native migratory bird species protected by MBTA; these are the uncovered MBTA-protected species addressed in this HCP for which the incidental take permits do not serve as special purpose permits. CDC has formulated a single package that meets both regulatory objectives. Using a two-step approach, CDC has developed a Tier 3 package that provides for enhancement of 2,565 acres of various habitat types at multiple locations in California. The enhancement is achieved via a combination of habitat acquisition, restoration, management, and creation actions. The mitigation also includes actions that do not require acquisition or habitat restoration. For instance, a cowbird trapping program is included to generally improve riparian habitat productivity by eliminating the detrimental effects of cowbird nest parasitism.

The first step in the two-step approach involved a quantitative analysis to determine the amount of habitat needed to benefit uncovered MBTA-protected species; the rationale applied was that enhanced habitat would theoretically lead to improved reproductive potential for the State's populations of the affected species. An overview of this quantitative approach is provided in Appendix D. The methodology for this approach was developed during months of consultation with CDFG and USFWS, involving dozens of meetings by the Working Group (refer to Section 1.1). Because the intent was to identify the types and amounts of enhanced habitat that would be needed to help offset take of the project's overall wildlife impact, it was decided to select target species that would represent the various groups of habitat users. This was necessary because the species affected ranged from grassland species, to arid shrub land species, to woodland species, and it was desirable to have the appropriate amounts of these general habitat types be component parts of the project's Tier 3 compensatory mitigation. Once the target species were selected, a search of the current literature was conducted to determine the species average clutch size, number fledged, number of broods, and breeding pair territory size. This information was used to calculate the amount of land needed within the habitat type represented by the target species to sustain successful reproduction of the species at a level that would theoretically offset its projected statewide losses after netting is installed. The following is a summary of the target species chosen, what habitat types they represent, and how much enhanced habitat was determined to be needed to offset predicted mortality:

- Burrowing owl was selected as the target species for the agricultural land and grassland habitat users. It was determined that a minimum of 72 enhanced acres of these habitat types are needed.

- Northern oriole was used as the target species for the riparian woodland habitat users. It was determined that 30 enhanced acres of this habitat type is needed.

- Western kingbird was chosen as the target species for the scrub/savanna wildlife species. It was determined that 210 enhanced acres of this habitat type is needed.

- Yellow-rumped warbler was used as the target species for coastal/montane forest species. It was determined that 108 enhanced acres is needed in either of these habitat types.

- Loggerhead shrike was selected as the target species for the mixed woodland habitat users. It was determined that 147 enhanced acres of this habitat type is needed.

- Red-winged blackbird was used as the target species for the group of wildlife using wetlands and open water habitat. It was determined that 15 acres of these habitat types is needed.

- American kestrel was chosen as the species to represent the raptor category. Raptors were treated as a separate group because they were determined to be highly vulnerable to electrocution, even after installation of Tier 2 netting and anti-perching devices. Most of the raptors being affected are habitat generalists, so it was rationalized that they would benefit from nearly all of the other habitat types being targeted (except for wetlands). American kestrel has proven to be the bird-of-prey that is most vulnerable to accidental electrocution on the electrified fences, and it is a habitat generalist that occurs throughout much of California. It was determined that 2,163 acres of enhancement in various habitat types would be needed for this species and the other raptors it represents.

This first step, the quantitative approach, led to the calculation that 2,178 acres was the targeted, total amount of enhanced habitat needed. This is based on 2,163 acres needed for raptors, plus the 15 acres of open water and/or wetlands that are needed that would not likely be used by raptors. The 2,163 acres needed for raptors is not habitat-specific, so the other targeted habitat types could be counted towards the raptor target. What is important is that, at a minimum, each of the various targets needs to be achieved. The value of this quantitative approach is that it is accompanied by explainable rationale and it affords some level of confidence that MBTA-protected species are being benefitted by the habitat enhancement actions. The weakness of the approach is that is very theoretical and it has not yet been scientifically validated. Regardless of its strengths and weaknesses, though, it was considered by the Working Group to be the best available approach at the time.

The second step took into consideration the needs of the ESA/CESA-covered species that are expected to be taken in the future; this was accomplished by locating the "targeted acreage" (from the first step) in areas of California that are within the geographic ranges of the ESA/CESA-covered species. Because of the configuration of properties and size of available parcels, the total size of the habitat mitigation program in the HCP is 2,565 acres. CDC has exceeded the targeted acreage requirement by a total of 387 acres. The 2,565 total acres is being achieved by enhancing habitat at 10 mitigation sites. At some sites, property acquisition is involved. In other cases, enhancement is being conducted on public or private land already managed for open space uses and wildlife habitat values. For the Statewide

Electrified Fence Project, the current property stewards of mitigation sites are USFWS, CDFG, California Audubon, the Desert Tortoise Preserve Committee, and the U.S. Army Corps of Engineers.

Exhibit 5.2-1 shows the general location of each mitigation site. Table 5.2-1 offers a summary for each of the ten mitigation sites, including ownership, habitat types involved, targeted habitat types, acreage achieved, and ESA/CESA-covered species benefitted. The remainder of this section is devoted to providing descriptions of each of the ten mitigation sites, including discussions of the environmental setting, enhancement activities proposed, and ESA/CESA-covered species benefitted at each one.

Some summary information for Tier 3 is offered at the end of Section 5. Exhibit 5.2-11 offers a graphical depiction of how the 2,565 total acres can be split among the various habitat types targeted. Table 5.2-14, also at the end of this section, offers a summary of how each of the ESA/CESA-covered species is benefitted by the Tier 3 compensatory mitigation package.

5.2.1 MITIGATION SITES

Because the following enhancement actions at mitigation sites will be further developed later in detailed restoration and management plans, specific details for the enhancement actions are generally not discussed in this HCP. Instead, CDC will prepare conceptual restoration plans, including remedial measures and detailed construction plans, for each mitigation site and will submit the plans to CDFG and USFWS for review and approval prior to implementation. CDC will also develop contractual agreements with each of the land stewards at the mitigation sites. These legally binding agreements will contain details relating to liabilities, schedule, financial obligations, management and monitoring responsibilities, and responsibilities for implementing the various enhancement tasks. Where applicable, restoration plans will be attached to the agreements and incorporated by reference. As with the restoration plans, CDFG and USFWS will have the opportunity to review and approve each of these agreements before they are signed.

Although the proposed mitigation sites identified in this document will be implemented if possible, it is understood that if the mitigation site is no longer available or the proposed enhancement actions cannot be accomplished after issuance of the Section 10(a)(1)(B) and Section 2081(b) incidental take permits, equivalent mitigation will be implemented within one year after it was determined that the site was no longer available or the enhancement could not be accomplished (unless otherwise authorized by the permitting agencies). The equivalent mitigation will be accomplished using comparable habitat types and at least the same acreage of habitat acquired, restored, and/or enhanced, as described for the proposed site. Any proposed changes or alternatives to these proposed mitigation sites will be submitted to CDFG and USFWS for approval prior to implementation.

A general requirement of CDFG and USFWS is that mitigation lands be managed and protected for the intended wildlife habitat purposes in perpetuity (i.e., "forever protected"). If the lands are sold or exchanged, the new landowner must be bound by the habitat requirements in the permits. CDC recognized this requirement and, when developing the Tier 3 compensatory mitigation package, strove to locate all compensation efforts on land that was already being managed for wildlife habitat purposes, or on land that would be acquired and then encumbered for permanent protection and transferred to a designated land steward. As will be evident in the following ten mitigation site descriptions, CDC was successful in accomplishing this objective.

All ten mitigation sites are being or will be managed for wildlife habitat values. Where no acquisition is involved, the habitat enhancement actions will take place on land that is already encumbered for permanent protection (via conservation easements or deed restrictions). Where property acquisition is involved (at four sites), the land will be bought and then protected by deed restrictions or conservation easements at the time the property is transferred. Except for the California City Desert Tortoise Preserve, land stewards for all other sites include CDFG, USFWS, the U.S. Army Corps of Engineers (USACE), and California Audubon. The lands to be transferred will be given to CDFG or USFWS, or to a third party approved by CDFG and USFWS (e.g., California Audubon or the Desert Tortoise Preserve Committee). With deed restrictions or conservation easements in place, if land is sold to another entity in the future, the habitat requirements will be transferred to the new owners with the deed.

{The separate discussions for each of the ten mitigation sites, including individual exhibits and tables, begin after the following Exhibit 5.2-1 and Table 5.2-1}

Locations of Mitigation Sites

EXHIBIT 5.2-1

California Department of Corrections
Habitat Conservation Plan

NORTH

EDAW

Table 5.2-1
Summary of Mitigation Sites

Location	Ownership	Actual Habitat Types	Acreage Credit[1]	Targeted Habitat Types[2]	ESA/CESA-Covered Species Benefitted	Comments
Allensworth Ecological Reserve *(Tulare County)*	CDFG	alkali sink alkali scrub	1,082	scrub/savanna	blunt-nosed leopard lizard, white-tailed kite, northern harrier, Sharp-shinned hawk, Cooper's hawk, red-shouldered hawk, red-tailed hawk, ferruginous hawk, rough-legged hawk, golden eagle, American kestrel, merlin, prairie falcon, barn owl, western screech-owl, great horned owl, burrowing owl, long-eared owl, California horned lark, San Joaquin antelope squirrel, San Joaquin pocket mouse, short-nosed kangaroo rat, Tipton kangaroo rat, southern grasshopper mouse, Tulare grasshopper mouse, San Joaquin kit fox.	Involves 282 acres of acquisition and enhancement, plus another 800 acres of enhancement on existing reserve land. Restoration is re-establishment of micro-topography, with plantings. Also involves fencing and inmate labor.
California City Desert Tortoise Natural Area *(Kern County)*	Privately-run mitigation bank	creosote bush scrub	80	scrub/savanna	desert tortoise, northern harrier, sharp-shinned hawk, Cooper's hawk, red-shouldered hawk, red-tailed hawk, rough-legged hawk, golden eagle, American kestrel, merlin, prairie falcon, barn owl, western screech-owl, great horned owl, long-eared owl, California horned lark, Bendire's thrasher, Mohave ground squirrel, southern grasshopper mouse.	Involves acquisition, enhancement, monitoring and long-term management. Bank operators conduct restoration activities.
Cowbird Trapping Program *(Colusa County)*	CDC-operated	riparian woodland	n/a	n/a	yellow warbler, yellow-breasted chat.	CDC will operate and manage this program for 5 years.

Table 5.2-1
Summary of Mitigation Sites

Location	Ownership	Actual Habitat Types	Acreage Credit	Targeted Habitat Types[2]	ESA/CESA-Covered Species Benefitted	Comments
Humboldt Bay National Wildlife Refuge *(near Arcata)*	Currently, TNC. Eventually, USFWS.	coastal montane foredune dune mat	180	montane/coastal	California brown pelican, black-crowned night heron, northern harrier, sharp-shinned hawk, Cooper's hawk, northern goshawk, red-shouldered hawk, red-tailed hawk, rough-legged hawk, golden eagle, American kestrel, merlin, western snowy plover, California gull, barn owl, western screech-owl, great horned owl, northern pygmy-owl, Vaux's swift, purple martin, yellow warbler, yellow-breasted chat, white-footed vole.	Involves 180 acres of acquisition (2 parcels), fencing, inmate labor and various restoration efforts.
Kern River Preserve *(Kern County)*	California Audubon	riparian woodland	21	riparian woodland/shrubs	black-crowned night heron, osprey, white-tailed kite, northern harrier, sharp-shinned hawk, Cooper's hawk, red-shouldered hawk, Swainson's hawk, red-tailed hawk, ferruginous hawk, rough-legged hawk, golden eagle, American kestrel, merlin, prairie falcon, western yellow-billed cuckoo, barn owl, western screech-owl, great horned owl, northern pygmy-owl, long-eared owl, Vaux's swift, southwestern willow flycatcher, yellow warbler, yellow-breasted chat, tricolored blackbird.	Includes 21 acres of riparian woodland enhancement, plus 2 acres of wetland restoration, fencing, and funds for management.
		Wetland	2	Wetlands/Open Water		

Table 5.2-1
Summary of Mitigation Sites

Location	Ownership	Actual Habitat Types	Acreage Credit[1]	Targeted Habitat Types[2]	ESA/CESA-Covered Species Benefitted	Comments
Mayacama Mountains Sanctuary *(Sonoma County)*	California Audubon	oak woodland	250	mixed oak/pine woodland	white-tailed kite, northern harrier, sharp-shinned hawk, Cooper's hawk, red-shouldered hawk, red-tailed hawk, rough-legged hawk, golden eagle, American kestrel, merlin, barn owl, western screech-owl, great horned owl, northern pygmy-owl, burrowing owl, long-eared owl, Vaux's swift, loggerhead shrike.	Includes enhancement via fencing of 250 acres, a 5-year staff management position, and various restoration activities including oak woodland, grassland, and riparian restoration.
O'Neal Canyon	Currently, CDC Eventually, USFWS (or CDFG)	coastal sage scrub	n/a[3]	scrub/savanna	San Deigo horned lizard, orange-throated whiptail, northern red-diamond rattlesnake, white-tailed kite, northern harrier, sharp-shinned hawk, Cooper's hawk, red-shouldered hawk, red-tailed hawk, ferruginous hawk, rough-legged hawk, golden eagle, American kestrel, merlin, prairie falcon, barn owl, western screech-owl, great horned owl, San Diego cactus wren, coastal California gnatcatcher, southern California rufous crowned sparrow, Bell's sage sparrow, San Diego black-tailed jackrabbit, San Diego desert woodrat.	Includes transfer of approximately 80 acres of coastal sage scrub to USFWS (or CDFG).

Table 5.2-1
Summary of Mitigation Sites

Location	Ownership	Actual Habitat Types	Acreage Credit[1]	Targeted Habitat Types[2]	ESA/CESA-Covered Species Benefitted	Comments
Paul Wattis Sanctuary *(Colusa County)*	California Audubon	riparian woodland	20	riparian woodland/shrubs	black-crowned night heron, Aleutian Canada goose, white-tailed kite, bald eagle, northern harrier, Cooper's hawk, red-shouldered hawk, sharp-shinned hawk, Swainson's hawk, red-tailed hawk, ferruginous hawk, rough-legged hawk, golden eagle, American kestrel, merlin, American peregrine falcon, greater sandhill crane, long-billed curlew, western yellow-billed cuckoo, barn owl, western screech-owl, great horned owl, short-eared owl, bank swallow, yellow warbler, yellow-breasted chat, tricolored blackbird.	Further develop and implement plans for wetlands (with some riparian) enhancement via management of 200 acres. Restoration of 20 acres of riparian woodland and cowbird trapping.
		wetland (with some riparian)	200	wetlands/ open water		
Stanislaus River Park *(Knight's Ferry, Stanislaus County)*	U.S. Army Corps of Engineers	riparian woodland	30	riparian woodland/shrubs	black-crowned night heron, Aleutian Canada goose, osprey, white-tailed kite, northern harrier, sharp-shinned hawk, Cooper's hawk, red-shouldered hawk, Swainson's hawk, red-tailed hawk, ferruginous hawk, rough-legged hawk, golden eagle, American kestrel, merlin, American peregrine falcon, prairie falcon, greater sandhill crane, California gull, long-billed curlew, western yellow-billed cuckoo, barn owl, western screech-owl, great horned owl, long-eared owl, short-eared owl, Vaux's swift, bank swallow, yellow warbler, yellow-breasted chat, tricolored blackbird.	This property is within USACE's management area along the lower Stanislaus River (mitigation land for upstream reservoir projects). The site is degraded from (previous agriculture) and in need of restoration.

Table 5.2-1
Summary of Mitigation Sites

Location	Ownership	Actual Habitat Types	Acreage Credit	Targeted Habitat Types[2]	ESA/CESA-Covered Species Benefitted	Comments
Starr Ranch Sanctuary *(Orange County)*	California Audubon	perennial grassland	700	grassland/ agriculture	*Benefits to grassland and many coastal sage scrub species (includes breeding, wintering, and transient species):* San Diego horned lizard, orange-throated whiptail, northern red-diamond rattlesnake, northern harrier, sharp-shinned hawk, Cooper's hawk, red-shouldered hawk, red-tailed hawk, rough-legged hawk, golden eagle, American kestrel, merlin, barn owl, western screech-owl, great horned owl, burrowing owl *(wintering only)*, short-eared owl, San Diego cactus wren, coastal California gnatcatcher, yellow warbler, yellow-breasted chat, southern California rufous-crowned sparrow, Bell's sage sparrow, San Diego black-tailed jackrabbit, San Diego desert woodrat.	Fund a management position to oversee artichoke thistle removal in grasslands; fund research for mechanical removal measures; implement short-term control and long-term removal programs, and monitoring.
San Diego Multi-Species Conservtion Plan	various	annual grassland	n/a[4]	grassland / agriculture	burrowing owl	CDC will partially fund habitat enhancement for burrowing owls within the San Diego Multi-species Conservation Plan (MSCP).

Table 5.2-1
Summary of Mitigation Sites

[1] Total acreage included in the Tier 3 habitat enhancement package is 2,565 acres. Habitat is being enhanced through combinations of restoration, creation, and management activities. The enhancement acreage target that was agreed to by CDC, USFWS, and CDFG was 2,178 acres. Therefore, total acreage that is included in the Tier 3 program exceeds the target by 387 acres. The additional acreage being included is largely the result of parcel size (i.e., it was determined by what the landowner had available), and CDC's commitment to meet the CESA mandate that holds state agencies to higher standards for conserving species.

[2] This column refers to the habitat types that were being targeted to meet ESA, CESA, and MBTA objectives , and whether or not the habitat enhancement actions proposed at the mitigation site could be credited towards any of those targets. The following are the targeted acreages that were being sought when compiling the Tier 3 compensatory mitigation package. These acreages were calculated as part of the first step in the two-step methodology for developing Tier 3. Refer to Section 5.2.1 and Appendix D for further details.

- 30 acres in riparian woodland/shrubs *(target species=northern oriole)*
- 210 acres in scrub/savanna *(target species=western kingbird)*
- 72 acres in grassland/agriculture *(target species=burrowing owl)*
- 147 acres in mixed oak/pine woodland *(target species=loggerhead shrike)*
- 108 acres in montane/coastal forest *(target species=yellow-rumped warbler)*
- 15 acres in wetlands/open water *(target species=red-winged blackbird)*

The total compensatory acreage that was being targeted was 2,178 acres. This was largely based on the 2,163 acres needed for raptors which, as generalists, would benefit from all of the other habitat types being targeted except for the 15-acre wetland/open water target.

[3] Because this opportunity involves transfer of land only (300 acres), with no enhancement or restoration, no Tier 3 mitigation acreage credit was applied to any of the habitat targets.

[4] Because the location, extent, and type of enhancement is currently undetermined, no Tier 3 mitigation acreage credit was applied to any of the habitat targets.

Source: EDAW, 1998

ALLENSWORTH ECOLOGICAL RESERVE

CDC will acquire and enhance (via active management) 282 acres of alkali sink/scrub habitat, and restore an additional 800 acres of alkali sink/scrub habitat on lands within the existing Allensworth Ecological Reserve. This mitigation site exceeds the 210-acre scrub/savanna compensation acreage target, and the entire 1,082 acres applies toward the 2,163-acre raptor compensation acreage target (refer to the beginning of Section 5.2 and Appendix D).

The Allensworth Ecological Reserve, established in 1980 in Tulare County, consists of several disconnected units that total approximately 4,860 acres (Exhibit 5.2-2). Portions of the reserve were historically farmed and leveled to facilitate irrigation; the leveling resulted in the removal of natural mounded topography. Undisturbed areas of the reserve represent some of the highest quality natural habitat in the southern San Joaquin Valley. These include valley sink scrub and valley saltbush scrub, both of which are recognized in the California Natural Diversity Data Base as sensitive communities. These habitats once covered large areas of the Central Valley and have been reduced to less than 20% of their former range.

The valley sink scrub habitat typically occurs on highly alkaline soils, forming an open to moderately dense shrub canopy. Dominant plant species found in these areas include iodine bush (*Allenrolfea occidentalis*) and seepweed (*Suaeda fruticosa*). Valley saltbush scrub is similar to valley sink scrub, but it typically occurs at slightly higher elevations and is dominated by spiny saltbush (*Atriplex spinifera*). Other plant species which occur in these habitats include goldenbush (*Haplopappus acredenius* ssp. *bracteousus*), alkali heath (*Frankenia grandifolia* ssp. *campestris*), salt grass (*Distichlis spicata* var. *stricta*), and alkali sacaton (*Sporobolus airoides*), a native bunchgrass.

Allensworth Ecological Reserve supports a number of common wildlife species, including western spadefoot toad (*Scaphiopus hammondii*), western kingbird (*Tyrannus verticalis*), black-tailed jackrabbit (*Lepus californicus*), Audubon's cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), and American badger (*Taxidea taxus*). In addition several raptor species forage over the valley sink and valley saltbush scrub habitats. These include, but are not limited to, American kestrel (*Falco sparverius*), golden eagle (*Aquila chrysaetos*), red-tailed hawk (*Buteo jamaicensis*), ferruginous hawk (*Buteo regalis*), rough-legged hawk (*Buteo lagopus*), and peregrine falcon (*Falco peregrinus*).

A total of 26 ESA/CESA-covered species are expected to benefit from the acquisition and enhancement actions (refer to Tables 5.2-1 and 5.2-14). Of these, three are federally listed species: blunt-nosed leopard lizard (*Gambelia silus*), Tipton kangaroo rat (*Dipodomys nitratoides*), and San Joaquin kit fox (*Vulpes macrotis mutica*). Another one is a state-listed only species: San Joaquin antelope squirrel (*Ammospermophilus nelsoni*).

CDC will acquire 282 acres of high-quality saltbush scrub habitat that consists of various privately-owned holdings within the existing reserve boundaries. Because this habitat is high quality, enhancement of these areas will be achieved through fencing and management activities. The purchase and fencing of these properties will protect the integrity of the reserve, and decrease the threat of unauthorized activities by adjacent land owners, including trespass grazing. All fencing activities required on these parcels will be funded by CDC and labor will be provided by CDC inmate crews or contracted to a local fencing company. Fencing will be maintained by CDFG, the managing entity for the Reserve.

In addition, CDC will enhance 800 acres of the existing reserve by restoring microtopography and planting native shrubs. Re-establishment of microtopograhy will improve habitat for the federally-listed San Joaquin kit fox, blunt-nosed leopard lizard, and Tipton kangaroo rat by providing burrowing opportunities and allowing native shrub communities to reestablish on the mounds which represent habitat for these species. CDFG has prepared a Biological Assessment for habitat enhancement activities for these federally listed species at the Allensworth Ecological Reserve and Pixley National Wildlife Refuge, and entered into a cooperative agreement with USFWS for these activities. A formal consultation was then conducted pursuant to Section 7(a)(2) of the Endangered Species Act, and an *Intra-service Biological Opinion on a Cooperative Agreement on Management of the Habitats on CDFG Allensworth Ecological Reserve and Pixley National Wildlife Refuge* was issued by USFWS on October 2, 1995. Under this opinion, USFWS authorized habitat enhancement, land management, and restoration activities on these lands with the understanding that they would result in incidental take of the above mentioned federally-listed species. However, enhancement activities must result in a verifiable benefit through habitat enhancement for listed species.

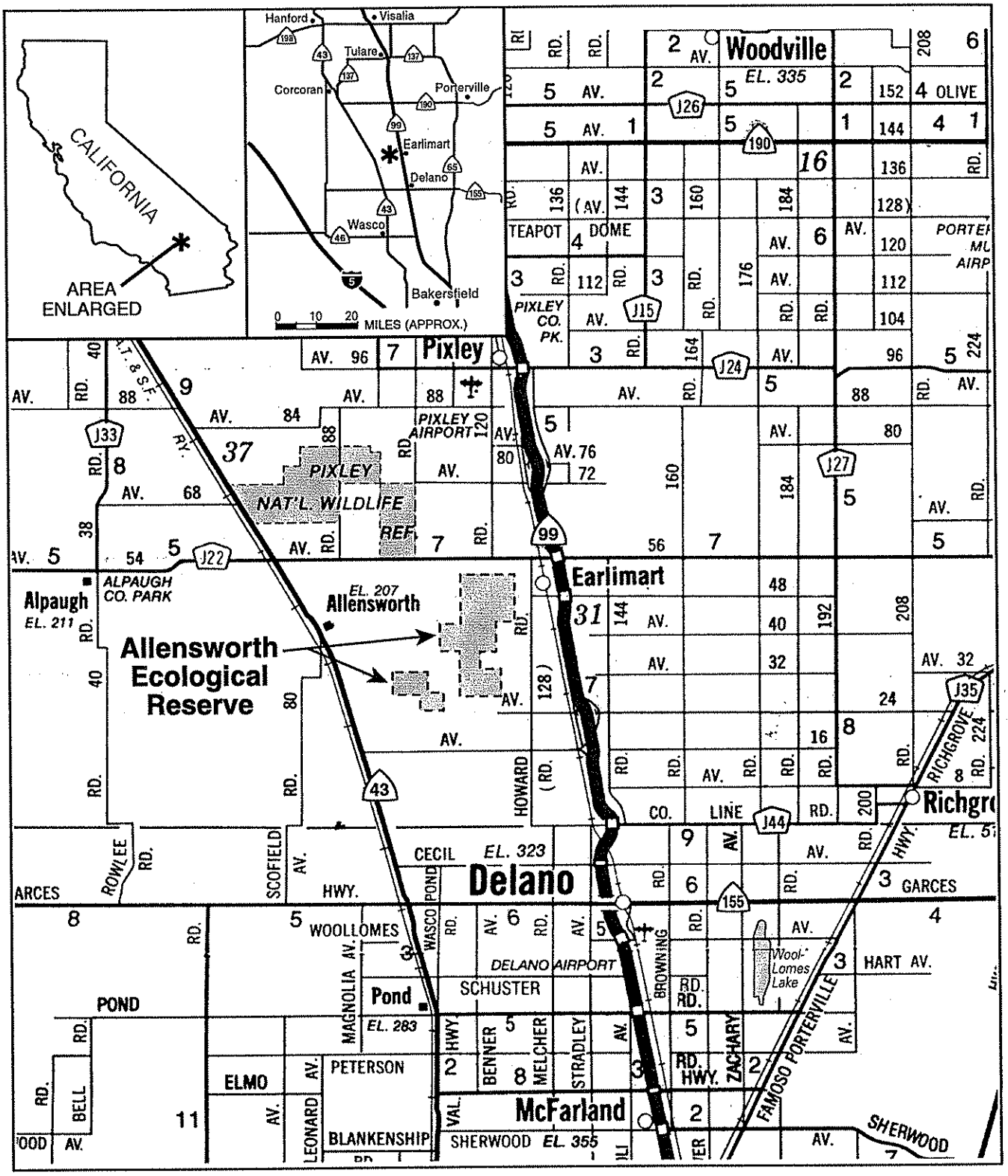
CDFG has already successfully enhanced 320 acres of the existing reserve under this cooperative agreement. All restoration activities conducted by CDC would comply with the terms and condition of this agreement and the biological opinion, including any subsequent revisions to the opinion. Restoration of microtopography would involve moving approximately 175,000 cubic yards of earth with heavy equipment to construct between 750 and 850 mounds and berms (linear mounds). The soil will be moved into irregular shapes and sizes varying in length from 10-200 feet, in height from one to five feet, and in width from 5-25 feet. Mounds will be formed and placed in locations to avoid creating areas of ponded water. A CDFG biologist will direct the equipment operators on the size, shape, and location of the berms or mounds to be created. After the mounds have been created, native vegetation will establish naturally or will be planted.

In areas that will require planting of native vegetation, as determined by a CDFG biologist, native shrubs and grasses will be planted, including iodine bush, valley saltbush, spiny saltbush, salt grass, alkali sacaton, and narrow-leaf milkweed (*Asclepias fascicularis*). Under CDFG supervision, plant species will be collected from the site and local vicinity (within 5 miles of the project site) as seeds, seedlings or plugs. Planting and/or propagation of plant materials will be conducted by CDC labor crews trained by a qualified restoration ecologist. CDC will fund a half-time Restoration Supervisor position for 4 years to conduct a portion of the monitoring and to manage restoration activities. CDC will also provide funding for 4 additional years of restoration monitoring.

Restoration will be conducted in two phases. All restoration activities conducted on the reserve will be monitored for 5 years following implementation or until performance criteria are met. (The second phase of restoration is expected to be completed in year 3 of the restoration program; therefore, monitoring will continue through year 8 of the program.) Should major remedial actions be required, the monitoring period will be extended until performance criteria have been met, to ensure the long-term success of mitigation activities. Performance criteria for restoration and enhancement activities will be developed as part of the final restoration plan and included as a component of the mitigation implementation agreement between CDC and CDFG. The restoration plan and mitigation implementation agreement will be reviewed and approved by USFWS and CDFG prior to finalization. Performance criteria will include both quantitative and qualitative criteria to measure the overall success of restoration and enhancement activities. If performance criteria are not achieved, then remedial actions will be undertaken after receiving CDFG and USFWS approval. An annual monitoring report will be prepared

and submitted to USFWS and CDFG. A final report will be submitted at the completion of the program (year 8, or later if extended by required remedial actions).

In summary, mitigation at Allensworth Ecological Reserve will consist of acquisition and enhancement (via management) of 282 acres to protect high-quality habitat, restrict disturbance, and improve connectivity within the reserve. Mitigation will also include restoration of an additional 800 acres of lower quality (degraded) habitat. CDC will fund the cost and transfer of lands to the reserve, initial enhancement/ restoration efforts and an endowment to CDFG for management of these lands in perpetuity. Refer to Table 5.2-2 for a summary of this mitigation.



Source: AAA Sequoia Area Map, 1991.

Allensworth Ecological Reserve

EXHIBIT 5.2-2

California Department of Corrections
Habitat Conservation Plan

0 2.5 5 MILES

NORTH

EDAW

Table 5.2-2
Summary of Mitigation on Allensworth Ecological Reserve

Acreage	
Acquisition and Enhancement	282 acres
Enhancement Only	800 acres
Total Acreage	1,082 acres
Restoration/Enhancement Activities	
Restoration/Enhancement	Restoration of 800 acres of laser-leveled farm land (via recreating natural micro-topography and plantings) and enhancement (via active management and fencing) of 282 acres of high quality saltbush scrub habitat
Restoration Design	Preliminary design plan prepared by CDFG
Monitoring	
Period	8 years
Conducted by	Restoration Supervisor; half time position for 4 years to conduct monitoring and manage restoration activities; CDC to provide funding to CDFG for monitoring for 4 additional years
Cost	$15,000/year Restoration Supervisor $5,000/year Monitoring
Management	
Period	In perpetuity
Conducted By	CDFG
Cost	$300/acre endowment (*for 282 acres of acquired land only*)
Responsibilities	
CDC	Provide funding for: ▸ acquisition and transfer of 282 acres to the reserve ▸ initial enhancement (282 acres) and restoration (800 acres) costs including: inmate labor, fencing, half-time restoration supervisor position, earth moving, direct nursery cost, permitting, preparation of final restoration design plan, and endowment to CDFG ▸ monitoring
CDFG	Provide: ▸ continued management of existing reserve land (800 acres) ▸ management of newly acquired 282 acres (using endowment provided by CDC) ▸ monitoring (conducted by CDC funded restoration supervisor for 4 years and using CDC monitoring funds for next 4 years)
State Budget Appropriated Amount	**$561,560**

CALIFORNIA CITY DESERT TORTOISE NATURAL AREA

CDC will acquire 80 acres of creosote bush scrub or saltbush scrub habitat within the Desert Tortoise Natural Area (DTNA) located near California City. The mitigation involves contribution of funding for acquisition and enhancement of creosote bush scrub habitat in the Mojave Desert. This 80-acre mitigation action will apply toward the 210-acre scrub/savanna compensation acreage target; plus, the entire 80 acres will apply toward the 2,163-acre raptor compensation acreage target (refer to the beginning of Section 5.2 and Appendix D).

The Desert Tortoise Natural Area (DTNA) is a federally-designated 39.5 square mile nature preserve and Area of Critical Environmental Concern located in the eastern area of Kern County, California (Exhibit 5.2-3). The Desert Tortoise Preserve Committee, Inc. (DTPC), a California not-for-profit, tax-exempt 501(c)(3) corporation established in 1974, in conjunction with the Bureau of Land Management, is the leading conservation agency involved in land acquisition, habitat protection, and public education activities at the DTNA for the benefit of the federally and state-listed Threatened desert tortoise and Mohave ground squirrel, among other sensitive plant and animal species.

Within the DTNA, the DTPC operates a Mitigation Land Bank which facilitates public/private partnerships in protecting sensitive habitat within the DTNA boundaries through active acquisition and management of "compensation" lands under state Section 2081(b) and federal Section 10(a)(1)(B) incidental take permits.

A key function of the DTPC in its Mitigation Land Bank is to locate difficult-to-acquire habitat within the DTNA owned by willing sellers and then offer the acquisition opportunity to public or private entities seeking desert tortoise and/or Mojave ground squirrel offsite mitigation opportunities. Once the DTPC acquires habitat for these purposes, the land is held in fee title by the DTPC, and a conservation easement or other protective covenant and restriction mechanism is attached to the deed so that the land is managed, in perpetuity, for wildlife habitat values.

CDC will provide funding to the DTCP for purchase of 80 acres of creosote bush scrub habitat. CDC will also pay the DTCP-required fees for short-term enhancement activities ($100/acre) and long-term management of the land ($95/acre, put into an endowment fund). Short-term enhancement activities conducted by the DTPC include: removal of non-native plant species, weeds, hazards, and man-made litter and other obstructions; a survey of the biological and management conditions of the habitat; and repair of protective fencing or other protective devices that assist in limiting unmonitored access to the compensation land site. Long-term management activities may include: establishment of a long-term, photo-monitoring program to assess the condition of and changes to habitat over time; construction of protective fencing and other devices to limit unmonitored access to the site; public education, outreach, and interpretive programs to sensitize visitors and nearby residents of the resource issues and values; and habitat restoration utilizing native plant species and non-intrusive, low-impact restoration techniques.

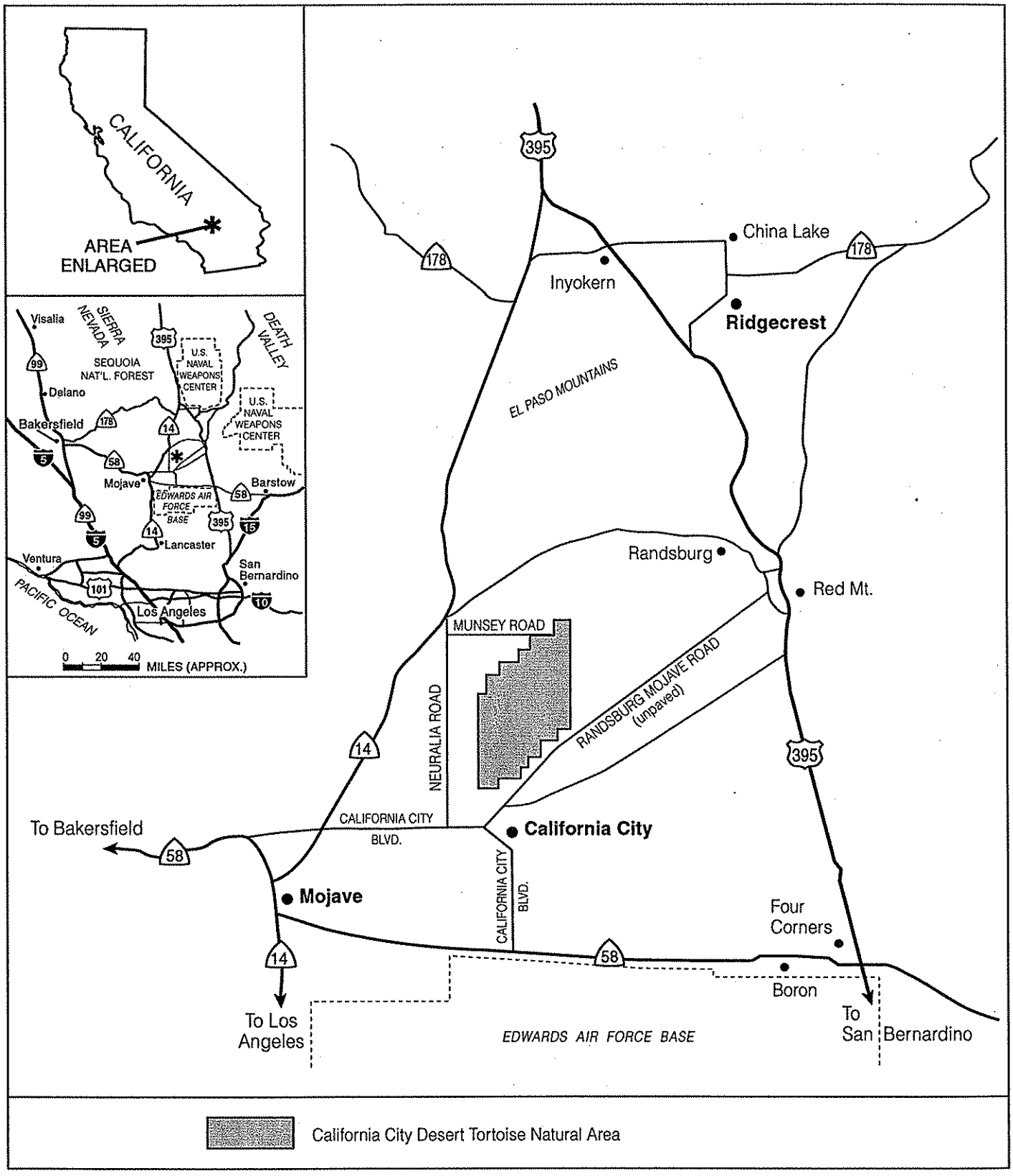
Three habitat types have been identified on the DTNA, including creosote bush scrub, saltbush scrub, and Joshua tree woodland. Creosote bush scrub occupies approximately 33 square miles and is dominated by creosote bush (*Larrea divaricata*). Other less dominant species include burrobush (*Ambrosia dumosa*), goldenhead (*Acamptopappus sphaerocephalus*), cheesebush (*Hymenoclea salsola*), winterfat (*Ceratoides lanata*), Anderson thornbush (*Lycium andersonii*), spiny hopsage (*Grayia spinosa*), and peach thorn (*Lycium cooperi*).

Saltbush scrub occurs over approximately 2 square miles of the natural area and is dominated by allscale (*Atriplex polycarpa*), shadscale (*Atriplex confertifolia*), scalebroom (*Lepidospartum squamatum*), thunder sandpaper plant (*Petalonyx thurberi*), and cheesebush.

Joshua tree woodland is found on the western Rand Mountains and occupies approximately 3 square miles of the natural area. Vegetation found in this habitat is similar to the creosote bush scrub habitat but has a more diverse understory and is dominated by Joshua tree (*Yucca brevifolia*).

Common wildlife species that are known to occur within the natural area include western whiptail (*Cnemidophorus tigris*), Mohave rattlesnake (*Crotalus scutulatus*), red-tailed hawk (*Buteo jamaicensis*), cactus wren (*Campylorhynchus brunneicapillus*), desert kangaroo rat (*Dipodomys deserti*), coyote (*Canis latrans*), and American badger (*Taxidea taxus*). A total of 19 ESA/CESA-covered species are expected to benefit from the acquisition and enhancement actions (refer to Tables 5.2-1 and 5.2-14). Of these, one is a federally-listed species, the desert tortoise (*Gopherus agassizi*). One is a state-listed only species, the Mohave ground squirrel (*Spermophilus mohavensis*).

In summary, mitigation at the California City Desert Tortoise Natural Area will consist of acquisition, enhancement, and management of 80 acres of creosote bush scrub and/or saltbush scrub habitat. CDC will provide the appropriate level of funding to acquire, enhance, and manage the land. Refer to Table 5.2-3 for a summary of this mitigation.



California City Desert Tortoise Natural Area

EXHIBIT 5.2-3

California Department of Corrections
Habitat Conservation Plan

0 5 10 MILES

NORTH

EDAW

Table 5.2-3
Summary of Mitigation at California City Desert Tortoise Natural Area
(Private Mitigation Bank)

Acreage	
Acquisition and Enhancement	80 acres
Enhancement Only	None
Total Acreage	80 acres
Restoration/Enhancement Activities	
Restoration/Enhancement	Restoration and enhancement (via active management; fencing; elimination or control of vehicle use, grazing, mining, and dumping; surveillance; and implementation of a Natural History Program) of 80 acres of creosote bush scrub and/or saltbush scrub habitat
Restoration Design	Provided by the Desert Tortoise Natural Area
Monitoring	
Period	In perpetuity (conducted 3 times per year)
Conducted By	Desert Tortoise Preserve Committee, Inc.
Cost	Included as part of the management endowment
Management	
Period	In perpetuity
Conducted By	Desert Tortoise Preserve Committee, Inc.
Cost	$95/acre endowment
Responsibilities	
CDC	Provide a one time fee of $52,400 to the Desert Tortoise Preserve Committee, Inc. to: ▸ acquire 80 acres of land ▸ restore and enhance the 80 acres ▸ conduct monitoring ▸ provide long-term management
Desert Tortoise Preserve Committee, Inc.	Use funding provided by CDC to: ▸ acquire the land ▸ restore and enhance the land ▸ conduct monitoring ▸ provide long-term management
State Budget Appropriated Amount	**$52,400**

HUMBOLDT BAY NATIONAL WILDLIFE REFUGE

CDC will undertake habitat acquisition, restoration, and enhancement efforts at properties adjacent to the Lanphere Dune Preserve, which was previously owned and managed by The Nature Conservancy (TNC) but is now part of the USFWS Humboldt Bay National Wildlife Refuge. The mitigation actions include acquisition of two privately-owned parcels totaling 180 acres of coastal dune/forest mosaic, restoration of portions of the same two parcels (98 acres), and enhancement via active management of both parcels. This mitigation site exceeds the 108-acre montane/coastal forest compensation acreage target, and the entire 180 acres will apply toward the 2,163-acre raptor compensation acreage target (refer to the beginning of Section 5.2 and Appendix D).

The Humboldt Bay National Wildlife Refuge is located near the cities of Arcata and Eureka in Humboldt County (Exhibit 5.2-4). The refuge was established in 1970 to conserve and protect bay wetlands used by a variety of migratory waterfowl and shorebirds, and to protect and enhance habitat for federally-listed endangered and threatened plant and animal species. The Lanphere Dunes Unit (Unit), which was just acquired from TNC, is now being managed by USFWS under the Refuge Recreation Act, with emphasis on conservation of federally and state-listed species.

CDC will acquire two parcels adjacent to the Lanphere Dunes Unit from private landowners. Both of these parcels, the Bair and Woll parcels, will be purchased by CDC and turned over to USFWS as part of the refuge. Both of these parcels are currently in open space and consist of six habitat types: beach, foredunes, dune hollows, moving dunes, deciduous swamps, and coastal forest (Pickart 1997).

Foredunes include the semi-stable system of dune ridges between the beach and the "deflation plain" (i.e., the area of wind erosion). The first dune, the primary dune, supports native dunegrass vegetation that is dominated by dune grass (*Leymus mollis*). This plant community is globally endangered and occurs in only two remaining locations in California--at Humboldt Bay and Point Reyes. The foredunes at the Lanphere Dunes Unit support the best remaining example of this plant community in the world. Other plant species that also occur in this habitat include beach blue grass (*Poa douglasii*), beach bur (*Ambrosia chamissonis*), beach pea (*Lathyrus littoralis*), beach strawberry (*Fragaria chiloensis*), and sand verbena (*Abronia latifolia*). Behind the primary foredune, vegetation is dominated by sand verbena and beach bursage, also known as dune mat. Plant species diversity is higher in this habitat than in the foredunes. Other species that occur in this habitat include beach goldenrod (*Solidago spathulata*), beach buckwheat (*Eriogonum latifolium*), and beach evening primrose (*Camissonia cheiranthifolia*).

Dune hollows are seasonal, freshwater wetlands that form behind large dunes. During periods of strong prevailing winds (spring-summer), the sand surface in these areas erodes down to the summer water table. The water table rises in the winter, creating ephemeral ponds. There are two different types of dune hollows, herbaceous and woody. Herbaceous hollows are dominated by dune sedge (*Carex obnupta*), with associated species including Pacific silverweed (*Potentilla anserina*), springbank clover (*Trifolium wormskjoldii*), bird's-foot trefoil (*Lotus purshiana*), sickle-leaved rush (*Juncus falcatus*), spike rush (*Eleocharis palustris*), and cotton-batting plant (*Gnaphalium chilense*). Woody hollows are dominated by either Hooker willows (*Salix hookeriana*) or beach pine (*Pinus contorta* ssp. *contorta*).

Deciduous swamps occur between moving dunes and the stabilized forest, where groundwater drainage from the moving dunes collects in low lying areas. Willows, such as Hooker willow and red willow (*Salix lasiandra*), and wax myrtle (*Myrica californica*) are the dominant canopy species of this habitat.

Coastal forest occurs on the older, stabilized dunes inland from the moving dunes. The forest canopy is dominated by beach pine and Sitka spruce (*Picea sitchensis*), with a few scattered Douglas fir (*Pseudotsuga menziesii*), grand fir (*Abies grandis*), and madrone (*Arbutus menziesii*). In some areas, a dense shrub layer occurs which is composed of black huckleberry (*Vaccinium ovatum*), silk tassel (*Garrya elliptica*), and sala (*Gaultheria shallon*), with a few twinberry (*Lonicera involucrata*), red flowering currant (*Ribes sanguineum*) and wax myrtle.

Because the coastal forest is composed of a higher diversity of vegetation, it has the greatest wildlife diversity of the dune habitats. Common species found in this habitat include gray fox (*Urocyon cinereoargenteus*), striped skunk (*Mephitis mephitis*), long-tailed weasel (*Mustela frenata*), western harvest mouse (*Reithrodontomys megalotis*), mourning dove (*Zenaida macroura*), slender salamander (*Batrachoseps attenuatus*), and Ensatina salamander (*Ensatina eschscholtzii*). The beach is used extensively by many gull species, including California gull (*Larus californicus*), and several raptors, including northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), sharp-shinned hawk, red-shouldered hawk (*Buteo lineatus*), and bald eagle (*Haliaeetus leucocephalus*). The dune hollows and deciduous swamp habitat supports a high abundance and diversity of bird species, including many migratory birds; these include, but are not limited to, white-crowned sparrow (*Zonotrichia leucophrys*), ruby-crowned kinglet (*Regulus calendula*), northern oriole (*Icterus galbula*), Hutton's vireo (*Vireo huttoni*), and pine siskin (*Carduelis pinus*). Yellow-rumped warbler (*Dendroica coronata*), a migratory bird and HCP target species for montane/coastal forest, is known to nest and forage in the coastal forest habitat on the site (Pickert, pers. comm., 1998).

A total of 23 ESA/CESA-covered species are expected to benefit from the acquisition and enhancement actions (refer to Tables 5.2-1 and 5.2-14). Of these, three are federally listed: brown pelican *Pelecanus occidentalis californicus*), bald eagle (*Haliaeetus leucocephalus*), and western snowy plover (*Charadrius alexandrinus nivosus*).

Following acquisition of the land, CDC will obtain a California Coastal Commission permit prior to restoration and enhancement of foredune and coastal forest habitats. Restoration and enhancement will include removal of two non-native invasive plant species common in the foredune habitat: European beachgrass (*Ammophila arenaria*) and yellow bush lupine (*Lupinus arboreus*). Invasive species in the coastal forest that will also be removed are English ivy (*Hedera helix*) and German ivy (*Senecio mikanioides*).

European beachgrass occupies approximately 1 acre of the Bair parcel and 9 acres of the Woll parcel. All European beachgrass will be removed from both parcels. The yellow bush lupine, a shrub native to southern California, has invaded the foredune habitat behind the primary dune. This species was introduced to Humboldt County in 1908 and has since naturalized and spread. The yellow bush lupine is a nitrogen fixer that causes dramatic elevations in soil nutrients (USFWS 1997). The increased nutrients facilitate encroachment of secondary invading plant species, some of which are native to the region, but are not ordinarily found on the dune. These include coyote brush (*Baccharis pilularis*) and beeplant (*Scrophularia californica*). There are approximately 25 acres of yellow bush lupine and associated secondary invasive plants on the Bair parcel and 50 acres on the Woll parcel. All yellow bush lupine and associated secondary plants will be removed from these parcels.

Two parcels, totaling 180 acres of coastal dune and forest habitat, will be acquired. As described above, 98 acres of those 180 acres will be restored through the removal of exotic pest plant species and revegetation with native species. (Eighty-five of the 98 restoration acres consist of foredune habitat and

13 acres are coastal forest.) The following discussion of restoration phasing and monitoring refers to the collective 98 acres slated for restoration.

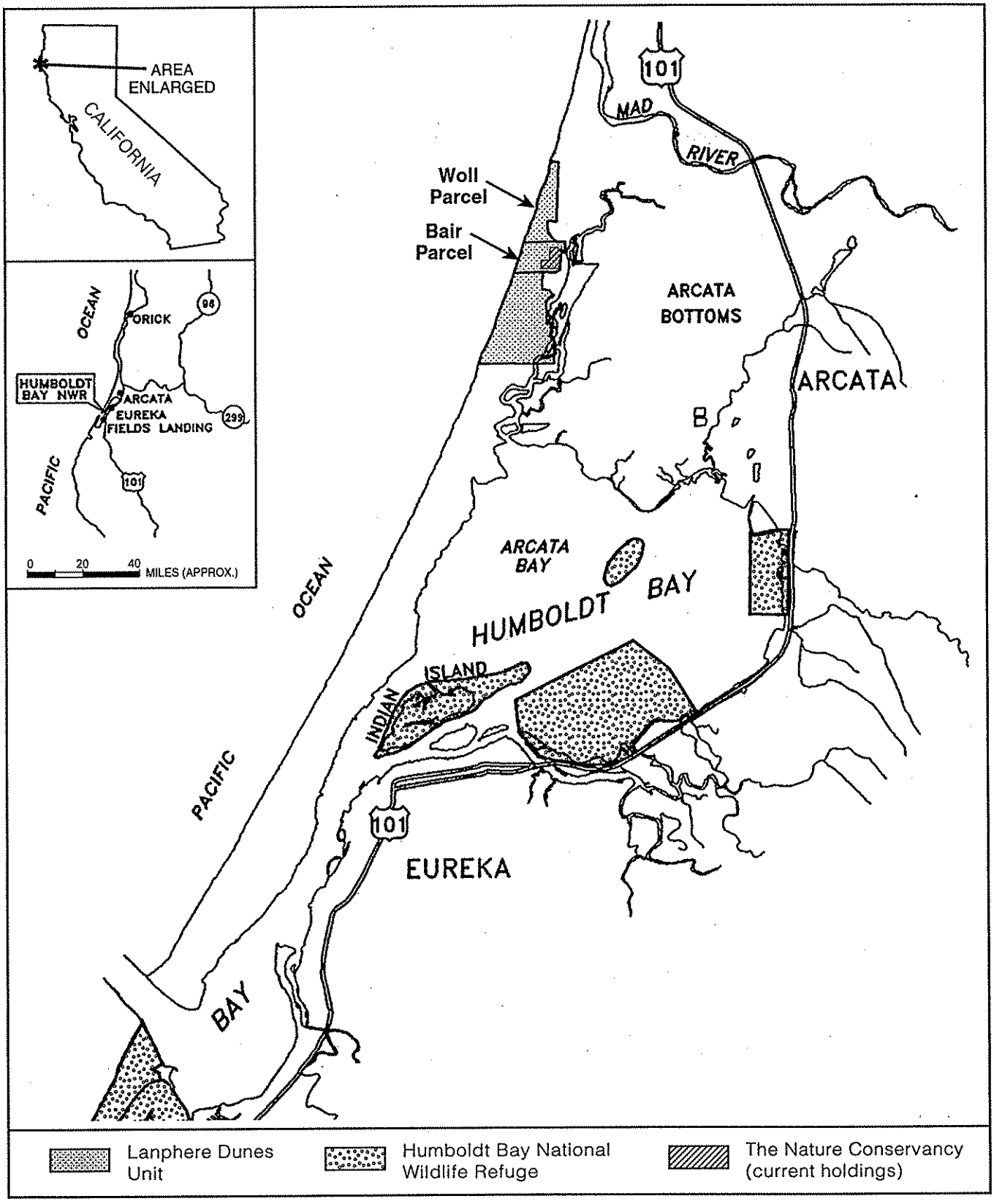
Restoration protocols will follow those already successfully pioneered by The Nature Conservancy at the Lanphere Dunes. Given the magnitude of required removal efforts, restoration implementation will be conducted in two (three-year) phases. In the first phase, non-native plants will be removed from approximately half (49 acres) of the restoration area. During the next two years--the second year of the program and the beginning of the third--work crews will revisit removal areas and continue to remove any germinating or resprouting non-native plants. Revegetation with native plant species will occur in the third year, after removal efforts have been completed.

The second phase of restoration implementation will begin in the fourth year of the restoration program, and will follow the protocol outlined above for the first phase. Non-native plants will be removed from the remaining half (approximately 49 acres) of the restoration area. Germinating non-natives will continue to be removed during the second and third years of the second phase; revegetation will occur in the third year of the second phase (year 6 of the overall restoration program.) Please refer to Table 5.2-4 for clarification of the restoration schedule.

All labor associated with restoration (removal of non-native plants and revegetation with native plants) will be conducted by CDC inmate crews, CCC labor crews, volunteers, or a contracted restoration specialist. Native plant revegetation will be conducted using plants propagated from seed collected on site. Plant propagation will be conducted by CDC inmate crews or by a private contractor. CDC will fund a seven-year Restoration Supervisor position to manage restoration efforts and conduct required monitoring during those seven years. CDC will also provide funding for fencing approximately 4,500 linear feet of the existing Lanphere Dunes unit to reduce habitat degradation resulting from off-road vehicle activity.

The planned restoration effort is an 11 year program (see Table 5.2-4). Restoration implementation is planned for two three-year-long phases. Restoration activities in each phase will be monitored for five years following implementation of the phase, or until performance criteria are met. Should major remedial actions be required, the monitoring period will be extended until performance criteria have been met, to ensure the long-term success of mitigation activities. Monitoring will be conducted by the CDC-funded Restoration Supervisor in years 3 through 7 of the program. For the final four years of the restoration program, CDC will fund required monitoring activities, which will be conducted by USFWS staff or a CDC contractor. Performance criteria for restoration and enhancement activities will be developed as part of the final restoration plan and included as a component of the mitigation implementation agreement between CDC and USFWS. The restoration plan and mitigation implementation agreement will be reviewed and approved by USFWS and CDFG prior to finalization. Performance criteria will include both quantitative and qualitative criteria to measure the overall success of restoration and enhancement activities. If performance criteria are not achieved, then remedial actions will be undertaken after receiving approval from USFWS and CDFG. An annual monitoring report will be prepared and submitted to USFWS and CDFG. A final report will also be prepared and submitted at the completion of the program (i.e., after all performance criteria have been met).

In summary, mitigation at Humboldt Bay National Wildlife Refuge comprises 180 total acres, and includes acquisition and title transfer of 180 acres, restoration and enhancement of foredune and coastal forest on 98 of the 180 acres, and funding for fencing. Refer to Table 5.2-5 for a summary of this mitigation.



Source: USFWS 1997.

Humboldt Bay National Wildlife Refuge - Lanphere Dunes Unit

EXHIBIT 5.2-4

California Department of Corrections
Habitat Conservation Plan

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NORTH

EDAW

Table 5.2-4
Restoration Program Timeline for Mitigation at the Humboldt Bay National Wildlife Refuge

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Phase 1										
Remove exotics – first half (49 acres)	Continue removal	Continue removal								
		Revegetate								
		Begin monitoring Phase 1	Continue monitoring	Continue monitoring	Continue monitoring	Continue monitoring	Complete monitoring Phase 1			
			1st year monitoring report– Phase 1	2nd year monitoring report– Phase 1	3rd year monitoring report– Phase 1	4th year monitoring report– Phase 1	Final monitoring report– Phase 1			
			Phase 2							
			Remove exotics– second half (49 acres)	Continue removal	Continue removal					
					Revegetate					
					Begin monitoring Phase 2	Continue monitoring	Continue monitoring	Continue monitoring	Continue monitoring	Complete monitoring Phase 2
						1st year monitoring report– Phase 2	2nd year monitoring report– Phase 2	3rd year monitoring report– Phase 2	4th year monitoring report– Phase 2	Final monitoring report– Phase 2
CDC-funded Restoration Supervisor (includes monitoring)										
							CDC-funded monitoring			

Table 5.2-5
Summary of Mitigation at Humboldt Bay National Wildlife Refuge

Acreage	
Acquisition and Enhancement	180 acres
Enhancement Only	None
Total Acreage	180 acres
Restoration/Enhancement Activities	
Restoration/Enhancement	Restoration of 85 acres of foredune habitat and 13 acres of coastal forest habitat, with enhancement via active management (fencing, preventing disturbance by off-road vehicles, etc.) of an additional 82 acres.
Restoration Design	Preliminary design plan provided by The Nature Conservancy
Monitoring	
Period	8 consecutive years (5 years/phase; 2 years overlap)
Conducted By	Restoration Supervisor; half time position for 7 years to manage 6 years of restoration activities, over-lapping with 4 years of monitoring; CDC will provide funding for monitoring the remaining 4 years.
Cost	$20,000/year (Restoration Supervision); $5,000 (Monitoring only)
Management	
Period	In perpetuity
Conducted By	USFWS
Cost	None - property will be managed by USFWS as part of the Humboldt Bay National Wildlife Refuge
Responsibilities	
CDC	Provide funding for: ▸ acquisition and transfer of 180 acres to the refuge ▸ initial restoration and enhancement costs including: inmate labor, half-time restoration supervisor, duff containment, direct nursery cost, preparation of the restoration design plan, and fencing ▸ land survey (to determine property boundary) ▸ aerial photo and topographic maps ▸ California Coastal Commission permit
USFWS	Provide: ▸ management of the newly acquired 180 acres ▸ monitoring (conducted by CDC funded restoration supervisor for 4 years and using CDC monitoring funds for next 4 years)
State Budget Appropriated Amount	**$560,170**

KERN RIVER PRESERVE

CDC will acquire and/or enhance a total of 23 acres of riparian and wetland habitat near the Kern River in Kern County (21 acres of riparian, 2 acres of wetland). Twelve of these acres are currently privately-owned riparian habitat that will be purchased and transferred to Audubon California to be added to their Kern River Preserve. An additional 9 acres of riparian habitat and approximately 2 acres of wetland habitat will be created or enhanced on the existing Kern River Preserve. In addition, CDC will fund a management position at the Kern River Preserve to further benefit riparian habitat and species. The 21 acres of riparian woodland partially achieves the 30-acre riparian compensation acreage target, and it applies toward the 2,163-acre raptor compensation acreage target (refer to the beginning of Section 5.2 and Appendix D). The two acres of wetlands contribute toward the 15-acre wetland target.

The Kern River Preserve is located along the south fork of the Kern River, approximately 60 miles northeast of Bakersfield (Exhibit 5.2-5). The preserve is near the southern terminus of the Sierra Nevada, and has elevations ranging from 2600 to 2700 feet. The south fork of the Kern River flows east to west through the preserve, and the rich alluvial soils and high water table support a dense growth of riparian trees and shrubs. The preserve encompasses 1,127 total acres, including 869 acres of riparian forest and 250 acres of non-native grassland that is currently leased for cattle grazing. Several small irrigation ditches and a beaver pond are also present on the preserve. The riparian habitat onsite, classified as Great Valley cottonwood riparian forest, is of high quality, and is the largest contiguous example of this habitat remaining in California (CNDDB 1997). Riparian habitat on the preserve is dominated by Fremont's cottonwood (*Populus fremontii*), yellow willow (*Salix lasiandra*), red willow (*Salix laevigata*), stinging nettle (*Urtica holoserica*), and mulefat (*Baccharis vimenea*).

A number of common wildlife species are known to occur on the preserve, including western fence lizard (*Sceloporus occidentalis*), red-winged blackbird, northern oriole, wood duck (*Aix sponsa*), red-shouldered hawk, California ground squirrel (*Spermophilus beecheyi*), beaver (*Castor canadensis*), dusky-footed woodrat (*Neotoma fuscipes*), and coyote.

A total of 26 ESA/CESA-covered species are expected to benefit from the acquisition and enhancement actions (refer to Tables 5.2-1 and 5.2-14). Of these, one species is federally-listed: southwestern willow flycatcher (*Empidonax trailli extimus*). Another two are state-listed only species: Swainson's hawk (*Buteo swainsoni*) and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*).

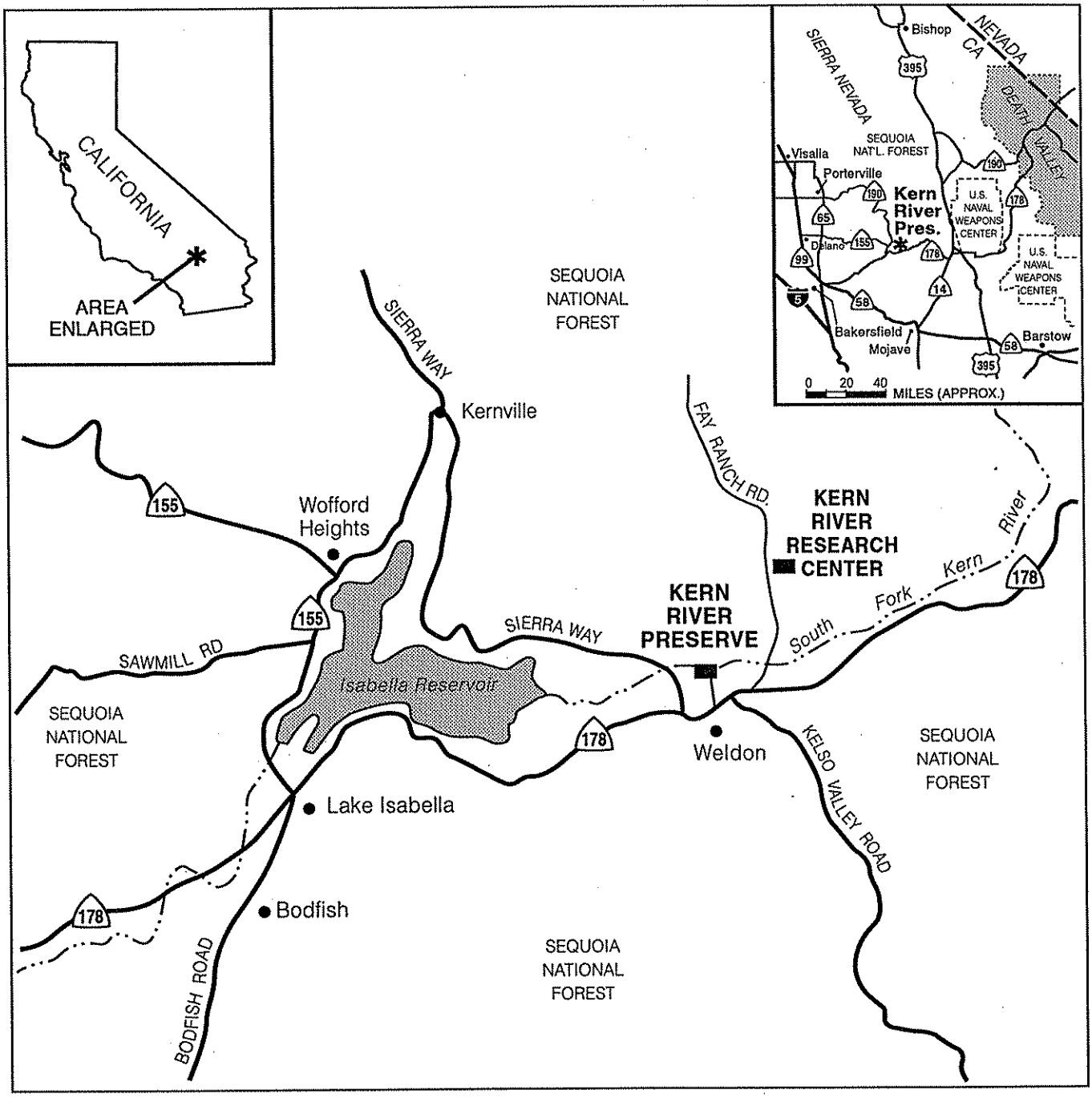
CDC will acquire and enhance 12 acres of riparian habitat and create/enhance an additional 9 acres of riparian and 2 acres of wetland habitat. The 12 acres of riparian habitat will be acquired adjacent to Audubon's existing Kern River Preserve and enhanced via planting of riparian species. An additional 9 acres of riparian and 2 acres of wetland habitat will be created on existing Kern River Preserve lands. Enhancement and restoration will occur on two parcels: the Sierra field and the Prince field. Restoration of approximately 9 acres of riparian habitat on the Sierra field will take place through the creation of a riparian strip (approximately 200 feet wide and 2000 feet long) through the middle of the field. Approximately 1.5 acres of wetlands will be created on the Sierra field and ½ acre on Prince field. Enhancement will include fencing the riparian and wetland restoration areas to exclude grazing. Wetland habitat will be created by excavating depressions that intercept the water table. Once the depressions are excavated, wetland species including cattails (*Typha latifolia*), tules (*Scirpus californicus*), and yerba mansa (*Anemopsis californica*) are expected to naturally colonize the wetlands. In addition, planting of wetland species will be undertaken by Audubon California.

Riparian areas will be planted with cuttings and/or poles of Fremont's cottonwood and red willow collected from the preserve during the dormant period. Cuttings and/or poles will be planted during January and February and irrigated as needed through the first season.

In addition to acquisition and restoration of riparian habitat and the creation/enhancement of wetlands on the preserve, CDC will fund a management position to further benefit riparian habitats and species. This three-quarter time position will be funded for 5 years. In April 1998 the National Audubon Society signed a Memorandum of Understanding with the U.S. Army Corps of Engineers and USFWS that will result in Audubon California acquiring and managing a minimum of 360 additional acres of riparian habitat in the Kern River Valley. The site manager funded by CDC will assist the management of these lands as well as the restoration efforts at the existing preserve. Maintenance activities on the new parcels, as well as on the whole preserve, will include removal of exotic plant species, fencing and fence maintenance, patrol of the preserve, and mitigation monitoring. CDC will purchase all fencing supplies.

A detailed restoration and enhancement plan will be developed by CDC, with assistance from Audubon California. This plan will identify locations for riparian plantings and wetland creation/enhancement, planting methods, and maintenance activities. All restoration activities conducted on the preserve will be monitored for five years following implementation, or until performance criteria are met. Should major remedial actions be required, the monitoring period will be extended until performance criteria have been met to ensure the long-term success of mitigation activities. Performance criteria for restoration and enhancement activities will be developed as part of the final restoration plan and included as a component of the mitigation implementation agreement between CDC and Audubon California. The restoration plan and mitigation implementation agreement will be reviewed and approved by USFWS and CDFG prior to finalization. Performance criteria will include both quantitative and qualitative criteria to measure the overall success of restoration and enhancement activities. If performance criteria are not achieved, then remedial actions will be undertaken after receiving approval from USFWS and CDFG. An annual monitoring report will be prepared and submitted to USFSW and CDFG. A final report will be submitted at the completion of the program (year 5, or later if extended by required remedial actions.)

In summary, mitigation at the Kern River Preserve will consist of acquiring, enhancing, and/or restoring a total of 21 acres of riparian habitat and 2 acres of wetland habitat. CDC is also funding a 3/4-time management position that will oversee these parcels and help to implement enhancement activities on other areas of the preserve. Refer to Table 5.2-6 for a summary of this mitigation.



Kern River Preserve

EXHIBIT 5.2-5

California Department of Corrections
Habitat Conservation Plan

0 2.5 5 MILES

NORTH

EDAW

Table 5.2-6
Summary of Mitigation at Kern River Preserve

Acreage	
Acquisition and Enhancement	12 acres
Enhancement Only	11 acres
Total Acreage	23 acres
Restoration/Enhancement Activities	
Restoration/Enhancement	Restoration of 21 acres of riparian and 2 acres of wetland habitat
Restoration Design	Preliminary restoration designs provided by Audubon California
Monitoring	
Period	5 years
Conducted By	Audubon California
Cost	$5,000/year
Management	
Period	In perpetuity
Conducted By	Audubon California
Cost	Initially, 3/4-time position for 5 years at $30,000/year, funded by CDC; Audubon California will continue to manage the Sanctuary and will incur the cost for full time site steward following the CDC funded 5 year term
Responsibilities	
CDC	Provide funding for: ▸ 12 acres of riparian woodland acquisition, 9 acres of riparian enhancement, and 2 acres of wetland creation/enhancement ▸ initial enhancement and restoration costs including: earthwork, fencing, equipment rental, planting of riparian species, and preparation of final restoration design plan ▸ management position ▸ monitoring
Audubon California	Provide: ▸ continued management of the existing preserve (with assistance from CDC funded management position)
State Budget Appropriated Amount	**$293,100**

MAYACAMA MOUNTAINS SANCTUARY

CDC will undertake a habitat restoration and enhancement effort at the Mayacama Mountains Sanctuary. This mitigation involves a total of 250 acres of enhancement (via fencing and active management) of oak woodland habitat. Additional enhancement of oak woodland habitat (via planting of oak seedlings), and of grassland and riparian habitat, will also be undertaken on portions of the site. CDC will also fund a full-time site steward to continue restoration efforts and conduct routine maintenance and annual monitoring. This mitigation site exceeds the 147-acre mixed oak woodland compensation acreage target, and the entire 250 acres will apply towards the 2,163-acre raptor compensation acreage target (refer to the beginning of section 5.2 and Appendix D).

Mayacama Mountains Sanctuary is a 1,400-acre sanctuary in Sonoma County that is owned by Audubon California (Exhibit 5.2-6). Audubon California purchased the property in 1994, at which time they entered into a conservation agreement with the Sonoma County Agricultural Preservation and Open Space District (District) to keep the property as open space. The purpose of this agreement is "to preserve the open space, natural, and scenic values of the property and to prevent use of the property that will significantly impair or interfere with those values." The sanctuary supports three habitat types, including mixed oak/pine woodland, non-native grassland, and riparian habitat.

The primary habitat type on the sanctuary is mixed oak/pine woodland and savanna, comprised predominately of interior live oak (*Quercus agrifolia*), blue oak (*Quercus douglasii*), black oak (*Quercus kelloggii*), ponderosa pine (*Pinus ponderosa*), and foothill pine (*Pinus sabiniana*).

Non-native annual grasslands and savanna understory consist of non-native grasses and other herbaceous species, including wild oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), barley (*Hordeum* sp.), Italian rye grass (*Lolium multiflorum*), and yellow star thistle (*Centaurea solstitialis*) in some areas. Riparian habitat occurs along Sulphur Creek and its tributaries, which traverse the northern portion of the project site. The majority of riparian vegetation is dominated by stands of interior live oak and arroyo willow (*Salix lasiolepis*). The understory is dominated by shrubby species including coyote brush and poison oak (*Toxicodendron diversilobum*).

Mixed oak/pine woodland supports a wide diversity of bird and mammal species. Avian species known to occur include red-tailed hawk, California quail (*Callipepla californica*), acorn woodpecker (*Melanerpes foricivorus*), yellow-rumped warbler (*Dendroica coronata*), northern oriole (*Icterus gabula*), and loggerhead shrike (*Lanius ludovicianus*). Several mammal species are known to occur regularly in this habitat type as well as in the non-native grassland. These include mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*).

A total of 18 ESA/CESA-covered species are expected to benefit from the enhancement actions (refer to Tables 5.2-1 and 5.2-14). Although there are a number of California Species of Special Concern and protected raptors that would be benefitted, none of the 18 ESA/CESA covered species are federally or state-listed.

CDC will fund a 5-year site steward position to manage and enhance the sanctuary's ecosystems. CDC will also develop a detailed restoration and management plan for the sanctuary, with assistance from Audubon California. This plan will guide the site steward's activities. The plan will include fencing of 250 acres of the sanctuary to reduce impacts from off-road vehicles, trespass grazing, and other sources. Among the other enhancement actions anticipated are restoration of oak woodland through planting of oak seedlings, and grassland and riparian habitat restoration. All restoration activities conducted on the

sanctuary will be monitored for five years following implementation, or until performance criteria are met. Should major remedial actions be required, the monitoring period will be extended until performance criteria have been met, to ensure the long-term success of mitigation activities. Performance criteria for restoration and enhancement activities will be developed as part of the final restoration plan and included as a component of the mitigation implementation agreement between CDC and Audubon California. The restoration plan and mitigation implementation agreement will be reviewed and approved by USFWS and CDFG prior to finalization. Performance criteria will include both quantitative and qualitative criteria to measure the overall success of restoration and enhancement activities. If performance criteria are not achieved, then remedial actions will be undertaken after receiving approval from CDFG and USFWS. An annual monitoring report will be prepared and submitted to USFWS and CDFG. A final report will be submitted at the completion of the program (year 5, or later if extended by required remedial actions.)

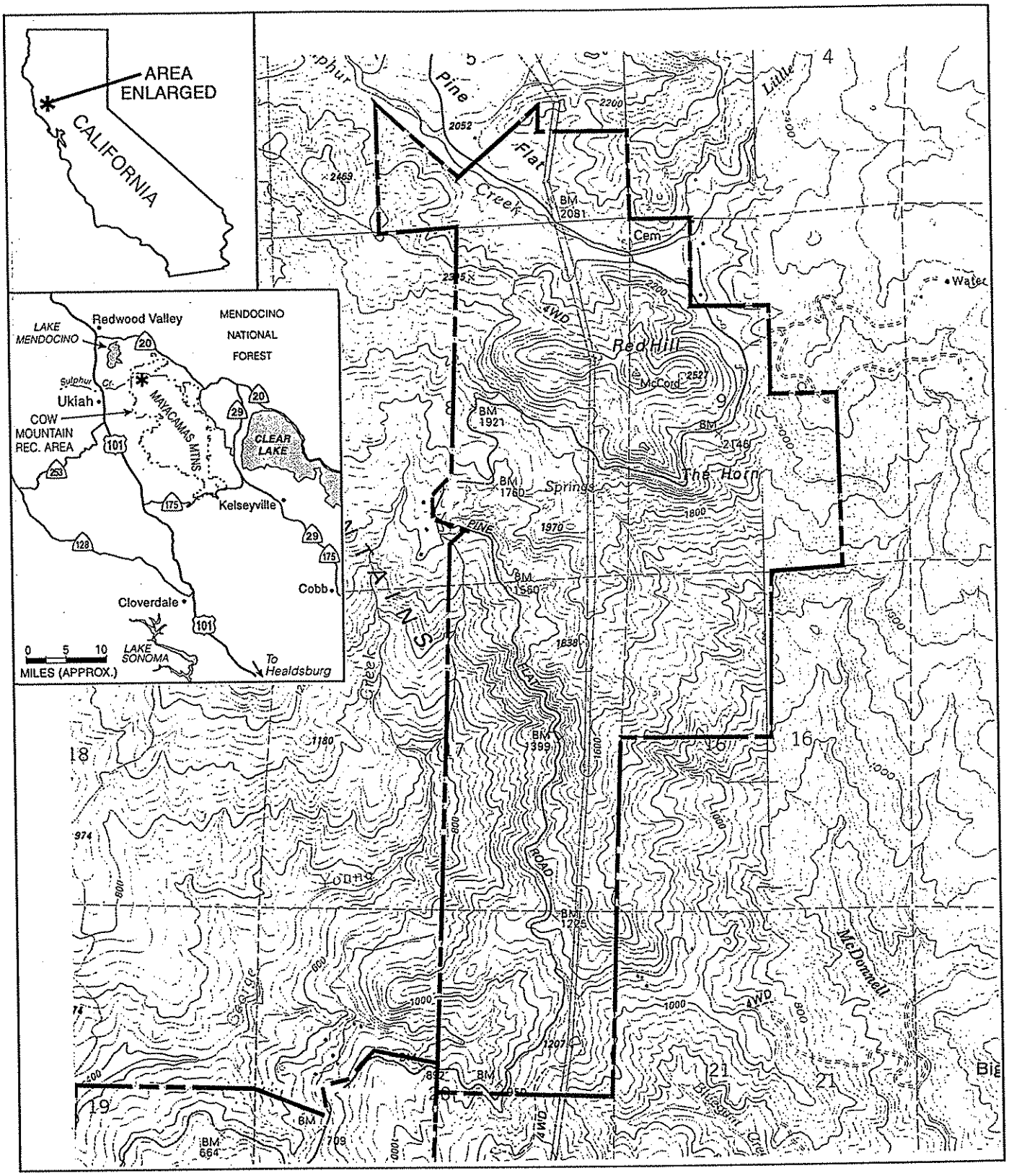
Oak woodland restoration will consist of collecting acorns onsite in the fall that will be stored until the planting season. Acorns will be collected from the trees or from the ground; those that are lightweight, dried, or insect damaged will be discarded. Acorns will be stored in polyethylene bags to maintain moisture content, which is critical for germination. During the following year seedlings will be planted as early in the fall as possible. This will ensure seedling establishment before the onset of summer drought. All planting will be completed by December. Important components such as herbivore protection (i.e. collars, screens), weed control, and watering basins will be implemented in conjunction with plantings. A watering truck will be used if seedling irrigation is required.

Restoration of non-native grasslands to native grasslands will occur in areas specified in the restoration plan that can be managed through controlled grazing and/or mowing to favor native species. A mix of 3 to 8 native grass species including, but not limited to, the following will be planted: nodding needlegrass (*Nassella cernua*), pine bluegrass (*Poa secunda*), squirrel tail (*Sitanion jubatum*), and California brome (*Bromus carinatus*). Germination of native grasses typically takes at least two weeks in late October or early November and can take up to four weeks if planted later. Planted seeds will be monitored for germination. As soon as the grasses begin to emerge, weeds will be sprayed with herbicide.

Riparian restoration will occur along the tributaries to Sulphur Creek in areas specified in the restoration plan where woody riparian species do not currently occur (presumably as a result of previous cattle grazing activities). Native plant species that will be planted include arroyo willow, California buckeye, and valley oak. All plant material will be collected from the site and local vicinity.

CDC will provide 5 years of funding for a site steward. The responsibilities of this position will include coordination, maintenance, and administration activities at the sanctuary. Specifically, the site steward will coordinate any restoration efforts with contractors or, when appropriate, implement restoration; collect acorns and other plant materials; fence 250 acres of the sanctuary (materials funded by CDC); patrol the sanctuary; organize volunteers and outreach programs; and conduct all monitoring associated with restoration of the site.

In summary, mitigation at Mayacama Mountains Sanctuary will include funding a full-time site steward position for 5 years, the development of a restoration and management plan for the sanctuary, enhancement via fencing and management of 250 acres of oak woodland, and additional restoration of oak woodland, grassland, and riparian habitat. Refer to Table 5.2-7 for a summary of this mitigation.



Source: Audubon California.

Mayacama Mountains Sanctuary

EXHIBIT 5.2-6

California Department of Corrections
Habitat Conservation Plan

0' 1000' 2000'

NORTH

EDAW

Table 5.2-7
Summary of Mitigation at Mayacama Mountains Sanctuary

Acreage	
Acquisition and Enhancement	None
Enhancement Only	250 acres
Total Acreage	250 acres
Restoration/Enhancement Activities	
Restoration/Enhancement	Restoration of degraded oak woodland, non-native grassland and riparian habitats, plus enhancement of 250 acres via active management (fencing to prevent trespassing, etc.; site steward)
Restoration Design	Prepared by CDC in coordination with Audubon California
Monitoring	
Period	5 years
Conducted By	Site Steward; full time position for 5 years to manage and oversee the property and conduct monitoring
Cost	$40,000/year
Management	
Period	In perpetuity
Conducted By	Audubon California
Cost	Initially, full-time position for 5 years at $40,000 per year, funded by CDC. Audubon California will continue to manage the Sanctuary and will incur the cost for full time site steward following the CDC funded 5 year term
Responsibilities	
CDC	Provide funding for: ▸ initial enhancement and restoration of degraded oak woodland, non-native grassland and riparian habitat (including fencing, gates, etc.) ▸ preparation of restoration and management plan ▸ full time site steward and associated expenses
Audubon California	Provide: ▸ assistance in preparing restoration and management plan ▸ long-term management (following the 5 year term for the site steward) ▸ monitoring (conducted by CDC funded site steward)
State Budget Appropriated Amount	**$336,570**

O'NEAL CANYON

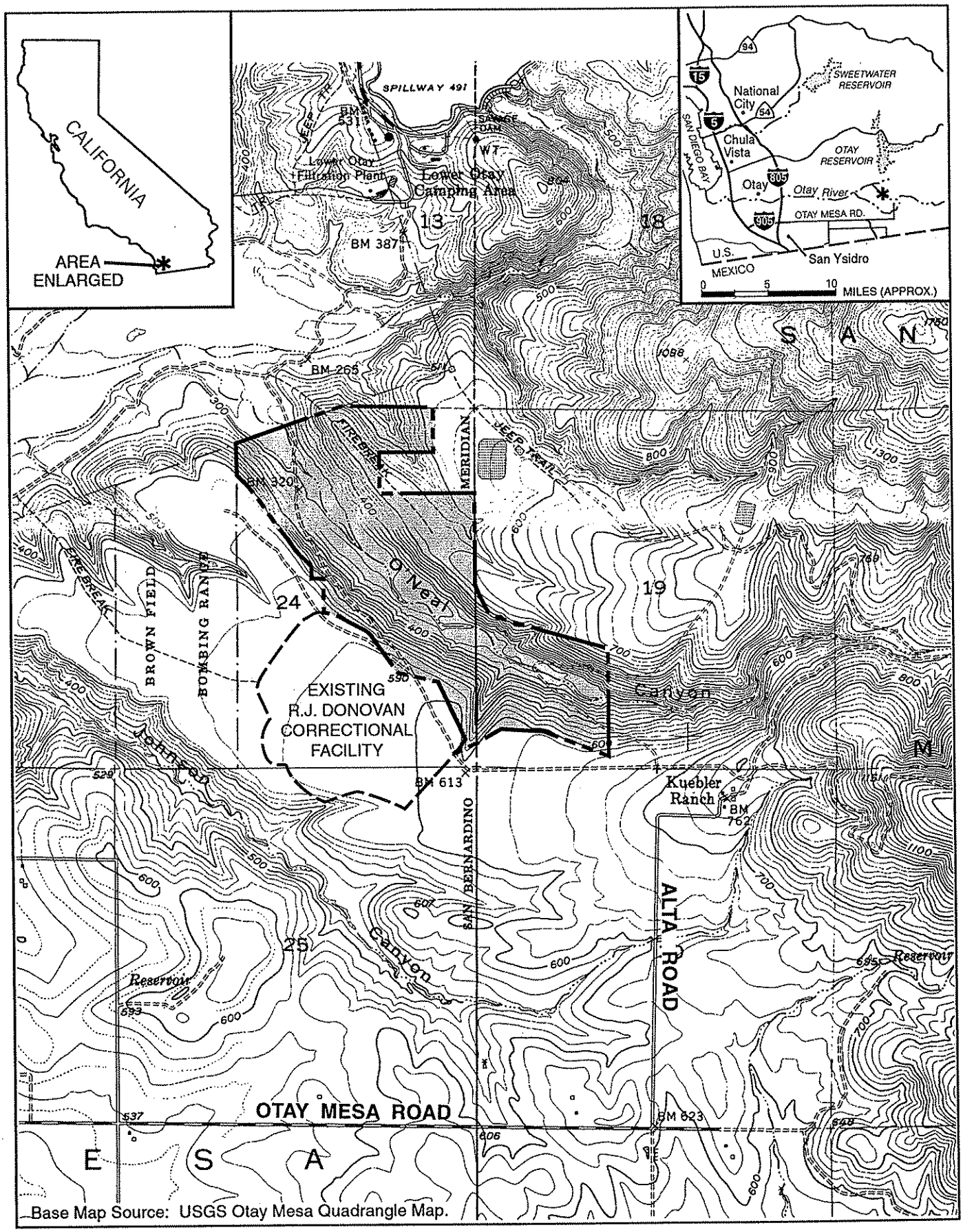
This mitigation site includes transfer of approximately 300 acres of land within O'Neal Canyon to CDFG (refer to the shaded area in Exhibit 5.2-7). For now, the total acreage is approximate, as minor boundary line adjustments will be needed to provide for adequate prison buffer areas. CDFG will develop a Memorandum of Agreement with USFWS, enabling USFWS to manage the land (while it is retained under CDFG ownership) as part of the Sweetwater Unit of the San Diego National Wildlife Refuge. This mitigation site does not involve any restoration or enhancement of habitat; therefore, it satisfies none of the compensation acreage targets (refer to the beginning if Section 5.2 and Appendix D). However, management and protection of the property in perpetuity would benefit many coastal sage scrub species, including the federally-listed coastal California gnatcatcher (*Polioptila californica sp. californica*).

O'Neal Canyon is located adjacent to the R.J. Donovan Correctional Facility in south San Diego County, near the US/Mexican border (Exhibit 5.2-7). O'Neal Canyon consists of dense, well-developed coastal sage scrub habitat that is dominated by California sagebrush (*Artemsia californica*) and California buckwheat (*Eriogunum fasciculatum*), with scattered elements of white sage (*Salvia apiana*), common encelia (*Encelia californica*), deerweed (*Lotus scoparius*), and lemonadeberry (*Rhus integrifolia*).

Several common wildlife species occur in the coastal sage scrub habitat, including western rattlesnake (*Crotalus viridis*), California towhee (*Pipilo crissalis*), wrentit (*Chamaea fasciata*), red-tailed hawk (*Buteo jamaicensis*), California ground squirrel (*Spermophilus beecheyi*), and coyote (*Canis latrans*).

A total of 24 ESA/CESA-covered species are likely to occur on or near the O'Neal Canyon mitigation site (refer to Tables 5.2-1 and 5.2-14). The only federally-listed species that is included in this group is the coastal California gnatcatcher. The other 23 ESA/CESA-covered species include protected raptors and California Species of Special Concern.

In summary, mitigation at O'Neal Canyon will consist of transferring approximately 300 acres of land to CDFG, who will in turn negotiate a Memorandum of Agreement with USFWS to have the property managed by USFWS as part of, and consistent with the objectives of, the San Diego National Wildlife Refuge. Refer to Table 5.2-8 for a summary of this mitigation site.



O'Neal Canyon

EXHIBIT 5.2-7

California Department of Corrections
Habitat Conservation Plan

0' 1000' 2000'

NORTH

EDAW

Table 5.2-8
Summary of Mitigation at O'Neal Canyon

Acreage	
Acquisition and Enhancement	None
Transfer of Land	Approximately 300 acres; with costs of transfer to be covered by CDFG
Total Acreage	Approximately 300 acres
Restoration/Enhancement Activities	
Restoration/Enhancement	None
Restoration Design	None
Management	
Period	In perpetuity
Conducted By	USFWS
Costs	Covered by USFWS/CDFG
Responsibilities	
CDC	Provide: ▸ Transfer of approximately 300 acres to CDFG
CDFG	Provide: ▸ Wildlife Conservation Board to arrange for, and assume all costs associated with, fee title transfer ▸ Retain ownership of the 300 acres
USFWS	Provide: ▸ Management and protection of the land in perpetuity
State Budget Appropriated Amount	**$0**

Table 5.2-9
Summary of Mitigation at Paul Wattis Sanctuary

Acreage	
Acquisition and Enhancement	None
Enhancement Only	220 acres
Total Acreage	220 acres
Restoration/Enhancement Activities	
Restoration/Enhancement	Restoration of 20 acres of riparian habitat and removal of 1 acre of giant reed. Also, 200 acres will be enhanced via active management (monitoring water levels, manipulating water control structures, preventing trespassing and vandalism, maintaining roads and buildings, etc.).
Restoration Design	Prepared by CDC, with Audubon California
Monitoring	
Period	5 years
Conducted By	Audubon California (CDC-funded Site Manager)
Cost	$10,000/year
Management	
Period	In perpetuity
Conducted By	Audubon California
Cost	Initially, 1/4-time position for 5 years at $10,000 per year, funded by CDC. Audubon California will continue to manage the Sanctuary and will incur the cost for full-time manager following the CDC funded 5-year term.
Responsibilities	
CDC	Provide funding for: ▸ restoration of 20 acres and enhancement of 200 acres ▸ initial restoration and enhancement costs including: direct nursery costs, plant propagation and installation, preparation of the restoration and management plan ▸ partial management position
Audubon California	Provide: ▸ assistance in preparation of the restoration and management plan ▸ continued management of the sanctuary ▸ conduct monitoring
State Budget Appropriated Amount	**$119,410**

STANISLAUS RIVER PARK

CDC will restore 30 acres of riparian habitat along the Stanislaus River in Stanislaus County. This mitigation site meets the 30-acre riparian compensation acreage target, and it contributes toward the 2,163-acre raptor compensation acreage target (refer to the beginning of section 5.2 and Appendix D).

The 30-acre restoration site is located within the Stanislaus River Park (see Exhibit 5.2-9). The park is linear, and includes ten separate recreation sites, scattered along the river, that are connected by dedicated open space. The park is owned and operated by the U.S. Army Corps of Engineers (USACE), and it was dedicated as mitigation land to offset the impacts of the New Melones Dam upstream.

Existing habitat along this reach of the Stanislaus River includes riparian woodland, emergent wetland, and abandoned agricultural fields, as well as actively farmed crop lands and orchards. Other areas are disturbed by past aggregate mining. Riparian stands are found in bands of varying widths adjacent to the river. Oak woodland, oak/pine woodland, and oak savanna habitats are found at slightly higher elevations and distances from the river. Riparian stands are often dominated by cottonwood (*Populus fremontii*) and willow species (*Salix* sp.). Secondary species include box elder (*Acer negundo*), elderberry (*Sambucus mexicana*), and northern California walnut (*Juglans californica* var. *hindsii*). "Old fields" (ruderal crop land) are typically dominated by pest plants such as star thistle (*Centaurea solstitialis*) and non-native annual grasses. Past aggregate extraction has, in some areas, left open pits that have filled with water. The edges of these pits support some wetland vegetation, such as cattails (*Typha latifolia*).

Common wildlife species found along the river include western fence lizards (*Sceloporus occidentalis*), raccoons (*Procyon lotor*), and common ravens (*Corvus corax*). Raptors using the river include red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*).

A total of 31 ESA/CESA-covered species are expected to benefit from the riparian restoration activity. Of these, two are federally-listed: American peregrine falcon (*Falco peregrinus anatum*) and Aleutian canada goose (*Branta canadensis leucopareia*), . State-listed only species within the group of 31 ESA/CESA-covered species include: Swainson's hawk (*Buteo swainsoni*), greater sandhill crane (*Grus canadensis tabida*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and bank swallow (*Riparia riparia*).

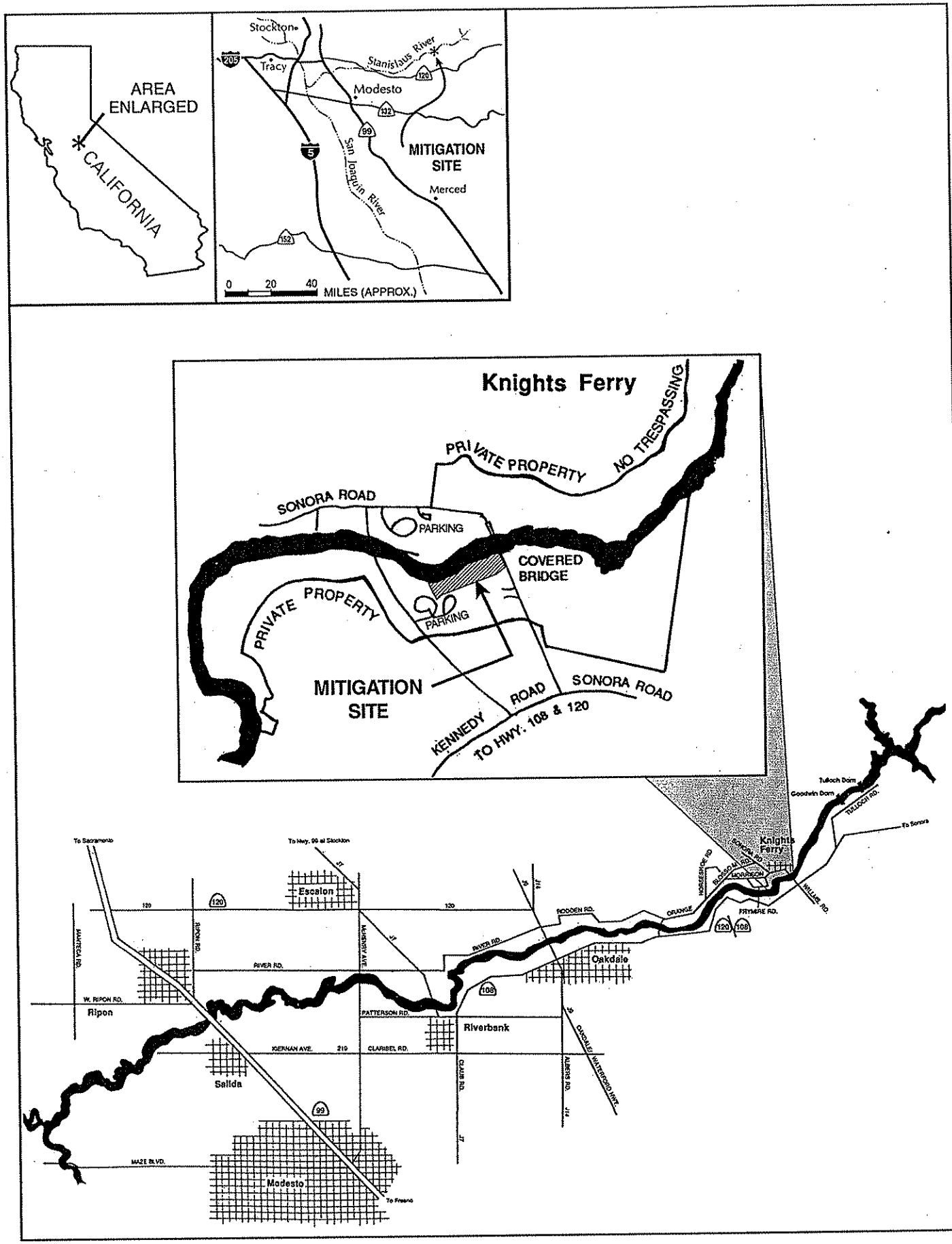
Riparian woodland restoration will be conducted on a 30-acre parcel that is a portion of the McHenry Avenue Recreation Area. This site is a former agricultural field located along the Stanislaus River, below the McHenry Avenue bridge. A narrow band of existing cottonwood and willow riparian forest separates the field from the river. The field is presently heavily infested with star thistle and other non-native weeds. A 3-acre parcel at the western end of the field is the site of an ongoing restoration effort conducted by Santa Fe Railroad Company.

CDC will undertake the riparian restoration using inmates from the California Department of Forestry and Fire Protection Camp at Jamestown. Inmates will be instructed and their activities overseen by experienced habitat restoration specialists. It is anticipated that CDC will establish a nursery at the Jamestown Camp. Seeds and cuttings to be used for plant propagation will be obtained from local sources. Nearby riparian woodland patches will be surveyed to establish a reference site for the restoration. Provisions to irrigate the planting for two years will be developed, with an optional third year

if a drought period is encountered. CDC crews will conduct regular weed control and maintenance of the planting.

A detailed restoration and enhancement plan will be developed by CDC, with assistance from USACE. The plan will describe a proposed restoration plant palette, planting plan, installation and maintenance protocols, a schedule of planned activities, performance criteria, and a monitoring program. All restoration activities conducted at the mitigation site will be monitored for five years following implementation, or until performance criteria are met. Should major remedial actions be required, the monitoring period will be extended until performance criteria have been met to ensure the long-term success of mitigation activities. Performance criteria for restoration and enhancement activities will be developed as part of the final restoration plan and included as a component of the mitigation implementation agreement between CDC and representatives of USACE. The restoration plan and mitigation implementation agreement will be reviewed and approved by USFWS and CDFG prior to finalization. Performance criteria will include both quantitative and qualitative criteria to measure the overall success of restoration and enhancement activities. If performance criteria are not achieved, then remedial actions will be undertaken after receiving approval from USFWS and CDFG. An annual monitoring report will be prepared and submitted to USFSW and CDFG. A final report will be submitted at the completion of the program (year 5, or later if extended by required remedial actions.)

In summary, mitigation at Stanislaus River Park will consist of planting 30 acres of riparian woodland habitat. CDC will implement all aspects of the restoration and monitoring program, including using inmates from the Jamestown Camp to perform planting and maintenance activities. As the overall steward of the park, USACE will provide long-term management of the site. Refer to Table 5.2-10 for a summary of this mitigation.



Stanislaus River Park

EXHIBIT 5.2-9

California Department of Corrections
Habitat Conservation Plan

NORTH EDAW

Table 5.2-10 Summary of Mitigation at Stanislaus River Park	
Acreage	
Acquisition and Enhancement	None
Enhancement Only	30 acres
Total Acreage	30 acres
Restoration/Enhancement Activities	
Restoration/Enhancement	Restoration of 30 acres of riparian habitat
Restoration Design	Prepared by CDC with assistance from USACE
Monitoring	
Period	5 years
Conducted By	CDC
Cost	$7,500/year
Management	
Period	In perpetuity
Conducted By	USACE
Cost	None
Responsibilities	
CDC	Provide funding for: ▸ restoration of 30 acres ▸ initial restoration costs including: inmate labor, plant propagation and planting, and preparation of the restoration and enhancement plan ▸ monitoring
USACE	Provide: ▸ assistance in preparation of the restoration and enhancement plan ▸ continued management of the park
State Budget Appropriated Amount	**$304,570**

STARR RANCH SANCTUARY

CDC will enhance 700 acres of grassland through removal of artichoke thistle (*Cynara cardunculus*) at Audubon California's Starr Ranch Sanctuary in Orange County. This mitigation site exceeds the 72-acre grassland compensation acreage target, and the entire 700 acres contributes towards the 2,163-acre raptor compensation acreage target (refer to the beginning of Section 5.2 and Appendix D). Patches of coastal sage scrub also occur at Starr Ranch. Enhancement actions at the sanctuary are driven by the need to mitigate for coastal sage scrub species, which will benefit from improved foraging opportunities within the grasslands being enhanced onsite. Information derived from the systematic artichoke thistle control efforts at Starr Ranch will be disseminated by Audubon California and will assist region-wide efforts to control this highly invasive weed.

The Starr Ranch Sanctuary is a 4,000-acre preserve owned and operated by Audubon California. It is located in the foothills of the Santa Ana Mountains in the mild and semiarid Mediterranean climate of southeastern Orange County, approximately 60 miles southeast of Los Angeles (Exhibit 5.2-10). The sanctuary is bordered by the Cleveland National Forest on the north and east, on the south by Ronald W. Caspers Regional Park, and housing development on the west. The sanctuary was acquired by Audubon California in 1973.

The sanctuary contains grasslands, oak woodland, chaparral, riparian woodland, and coastal sage scrub. Approximately 1,200 acres at Starr Ranch are grasslands. Some grassland areas at Starr Ranch are dominated by native bunch grasses, and others are dominated by exotic annual grasses. The oak woodland is dominated by coast live oak (*Quercus agrifolia*). The riparian woodland contains sycamore (*Platanus racemosa*), white alder (*Alnus rhombifolia*), and willow (*Salix* sp.). The coastal sage scrub is dominated by California sagebrush (*Artemisia californica*), sage species (*Salvia apiana* and *S. mellifera*), and California buckwheat (*Eriogonum fasciculatum*). Grassland patches interlace coastal sage scrub areas. Areas of grasslands range from 5 acres to 40 acres. Control of artichoke thistle in the grasslands will therefore also benefit coastal sage scrub species that forage in adjacent grasslands.

Common wildlife species found in the sanctuary include western fence lizard (*Sceloporus occidentalis*), canyon tree frog (*Pseudacris regilla*), bobcat (*Lynx rufus*), mountain lion (*Felis concolor*), common raven (*Corvus corax*), and Anna's hummingbird (*Calypte anna*). Raptors known to breed on the sanctuary are white-tailed kite (*Elanus leucurus*), Coopers hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), golden eagle (*Aquila chrysaetos*), American kestrel (*Falco sparverius*), barn owl (*Tuto alba*), western screech-owl (*Otus kennicottii*), great horned owl (*Bubo virinianus*), and long-eared owl (*Asio otus*).

A total of 25 ESA/CESA-covered species are expected to benefit from the enhancement actions undertaken at the Starr Ranch Sanctuary. Of these, only one is federally-listed, the California gnatcatcher (*Polioptila californica californica*). None are state-listed only species. The other 24 ESA/CESA-covered species that will benefit at this site include protected raptors and California Species of Special Concern.

Artichoke thistle is on the list of "Most Invasive Wildland Pest Plants" prepared by the California Exotic Pest Plant Council. Artichoke thistle is highly invasive and highly competitive with native plants. Dense thistle patches exclude most native plant species while providing little habitat value. The sharp spines of artichoke thistle prevent many wildlife species from using the area. Artichoke thistle is a problem on

many of the grasslands in Orange, Riverside, and San Diego counties. At the Starr Ranch Sanctuary approximately 700 acres of the sanctuary are infested with artichoke thistle.

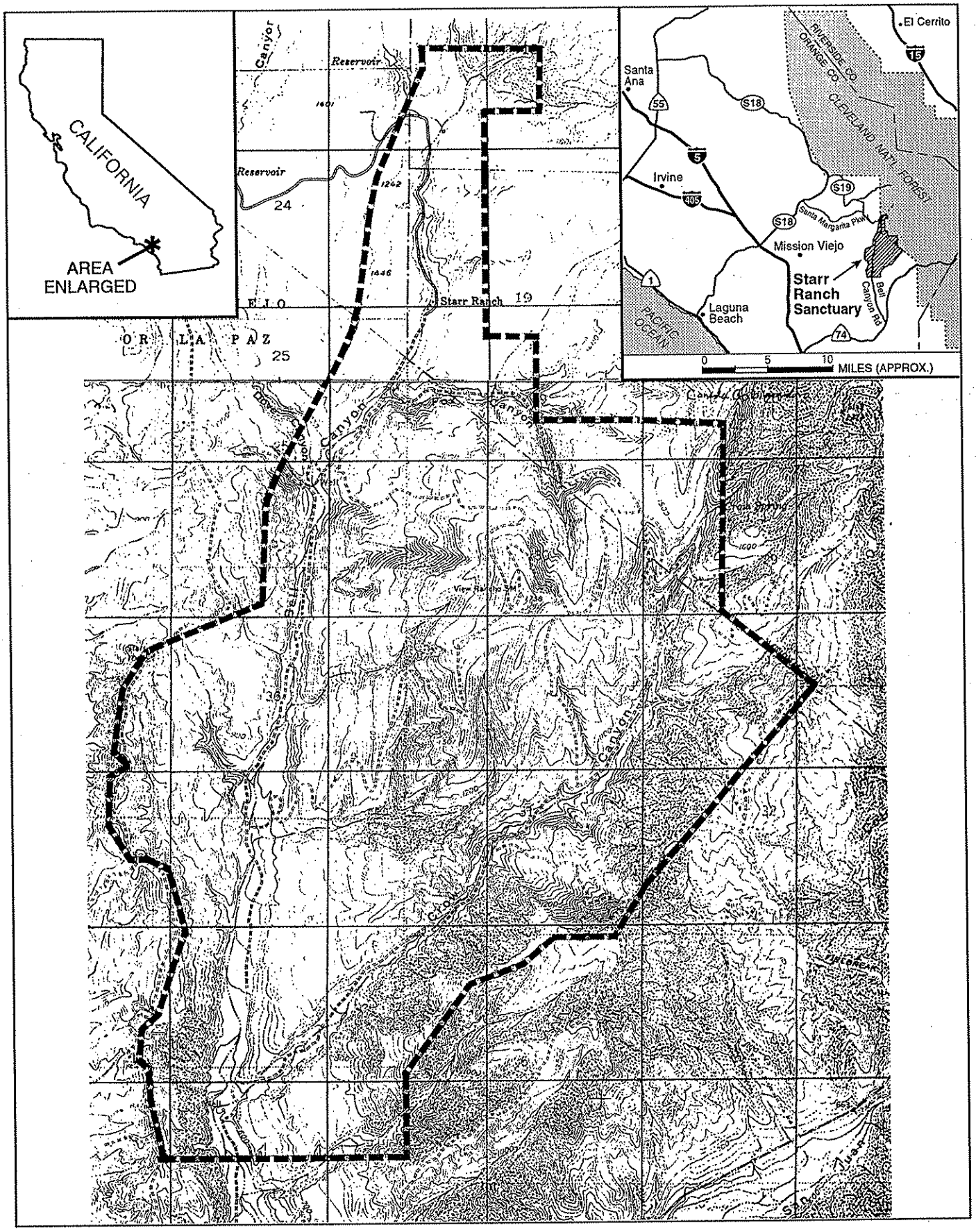
CDC-funded efforts will target approximately 700 acres of artichoke thistle infested grasslands. Staff at the Starr Ranch Sanctuary have been researching non-chemical means of controlling artichoke thistle. Repeated mowing, soil solarization, and other methods have shown promise in controlling this weed. CDC funding will allow the staff to select the most appropriate method for each infested area. Repeated maintenance over three to five years will increase the likelihood of success in controlling artichoke thistle.

Infestation levels vary throughout the 700 acres. The grassland infestations occur in both native and non-native grasslands. Efforts will first target the least infested areas to prevent further expansion and then work progressively toward more densely infested areas.

CDC's funding of grassland enhancement at the Starr Ranch Sanctuary will provide resources for staff and equipment needs. A full time field supervisor will direct the control efforts on a daily basis. Sufficient funding is provided for field staff to assist in the control efforts. CDC will also fund acquisition or rental of required equipment. Staff and equipment time will be available to replant native grasses into a portion (approximately 100 acres) of the total 700 acres of artichoke thistle control.

A detailed restoration and enhancement plan will be developed by CDC, with assistance from Audubon California. This plan will specifically target areas for artichoke thistle removal, prioritize the sites, describe methods to be employed, provide a schedule of planned activities, and develop performance criteria and a monitoring program. Artichoke thistle removal and grass plantings will be monitored for 5 years following implementation, or until performance criteria are met. Should major remedial actions be required, the monitoring period will be extended until performance criteria have been met to ensure the long-term success of artichoke thistle removal efforts. Performance criteria for restoration and enhancement activities will be developed as part of the final restoration plan and included as a component of the mitigation implementation agreement between CDC and Audubon California. The restoration plan and mitigation implementation agreement will be reviewed and approved by USFWS and CDFG prior to finalization. Performance criteria will include both quantitative and qualitative criteria to measure the overall success of restoration and enhancement activities. If performance criteria are not achieved, then remedial actions will be undertaken after receiving approval from CDFG and USFWS. An annual monitoring report will be prepared and submitted to USFWS and CDFG. A final report will be submitted at the completion of the program (year 5, or later if extended by required remedial actions.)

In summary, mitigation at the Starr Ranch Sanctuary will consist of controlling artichoke thistle on 700 acres, and planting native grasses on 100 of those acres. Refer to Table 5.2-11 for a summary of this mitigation.



Starr Ranch Sanctuary

EXHIBIT 5.2-10

California Department of Corrections
Habitat Conservation Plan

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NORTH

EDAW

Table 5.2-11
Summary of Mitigation at Starr Ranch Sanctuary

Acreage	
Acquisition and Enhancement	None
Enhancement Only	700 acres
Total Acreage	700 acres
Restoration/Enhancement Activities	
Restoration/Enhancement	Enhancement of 700 acres of grassland (restoration of 100 of these acres to native grassland)
Restoration Design	Prepared by CDC, with assistance from Audubon California
Monitoring	
Period	5 years
Conducted By	Audubon California (CDC-funded management position)
Cost	$30,000/year
Management	
Period	In perpetuity
Conducted By	Audubon California
Cost	CDC to provide funding for a full-time, 5-year management position (field eradication supervisor); Audubon California will continue to manage the Sanctuary and will incur the cost for funding this position beyond the 5-year term
Responsibilities	
CDC	Provide funding for: ▸ enhancement of 700 acres including restoration of 100 acres ▸ initial restoration and enhancement costs including: acquisition and/or rental of equipment, field eradication supervisor position, assistance in preparation of restoration and enhancement plan
Audubon California	Provide: ▸ assistance in preparation of the restoration and enhancement plan ▸ continued management of the sanctuary, and funding for the new management position beyond the initial CDC-funded 5-year term ▸ conduct monitoring
State Budget Appropriated Amount	**$519,410**

COWBIRD TRAPPING PROGRAM

CDC will develop, operate, and fund a cowbird trapping and songbird monitoring program at the Paul Wattis Sanctuary, which is located in Colusa County and is owned and managed by Audubon California. Cowbirds are a known pest species in the northern Central Valley, and they are believed to be the primary cause for a decline in the reproductive success of riparian nesting songbirds. This program will help to mitigate for take at the electrified fences of yellow warbler and yellow breasted chat. In addition to these species, the cowbird trapping program would likely benefit a number of other migratory birds such as common yellowthroat (*Geothlypis trichas*), black-headed grosbeak (*pheucticus melanucephalus*), blue grosbeak (*Guiraca caerulea*), lazuli bunting (*Passerina amoena*), spotted towhee (*Pipilo erythrophthalmus*), song sparrow (*Melospiza melodia*), northern oriole (*Icterus galbula*), lesser goldfinch (*Carduelis psaltria*), American goldfinch (*Carduelis tristis*), orange-crowned warbler (*Vermivora celata*), western wood-pewee (*Contopus sordidulus*), and Pacific-slope flycatcher (*Empidonax difficilis*).

The brown-headed cowbird (*Molothrus ater*) is a brood parasite that lays its eggs in other bird's nests. Cowbirds are known to parasitize nearly every cup-nesting species in North America (Griffith 1995). This species not only lays its eggs in the host's nest, but often will damage, remove, or eat one or more of the host's eggs. A single female cowbird may produce 40 young and decimate 120-160 host young in a given year (Griffith 1995).

With assistance from CDFG and USFWS, CDC will assemble a Technical Advisory Committee (TAC) to help guide and oversee the proposed cowbird trapping and songbird monitoring activities at the sanctuary. The TAC will likely consist of a non-game avian specialist from CDFG, a similar staff person from USFWS, a representative from Audubon California, and a contracted cowbird specialist. The TAC will meet as frequently as needed, and will review and approve the cowbird trapping and songbird monitoring plans. The TAC will also provide annual guidance to help ensure that program objectives are met. While all of the program objectives still need to be defined, one will be to evaluate the usefulness of cowbird trapping techniques in northern California environs, and to share results with other state, federal, and non-profit land managers in the northern Central Valley.

CDC will develop, manage, and operate the cowbird trapping program, concurrently with an in-depth songbird monitoring program. The program is proposed to run for six years, with the first year dedicated to agency coordination, trap construction, identification of paid consultants and unpaid volunteers (to help with monitoring), development of a trapping program and monitoring plan, and initiation of an annual songbird monitoring program. Cowbird trapping will be conducted in the subsequent five years, along with continuation of the monitoring program.

CDC will begin songbird monitoring during the program's first year. This program will aid in evaluating the effectiveness of cowbird trapping. Songbird monitoring will be conducted during the songbird breeding season so that changes in breeding populations of neotropical songbirds can be detected. The first year will largely be used for establishing a baseline of which songbirds are nesting onsite, their approximate densities, etc. The surveys will rely on standard monitoring techniques (e.g., point counts), and they will be conducted by trained ornithologists.

During each of the five years of cowbird trapping, a minimum of ten cowbird traps or modified Australian crow traps will be constructed and placed adjacent to riparian habitat. Because traps placed in dense riparian habitat tend to be less effective than those in open areas, traps should be placed immediately adjacent to open areas (Hays, et al. 1996). Standard traps are approximately 6 feet by 6 feet by 8 feet

high, and they resemble a chicken coop. The traps would be baited with wild bird seed, water, and live wing-clipped cowbirds (three females and two males). Cowbirds are presumably attracted to the trap by one or more of the live decoy cowbirds and enter the trap through slots in the center of the top of the trap. In general, cowbird traps will be set and monitored for 3 weeks between April 1 and June 30. Traps will be checked daily and all non-target species will be immediately released, and cowbirds will be humanely destroyed and disposed of properly.

CDC will prepare an annual report that summarizes each year's cowbird trapping activities, and contains the results of the songbird monitoring program. The report will be reviewed by the TAC, and then submitted to USFWS and CDFG for review and comment. At the end of the fifth year of cowbird trapping (i.e., the sixth year of the program), a final report will be prepared by CDC, reviewed by the TAC, and submitted to CDFG and USFWS.

Two ESA/CESA-covered species are expected to benefit from the cowbird trapping program at the Paul Wattis Sanctuary: yellow warbler *(Dendroica petechia)* and yellow-breasted chat *(Icteria virens)*. In addition, many other native MBTA-protected bird species are likely to experience improved reproductive success with the removal of cowbirds from riparian habitats on the sanctuary.

In summary, CDC will develop, operate, and fully fund a 6-year songbird monitoring study and 5-year cowbird trapping effort at the Paul Wattis Sanctuary in Colusa County. Refer to Table 5.2-12 for a summary of this mitigation.

Table 5.2-12
Summary of Mitigation
Cowbird Trapping at Paul Wattis Sanctuary

Trapping Program	
Purchase of 10 Cowbird Traps	$30,000
Monitoring	
Period	5 years
Conducted By	CDC, with assistance from Audubon California
Cost	$35,800
Management	
Period	5 years
Conducted By	CDC, with assistance from Audubon California
Cost	$10,000/year
Responsibilities	
CDC	Provide funding for: ▸ start-up of the cowbird trapping program ▸ preparation of a management/monitoring plan ▸ purchase of 10 cowbird traps ▸ annual songbird monitoring ▸ cowbird trap monitoring (3 weeks) ▸ preparation of annual reports ▸ formulating a Technical Advisory Committee (TAC)
Audubon California	Provide: ▸ assistance with cowbird trap monitoring ▸ assistance with songbird monitoring ▸ serve on the TAC
CDFG	▸ serve on the TAC
USFWS	▸ serve on the TAC
State Budget Appropriated Amount	**$259,000**

BURROWING OWL HABITAT ENHANCEMENT WITHIN THE SAN DIEGO MSCP

CDC will partially fund habitat enhancement activities being targeted for burrowing owls within the San Diego Multi-species Conservation Plan (MSCP). The MSCP, which is being implemented by the City of San Diego and has been approved by both CDFG and USFWS, was developed to allow some additional urbanization to occur in the San Diego region while promoting conservation of the area's multiple state and federally listed and candidate species. Burrowing owl is one of the many covered species addressed in the MSCP. CDC is providing funding for this mitigation specifically to offset take of burrowing owl *(Athene cunicularia)*, a California Species of Special Concern. Refer to Table 5.2-13 for a summary of this mitigation.

Areas identified within the MSCP plan area that will benefit burrowing owls include 4,000± acres of known suitable habitat, plus an additional 5,770± acres of potential habitat. Within this combined acreage, at least 12 distinct populations of this species occur. The MSCP states that habitat enhancement opportunities for the species occur in the following areas: Spring Canyon, San Pasqual Valley, Lake Hodges, Otay Mesa northeast of Brown Field, Otay Ranch, Otay River Valley, and Future Urbanizing Area 4. Enhancement is being considered within known, historical, and potential burrowing owl habitat. It may also include management for ground squirrels, as burrowing owls might be precluded from nesting in certain areas if not for the burrows left behind by ground squirrels. Specific enhancement activities identified in the MSCP for burrowing owl include: creation of artificial burrows, vegetation management (e.g., mowing, grazing) to promote short-grass foraging habitat, predator control, and buffer zone establishment for known nesting areas.

CDC will contribute $50,000 to CDFG to support burrowing owl habitat enhancement activities within the MSCP, with the exact location and types of activities that will be supported by this contribution to be determined by CDFG and USFWS. CDC is solely responsible for the funding; CDFG and USFWS will determine how the money should be used, and CDFG will provide staff (or designate third parties) to implement the agreed-to habitat enhancement efforts within the MSCP plan area in a manner that will benefit burrowing owls.

Table 5.2-13
Summary of Mitigation
Burrowing Owl Habitat Enhancement Within San Diego MSCP Area

Acreage	
Acquisition and Enhancement	None
Enhancement Only	Acreage amount to be determined
Total Acreage	Acreage amount to be determined
Restoration/Enhancement Activities	
Restoration/Enhancement	Restoration of burrowing owl habitat will be conducted as described in the San Diego MSCP Enhancement Plan, as overseen by CDFG and USFWS. May include: installation of artificial nest sites, ground squirrel management, mowing and/or grazing, predator control, or buffer zone management.
Restoration Design	Prepared by the City of San Diego (San Diego MSCP Enhancement Plan)
Management	
Period	In perpetuity
Conducted By	CDFG (or USFWS)
Cost	None - areas being considered are currently under agency ownership
Responsibilities	
CDC	▸ Provide a one-time fee of $50,000 to CDFG (or USFWS) to conduct enhancement activities or management actions.
CDFG (or USFWS)	▸ Use funding provided by CDC to conduct burrowing owl habitat enhancement activities or management actions.
State Budget Appropriated Amount	**$50,000**

5.3 CESA STANDARDS FOR STATE AGENCIES

Section 2081(b)(2) circumscribes the requirements for obtaining an incidental take permit from CDFG. Impacts of taking authorized in a CDFG incidental take permit must be minimized and fully mitigated. However, the measures required to meet this obligation must be "roughly proportional in extent" to the impact of the authorized taking. CDFG cannot require measures that exceed the obligation to provide full mitigation; it cannot require measures that are disproportionate to the impact of the authorized taking. Measures that would advance the recovery or conservation of candidate species, threatened species or endangered species, but which exceed what is necessary to minimize or mitigate impacts of taking, cannot be imposed as conditions of an incidental take permit. The measures identified in this HCP, which are also conditions of the take authorization in the section 2081(b) permit, adhere to these restrictions regarding mitigation requirements in section 2081(b)(2).

However, state agencies are subject to an additional mandate under CESA. Section 2052 of CESA establishes a state conservation policy:

> *The Legislature . . . finds and declares that it is the policy of the state to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat and that it is the intent of the Legislature, consistent with conserving the species, to acquire lands for habitat for these species.*

Section 2052.1 of CESA makes clear that this policy is not limited by the restrictions regarding mitigation requirements expressed in section 2081(b)(2). In other words, the state policy to "conserve, protect, restore, and enhance" listed species and their habitat is not limited to measures that are "roughly proportional" to the impacts of taking from project's or activities carried out by the state. The state's conservation efforts are intended to do more than compensate for impacts of taking listed species, they are intended to advance the recovery of such species and, ultimately, to conserve[1] the species.

Section 2055 of CESA specifically directs state agencies to implement the state conservation policy:

> *The Legislature further finds and declares that it is the policy of this state that all state agencies, boards, and commissions shall seek to conserve endangered species and threatened species and shall utilize their authority in furtherance of the purposes of [CESA].*

Therefore, in addition to the specific requirements applicable to all applicants for incidental take permits, state agencies are subject to a mandate to use their authority to conserve listed species. Because CDC is a state agency, CDFG has recommended that CDC implement additional conservation measures, which are not required for purposes of obtaining an incidental take permit, but which would comply with CESA's mandate to state agencies.

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[1] In CESA, "Conserve," "conserving," and "conservation" mean to use, and the use of, all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to [CESA] are no longer necessary. These methods and procedures include, but are not limited to, all activities associated with scientific resources management, such as research, census, law enforcement, habitat acquisition, restoration and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

CDC has met CESA's mandate that holds state agencies to a higher standard for conserving species. In the Tier 3 compensatory mitigation package that CDC developed, a higher standard for species conservation was achieved by: 1) exceeding the habitat enhancement target by 387 acres; 2) deeding over an additional 300 acres of coastal sage scrub habitat in San Diego County to CDFG, for management by USFWS as part of the San Diego National Wildlife Refuge; and 3) implementing a 5-year cowbird trapping program in Colusa County, the first of its kind in Northern California. CDC will also continue in its efforts to reduce wildlife mortality by exploring ways to improve and/or modify the electrified fence and netting in ways that are both beneficial and feasible.

5.4 MONITORING/REPORTING PROGRAM

The Section 10 regulations of ESA require that an HCP specify measures the applicant will implement to "monitor" the impacts of the taking resulting from the project actions [50 CFR 17.22 (b)(1)(iii)(B) and 50 CFR 222.22(b)(5)(iii)]. In addition, Section 2081(b)(4) of CESA requires monitoring for compliance with and effectiveness of minimization and mitigation measures. The monitoring and reporting program being undertaken for the Statewide Electrified Fence Project includes monitoring take of ESA/CESA-covered species included under the federal Section 10(a)(1)(B) and state Section 2081(b) incidental take permits; it also includes monitoring take of the uncovered MBTA-protected species addressed in the HCP.

Monitoring is essential to the incidental take authorizations, because the take allowances for this project are structured in such a way that special agency consultations are triggered if/when the take thresholds are exceeded. Additionally, onsite monitoring of Tier 1 and Tier 2 mitigation measures will occur throughout the life of the permits; the annual report will make note of any site-specific problems that were encountered with Tier 1 or Tier 2, and will summarize what corrective actions were taken to correct the problem. A final aspect of the monitoring and reporting program addresses Tier 3 habitat enhancement efforts; the focus here is to ensure that habitat enhancement efforts are implemented and are successful, or that appropriate remedial actions are taken to correct for any failures that occur.

5.4.1 MONITORING TAKE, TIER 1 AND TIER 2 IMPLEMENTATION, AND NET EFFECTIVENESS

As described in Section 4.2, the monitoring of wildlife mortality impacts that was being conducted by CDC prior to this HCP involved using correctional staff to retrieve carcasses, photograph each carcass, and document in writing each incident of accidental wildlife electrocution; this was followed by a review of all photographs by a wildlife biologist to confirm species identifications. Because of the large staffing commitment involved with this monitoring methodology, CDC determined that it was not feasible to maintain and manage this extensive mortality data program indefinitely. Recognizing the importance of establishing a sound database for documenting wildlife mortality throughout the life of the plan, and at the request of USFWS and CDFG, CDC will adopt a new monitoring program upon issuance of the incidental take permits. The new program will be more efficient because it does not involve correctional staff photographing wildlife carcasses or making preliminary species identifications. The new program will require each institution with operational electrified fences to obtain and install a large freezer in which to store all carcasses retrieved from the perimeter. Institution staff will retrieve, bag, date, identify by fence zone, and freeze all carcasses of electrocuted wildlife. A qualified biologist (consultant to CDC) will then visit each institution three times per year, during the peak months for wildlife electrocutions, to examine each of the carcasses for the purposes of identifying each to species. Visiting each site three times per year will also allow data trends to be analyzed frequently enough to indicate if netting problems exist. CDC will, upon request by USFWS and CDFG, provide information concerning the biologist's qualifications.

Within one week after completing each site visit for the purposes of identifying wildlife carcasses to species, the biologist will verbally report to CDC any take that has occurred of ESA/CESA-covered species. CDC will then verbally report each take to: 1) USFWS endangered species staff in the Sacramento Field Office; and 2) the appropriate CDFG Regional Manager. The latter will also be immediately notified upon take of any California Fully Protected species (there are seven listed in the federal Section 10(a)(1)(B) incidental take permit). CDC will also maintain a data base for all of the species takes reported by the biologist. This data base will provide the information needed to prepare annual reports on the take of ESA/CESA-covered and uncovered MBTA-protected species (refer to 5.3.3 - Reporting).

A site audit for Tier 1 and Tier 2 measures will be conducted by the same qualified wildlife biologist (as a consultant to CDC) three times per year, concurrent with site visits being undertaken for the purposes of identifying thawed carcasses to species. The biologist will walk the entire perimeter of each institution to determine if the recommended Tier 1 measures are continuing to be implemented, and to verify that the vertical netting is still properly maintained. A summary of these audits, as well as any additional measures recommended by the biologist, will be included in the year-end report to CDFG and USFWS (refer to Section 5.3.3 - Reporting).

In addition, data obtained from the wildlife mortality monitoring program will be analyzed to determine net effectiveness. The assessment of netting effectiveness is made by simply comparing the "pre-net" and "post-net" rates of mortality that occur at each prison site where netting has been installed. A comparison of pre-net and post-net mortality for native species take for prisons with netting installed (data obtained through October 31, 1997) is provided in Table 5.1.1. CDC will continue to monitor the effectiveness of the netting design at existing netted sites (14 total), for 3 years following completion of net installation, so that there are 3 years of post-net mortality data available to evaluate net effectiveness. Monitoring of net the effectiveness of the netting design is expected to be completed by March 2001. The annual report (see Section 5.3.3) will also include a comparison of pre- and post-net effectiveness until net effectiveness monitoring is completed. At future electrified fence sites addressed in the Section 10 (a) permit (4 total), no comprehensive mortality data analysis will be needed because: 1) the effectiveness of the nets will already have been determined at existing sites with habitat conditions analogous to each of the future sites by the time future fences are built; and 2) there would be no pre-net baseline condition to compare with post-net mortality data.

5.4.2 MONITORING FOR IMPLEMENTATION AND SUCCESS OF HABITAT RESTORATION EFFORTS

Monitoring for the success of habitat restoration efforts will be conducted at each mitigation site where habitat restoration occurs (see Section 5.2). All restoration efforts will involve development of performance criteria, followed by five years of monitoring to ensure that performance criteria are met. These criteria will also be a component of the mitigation implementation agreements (see Section 5.2). Should major remedial actions be required, the monitoring period will be extended until performance criteria have been met to ensure the long-term success of restoration efforts. Each restoration plan and associated mitigation implementation agreement will be reviewed and approved by USFWS and CDFG prior to finalization. Performance criteria will include both quantitative and qualitative criteria to measure the overall success of restoration activities. If performance criteria are not achieved, then remedial actions will be undertaken. An annual monitoring report will be prepared and submitted to USFSW and CDFG, followed by a final report that will be submitted at the completion of each restoration effort (refer to Section 5.3.3).

5.4.3 REPORTING

An annual report will be prepared by CDC and submitted to CDFG and USFWS at the end of each year throughout the life of the permits. This end-of-year report, to be delivered to CDFG and USFWS by January 15th, will be divided into five sections, as follows:

Section 1: "Incidental Take Reporting" - Each annual report will include a species-by-species accounting of accrued take for the year of: all ESA/CESA-covered species; all uncovered MBTA-protected bird species; all other native animal species; and lump sum figures for carcasses that could not be identified to species because they were too badly decomposed, damaged, etc., and for all non-native species Each report will also contain a table that compares, for the ESA/CESA-covered species, the species-by-species accrued take for the year to the 5-year authorized level of take (refer to Table 4-4). If take levels are exceeded, consultation with the permitting agencies will occur.

Section 2: "Implementation of Tier 1 Measures" - During each site visit to review wildlife carcasses, the biologist will complete a walk-around the perimeter to evaluate the prison's implementation of Tier 1 measures (i.e., measures designed to reduce/eliminate wildlife attractants near the perimeter). For any prison experiencing problems with implementation Tier 1 measures, the annual report will include a summary of the problem(s) and measures that were undertaken to correct the problem(s).

Section 3: "Monitoring for Maintenance and Effectiveness of Tier 2" - At prison sites where Tier 2 measures have been installed, the biologist will inspect the netting and anti-perching devices to ensure that they are being properly maintained. For any prison experiencing problems with maintaining Tier 2 devices, the annual report will include a summary of the problem(s) and measures that were undertaken to correct the problem(s). For prisons that are still in a 3-year (post-installation) netting test period, the annual report will include a comparison of pre-net and post-net wildlife mortality in order to evaluate the effectiveness at netting at each site where it was installed (this is not needed for the three future electrified fences scheduled to receive nets; refer to Section 5.3.1 above).

Section 4: "Implementation of Tier 3" - As a component of its annual report, CDC will provide a summary of each of the mitigation sites included in the Tier 3 compensatory mitigation program (refer to Section 5.2). An annual narrative will be provided for each site throughout the duration of mitigation implementation activities at each one. The narrative for each site will include, as applicable, a summary of the year's habitat acquisition activities, restoration efforts (including success/failure in achieving performance criteria), remedial actions (if needed), enhancement efforts, and any "major" management actions. Also, following the completion of all enhancement activities at each mitigation site, a final report will be prepared and attached to the program's annual report. The site-specific report will include a chronological summary of all enhancement actions that occurred, plus information regarding objectives, methodology, and final results.

Section 5: "Mitigation Program Summary" - This will represent an executive summary of the program's activities for the year. It will also include any additional pertinent information (e.g., staffing changes, changes in status for ESA/CESA-covered species, etc.).

Table 5.2-14
Mitigation Summary for ESA/CESA-Covered Species

Species	STATUS[1] Federal/State	Locations Where Mitigated[2]	Mitigation Explanation
desert tortoise *Gopherus agassizi*	FT/CT	California City	The California Desert Tortoise Natural Area is located within the area designated as critical habitat for desert tortoise (USFWS 1994). This species would benefit from purchase of credits within this private mitigation bank, with the money being used to fund land acquisition, and habitat enhancement and management activities.
blunt-nosed leopard lizard *Gambelia silus*	FE/CE	Allensworth	Blunt-nosed leopard lizard is known to occur at Allensworth Ecological Reserve and would benefit from purchase and enhancement of saltbush scrub habitat. In addition, re-establishing microtopography would provide new burrowing opportunities for other San Joaquin species, which would add to the burrow availability for this species.
San Diego horned lizard *Phrynosoma coronatum blainvillei*	-/CSC	O'Neal Canyon Starr Ranch	San Diego horned lizard is known to occur at O'Neal Canyon and Starr Ranch Sanctuary. Transfer of O'Neal Canyon to USFWS (or CDFG) would benefit this species. In addition, removal of artichoke thistle from non-native grasslands and preventing its spread into coastal sage scrub habitat at Starr Ranch Sanctuary would also benefit San Diego horned lizard.
orange-throated whiptail *Cnemidophorus hyperythrus*	-/CSC	O'Neal Canyon Starr Ranch	This species is known to occur at O'Neal Canyon and Starr Ranch Sanctuary. Transfer of O'Neal Canyon to USFWS (or CDFG) would benefit this species. In addition, removal of artichoke thistle from non-native grasslands and preventing its spread into coastal sage scrub habitat at Starr Ranch Sanctuary would also benefit orange-throated whiptail.

Table 5.2-14
Mitigation Summary for ESA/CESA-Covered Species

Species	STATUS[1] Federal/State	Locations Where Mitigated[2]	Mitigation Explanation
northern red-diamond rattlesnake *Crotalus ruber ruber*	-/CSC	O'Neal Canyon Starr Ranch	Northern red-diamond rattlesnake is known to occur at O'Neal Canyon and Starr Ranch Sanctuary. Transfer of O'Neal Canyon to USFWS (or CDFG) would benefit this species. In addition, removal of artichoke thistle from non-native grasslands and preventing its spread into coastal sage scrub habitat at Starr Ranch Sanctuary would also benefit northern red-diamond rattlesnake.
California brown pelican *Pelecanus occidentalis californicus*	FE/CE	Humboldt Bay	This species is known to occur at Humboldt Bay National Wildlife Refuge. Brown pelican would benefit from new land acquisitions, which would be protected, and from restoration activities that include removal of non-native invasive plant species from beach and dune habitat at the refuge.
black-crowned night heron *Nycticorax nycticorax*	-/Sensitive Heron	Humboldt Bay Kern River Paul Wattis Stanislaus River	Black-crowned night heron is known to occur at Humboldt Bay National Wildlife Refuge, Kern River Preserve, Paul Wattis Sanctuary, Stanislaus River park, and Starr Ranch Sanctuary. This species would benefit from restoration and enhancement of riparian and wetland habitat at all of these sites.
Aleutian Canada goose *Branta canadensis leucopareia*	FT/-	Paul Wattis Stanislaus River	Aleutian Canada geese are known to occur at Paul Wattis Sanctuary and Stanislaus River Park during the winter months. This species would benefit from wetland creation and restoration at both of these mitigation sites.
osprey *Pandion haliaetus*	-/CSC	Kern River Stanislaus River	This species is known to occur near Kern River Preserve and Stanislaus River Park. Property acquisition and preservation, and restoration and enhancement of riparian woodlands would provide nesting habitat for this species.

Table 5.2-14
Mitigation Summary for ESA/CESA-Covered Species

Species	STATUS[1] Federal/State	Locations Where Mitigated[2]	Mitigation Explanation
white-tailed kite *Elanus leucurus*	-/Raptor	Kern River Paul Wattis Stanislaus River Allensworth Kern River O'Neal Canyon Mayacama Mountains	This species is known to occur at Kern River Preserve, Paul Wattis Sanctuary, Stanislaus River Park, Allensworth Ecological Reserve, Kern River Preserve, and O'Neal Canyon. Property transfer, acquisition and preservation efforts, and/or habitat restoration and enhancement would benefit this species. These areas could be used as either nesting or foraging habitat.
bald eagle *Haliaeetus leucocephalus*	FT/CE	Paul Wattis	Bald eagle is known to occur at Paul Wattis Sanctuary. Riparian restoration would provide winter roosting habitat for this species.
northern harrier *Circus cyaneus*	-/CSC	ALL[3]	Northern harrier would benefit from all of the proposed property acquisition and preservation efforts, and from all of the habitat restoration and enhancement projects. All of these areas could be used by this species as either foraging or nesting habitat.
sharp-shinned hawk *Accipter striatus*	-/CSC	ALL (excluding wetlands)	This species would benefit from all of the proposed property acquisition and preservation efforts, and from all of the habitat restoration and enhancement projects. All of these areas (excluding wetland portions) could be used by this species for foraging.
Cooper's hawk *Accipiter cooperii*	-/CSC	ALL (excluding wetlands)	Cooper's hawk would benefit from all of the proposed property acquisition and preservation efforts, and from all of the habitat restoration and enhancement projects. All of these areas (excluding wetland portions) could be used by this species as either foraging or nesting habitat.

Table 5.2-14
Mitigation Summary for ESA/CESA-Covered Species

Species	STATUS[1] Federal/State	Locations Where Mitigated[2]	Mitigation Explanation
northern goshawk *Accipiter gentilis*	-/CSC	Humboldt Bay	This species is known to occur at Humboldt bay National Wildlife Refuge. This species would benefit from new land acquisitions that would be protected.
red-shouldered hawk *Buteo lineatus*	-/Raptor	ALL	This species would benefit from all of the proposed property acquisition and preservation efforts, and from all of the habitat restoration and enhancement projects. All of these areas could be used by this species as either foraging or nesting habitat.
Swainson's hawk *Buteo swainsoni*	-/CT	Kern River Paul Wattis Stanislaus River	Swainson's hawk is known to occur at Kern River Preserve and nest at Paul Wattis Sanctuary and Stanislaus River Park. Restoration and/or enhancement of riparian woodlands would provide nesting habitat for this species.
red-tailed hawk *Buteo jamaicensis*	-/Raptor	ALL	This species would benefit form all of the proposed property acquisition and preservation efforts, and from all of the habitat restoration and enhancement projects. All of these areas could be used as either nesting or foraging habitat
ferruginous hawk *Buteo regalis*	-/CSC	Allensworth Kern River O'Neal Canyon Paul Wattis Stanislaus River (excluding wetlands)	Ferruginous hawk would benefit from proposed property transfer, acquisition and preservation efforts, and/or from habitat restoration and enhancement, at Allensworth Ecological Reserve, Kern River Preserve, O'Neal Canyon, Paul Wattis Sanctuary, and Stanislaus River Park. Habitat on these sites (excluding wetlands) could be used by this species for foraging.
rough-legged hawk *Buteo lagopus*	-/Raptor	ALL	This species would benefit form all of the proposed property acquisition and preservation efforts, and from all of the habitat restoration and enhancement projects. All of these areas could be used as either nesting or foraging habitat.

Table 5.2-14
Mitigation Summary for ESA/CESA-Covered Species

Species	STATUS[1] Federal/State	Locations Where Mitigated[2]	Mitigation Explanation
golden eagle *Aquila chrysaetos*	-/CSC	All (excluding wetlands)	This species would benefit from all of the proposed property acquisition and preservation efforts, and from all of the habitat restoration and enhancement efforts, excluding mitigation at Humboldt Bay National Wildlife Refuge. Habitat on these sites (excluding wetlands) could be used by this species as either foraging or nesting habitat.
American kestrel *Falco sparverius*	-/Raptor	ALL	This species would benefit form all of the proposed property acquisition and preservation efforts, and from all of the habitat restoration and enhancement projects. All of these areas could be used as either nesting or foraging habitat.
merlin *Falco columbarius*	-/CSC	All	Merlin would benefit from all of the proposed property acquisition and preservation efforts, and from all of the habitat restoration and enhancement projects. All of these areas (excluding wetland portions) could be used by this species for foraging.
American peregrine falcon *Falco peregrinus anatum*	FE/CE	Paul Wattis Stanislaus River	This species is known to occur at Paul Wattis Sanctuary and Stanislaus River Park. Property acquisition and preservation at these sites would benefit this species.
prairie falcon *Falco mexicanus*	-/CSC	Allensworth California City Kern River O'Neal Canyon Stanislaus River	This species is known to occur at Allensworth Ecological Reserve, California City Desert Tortoise Natural Area, Kern River Preserve, O'Neal Canyon, and Stanislaus River Park. Property transfer, acquisition and preservation efforts, and/or habitat restoration and enhancement would benefit this species. These areas could be used as either nesting or foraging habitat.

Table 5.2-14
Mitigation Summary for ESA/CESA-Covered Species

Species	STATUS[1] Federal/State	Locations Where Mitigated[2]	Mitigation Explanation
greater sandhill crane *Grus canadensis tabida*	-/CT	Paul Wattis Stanislaus River	This species is known to forage in the wetland and riparian areas at Paul Wattis and Stanislaus River Park. Restoration and enhancement of these habitats would benefit this species.
western snowy plover *Charadrius alexandrinus nivosus*	FT/CSC	Humboldt Bay	Western snowy plover is known to occur at Humboldt Bay National Wildlife Refuge. This species would benefit from new land acquisitions, which would be protected, and from restoration activities that include removal of non-native invasive plant species from beach and dune habitat at the refuge.
long-billed curlew *Numenius americanus*	-/CSC	Paul Wattis Stanislaus River	This species is known to occur at Paul Wattis Sanctuary and Stanislaus River Park. Restoration and enhancement of riparian and wetland habitats at these sites would provide higher quality winter foraging habitat for this species.
California gull *Larus californicus*	-/CSC	Humboldt Bay Stanislaus River	California gull is known to occur at Humboldt Bay National Wildlife Refuge and Stanislaus River Park. This species would benefit from new land acquisitions, which would be protected, and from restoration activities that include removal of non-native invasive plant species from beach and dune habitat and wetland and riparian restoration.
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	-/CE	Kern River Paul Wattis Stanislaus River	Yellow-billed cuckoo is known to occur at Kern River Preserve and Stanislaus River Park, and is expected to occur at Paul Wattis Sanctuary. This species occurs in riparian habitat and would benefit from riparian restoration and enhancement efforts at these site.

Table 5.2-14
Mitigation Summary for ESA/CESA-Covered Species

Species	STATUS[1] Federal/State	Locations Where Mitigated[2]	Mitigation Explanation
barn owl *Tyto alba*	-/Raptor	ALL	This species would benefit form all of the proposed property acquisition and preservation efforts, and from all of the habitat restoration and enhancement projects. All of these areas could be used as either nesting or foraging habitat.
western screech-owl *Otus kennicottii*	-/Raptor	ALL	This species would benefit form all of the proposed property acquisition and preservation efforts, and from all of the habitat restoration and enhancement projects. All of these areas could be used as either nesting or foraging habitat.
great horned owl *Bubo virginiana*	-/Raptor	ALL	This species would benefit form all of the proposed property acquisition and preservation efforts, and from all of the habitat restoration and enhancement projects. All of these areas could be used as either nesting or foraging habitat.
northern pygmy-owl *Glaucidium gnoma*	-/Raptor	Kern River Humboldt Bay Mayacama Mountains	This species is know to occur at Kern River, Humboldt Bay National Wildlife Refuge, and Mayacama Mountains Sanctuary. This species would benefit from land acquisitions, which would be protected, and from proposed restoration and enhancement activities conducted on all of these sites.
burrowing owl *Speotyto cunicularia*	-/CSC	Allensworth Mayacama Mountains San Diego MSCP Starr Ranch	Burrowing owls are known to occur at Allensworth Ecological Reserve, Mayacama Mountains Sanctuary, and Starr Ranch Sanctuary. This species would benefit from land acquisitions, which would be protected, and from proposed restoration and enhancement of grasslands at these sites. In addition, this species would benefit from habitat enhancement activities being targeted for burrowing owls within the San Diego MSCP.

Table 5.2-14
Mitigation Summary for ESA/CESA-Covered Species

Species	STATUS[1] Federal/State	Locations Where Mitigated[2]	Mitigation Explanation
long-eared owl *Asio otus*	-/CSC	Allensworth California City Kern River Mayacama Mountains Stanislaus River	Long-eared owl is known to occur at Allensworth Ecological Reserve, California City Desert Tortoise Natural Area, Kern River Preserve, Mayacama Mountains Sanctuary, and Stanislaus River Park. This species would benefit from new land acquisitions, which would be protected, and from restoration and enhancement activities conducted on all of these sites.
short-eared owl *Asio flammeus*	-/CSC	Paul Wattis Stanislaus River Starr Ranch	This species is known to occur at Paul Wattis Sanctuary, Stanislaus River Park, and Starr Ranch Sanctuary. Restoration and enhancement of riparian woodland, wetlands, and saltbush scrub habitat would provide wintering habitat for this species.
Vaux's swift *Chaetura vauxi*	-/CSC	Humboldt Bay Kern River Mayacama Mountains Stanislaus River	Vaux's swift is known to breed in Sonoma County and is expected to nest at Mayacama Mountains Sanctuary. This species is also known to occur during migration at Humboldt Bay National Wildlife Area, Kern River Preserve, and Stanislaus River Park. Purchase and preservation of land and restoration and enhancement of habitat at these sites would benefit this species by providing foraging and/or nesting areas.
southwestern willow flycatcher *Empidonax traillii extimus*	FE/CE	Kern River	Southwestern willow flycatcher is known to nest at Kern River Preserve. Proposed riparian restoration and enhancement activities would provide nesting and foraging habitat for this species.
California horned lark *Eremophila alpestris actia*	-/CSC	Allensworth California City	California horned lark is known to occur at Allensworth Ecological Reserve and California City Desert Tortoise Natural Area. This species occupies a variety of open habitats and would benefit from restoration and enhancement of alkali scrub and creosote bush scrub habitat.

Table 5.2-14
Mitigation Summary for ESA/CESA-Covered Species

Species	STATUS[1] Federal/State	Locations Where Mitigated[2]	Mitigation Explanation
purple martin *Progne subis*	-/CSC	Humboldt Bay	This species is known to occur at Humboldt Bay National Wildlife Refuge. Purple martin would benefit from land acquisitions, which would be protected, and from restoration activities that include removal of non-native invasive plant species from the montane coastal forest habitat.
Bendire's thrasher *Toxostoma bendirei*	-/CSC	California City	This species is know to occur at California City Desert Tortoise Natural Area. This species would benefit from purchase and enhancement of creosote bush scrub habitat.
San Diego cactus wren *Campylorhynchus brunneicapillus sandiegensis*	-/CSC	O'Neal Canyon Starr Ranch	San Diego cactus wren is known to occur at O'Neal Canyon and Starr Ranch Sanctuary. Transfer of O'Neal Canyon to USFWS (or CDFG) would benefit this species. In addition, removal of artichoke thistle from non-native grasslands and preventing its spread into coastal sage scrub habitat at Starr Ranch Sanctuary would also benefit San Diego cactus wren.
bank swallow *Riparia riparia*	-/CT	Paul Wattis Stanislaus River	Bank swallows breed along the upper Sacramento River and Stanislaus River and would benefit from riparian and wetland restoration proposed at Paul Wattis Sanctuary and Stanislaus River Park.
coastal California gnatcatcher *Polioptila californica californica*	FT/CSC	O'Neal Canyon Starr Ranch	Coastal California gnatcatcher is known to occur at O'Neal Canyon and Starr Ranch Sanctuary. Transfer of O'Neal Canyon to USFWS (or CDFG) would benefit this species. In addition, removal of artichoke thistle from non-native grasslands and preventing its spread into coastal sage scrub habitat at Starr Ranch Sanctuary would also benefit coastal California gnatcatcher.

Table 5.2-14
Mitigation Summary for ESA/CESA-Covered Species

Species	STATUS[1] Federal/State	Locations Where Mitigated[2]	Mitigation Explanation
loggerhead shrike *Lanius ludovicianus*	-/CSC	Mayacama Mountains	Loggerhead shrike is known to nest at Mayacama Mountains Sanctuary. Restoration of native grasslands and oak woodlands would provide higher quality foraging and nesting habitat for this species. In addition, fencing and management of the property would reduce degradation of habitats by human activity.
yellow warbler *Dendroica petechia*	-/CSC	Cowbird Trapping Humboldt Bay Kern River Paul Wattis Stanislaus River Starr Ranch	Yellow warbler is known to nest at Humboldt Bay National Wildlife Refuge, Kern River Preserve, Paul Wattis Sanctuary, Stanislaus River Park, and Starr Ranch Sanctuary. This species occurs in riparian habitat and would benefit from riparian restoration and enhancement activities at these site. In addition, implementation of a cowbird trapping program at Paul Wattis Sanctuary would likely increase the reproductive success of this species.
yellow-breasted chat *Icteria virens*	-/CSC	Cowbird Trapping Humboldt Bay Kern River Paul Wattis Stanislaus River Starr Ranch	Yellow-breasted chat is known to nest at Humboldt Bay National Wildlife Refuge, Kern River Preserve, Paul Wattis Sanctuary, Stanislaus River Park, and Starr Ranch Sanctuary. This species occurs in riparian habitat and would benefit from restoration and enhancement of this habitat. In addition, implementation of a cowbird trapping program at Paul Wattis Sanctuary would likely increase the reproductive success of this species.
southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	-/CSC	O'Neal Canyon Starr Ranch	This species is known to occur at O'Neal Canyon and Starr Ranch Sanctuary. Transfer of O'Neal Canyon to USFWS (or CDFG) would benefit this species. In addition, removal of artichoke thistle from non-native grasslands and preventing its spread into coastal sage scrub habitat at Starr Ranch Sanctuary would also benefit southern California rufous-crowned sparrow.

Table 5.2-14
Mitigation Summary for ESA/CESA-Covered Species

Species	STATUS[1] Federal/State	Locations Where Mitigated[2]	Mitigation Explanation
Bell's sage sparrow *Amphispiza belli belli*	-/CSC	O'Neal Canyon Starr Ranch	Bell's sage sparrow is known to occur at O'Neal Canyon and Starr Ranch Sanctuary. Transfer of O'Neal Canyon to USFWS (or CDFG) would benefit this species. In addition, removal of artichoke thistle from non-native grasslands and preventing its spread into coastal sage scrub habitat at Starr Ranch Sanctuary would also benefit Bell's sage sparrow.
tricolored blackbird *Agelaius tricolor*	-/CSC	Kern River Paul Wattis Stanislaus River	Tricolored blackbirds are known to breed at Kern River Preserve, Paul Wattis Sanctuary, and Stanislaus River Park. Restoration and enhancement of woodland and wetlands at these sites would provide higher quality nesting habitat for this species.
San Diego black-tailed jackrabbit *Lepus californicus bennetii*	-/CSC	O'Neal Canyon Starr Ranch	This species is known to occur at O'Neal Canyon and Starr Ranch Sanctuary. Transfer of O'Neal Canyon to USFWS (or CDFG) would benefit this species. In addition, removal of artichoke thistle from non-native grasslands and preventing its spread into coastal sage scrub habitat at Starr Ranch Sanctuary would also benefit San Diego black-tailed jackrabbit.
San Joaquin antelope squirrel *Ammospermophilus nelsoni*	-/CT	Allensworth	San Joaquin antelope squirrel is known to occur at Allensworth Ecological Reserve and would benefit from purchase and enhancement of saltbush scrub habitat. In addition, re-establishing microtopography would provide new burrowing opportunities for this species.
Mohave ground squirrel *Spermophilus mohavensis*	-/CT	California City	The California Desert Tortoise Natural Area is a CDFG and USFWS approved mitigation bank for Mohave ground squirrel. This species would benefit from purchase of credits within this private mitigation bank, with the money being used to fund land acquisition, and habitat enhancement and management activities.

Table 5.2-14
Mitigation Summary for ESA/CESA-Covered Species

Species	STATUS[1] Federal/State	Locations Where Mitigated?	Mitigation Explanation
San Joaquin pocket mouse *Perognathus inornatus inornatus*	-/CSC	Allensworth	The San Joaquin pocket mouse is known to occur in saltbush scrub habitat at Allensworth Ecological Reserve. This species would benefit from re-establishment of microtopography at Allensworth Ecological Reserve, which would provide new burrowing opportunities.
short-nosed kangaroo rat *Dipodomys nitratoides brevinasus*	-/CSC	Allensworth	Short-nosed kangaroo rat is known to occur at Allensworth Ecological Reserve and would benefit from purchase and enhancement of saltbush scrub habitat. In addition, re-establishing microtopography would provide new burrowing opportunities for this species.
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	FE/CE	Allensworth	Tipton kangaroo rat is known to occur at Allensworth Ecological Reserve and would benefit from purchase and enhancement of saltbush scrub habitat. In addition, re-establishing microtopography would provide new burrowing opportunities for this species.
southern grasshopper mouse *Onychomys torridus ramona*	-/CSC	Allensworth California City	This species is known to occur at Allensworth Ecological Reserve and the California City Desert Tortoise Natural Area. Southern grasshopper mouse would benefit from purchase and enhancement of habitat at both of these sites.
Tulare grasshopper mouse *Onychomys torridus tularensis*	-/CSC	Allensworth	Tulare grasshopper mouse is known to occur at Allensworth Ecological Reserve and would benefit from purchase and enhancement of saltbush scrub habitat. In addition, re-establishing microtopography would provide new burrowing opportunities for this species.

Table 5.2-14
Mitigation Summary for ESA/CESA-Covered Species

Species	STATUS[1] Federal/State	Locations Where Mitigated[2]	Mitigation Explanation
San Diego desert woodrat *Neotoma lepida intermedia*	-/CSC	O'Neal Canyon Starr Ranch	San Diego desert woodrat is known to occur at O'Neal Canyon and Starr Ranch Sanctuary. Transfer of O'Neal Canyon to USFWS (or CDFG) would benefit this species. In addition, removal of artichoke thistle from non-native grasslands and preventing its spread into coastal sage scrub habitat at Starr Ranch Sanctuary would also benefit San Diego desert woodrat.
white-footed vole *Arborimus albipes*	-/CSC	Humboldt Bay	This species is known to occur at Humboldt Bay National Wildlife Refuge. White-footed vole would benefit from new land acquisitions, which would be protected, and from restoration activities that include removal of non-native invasive plant species from the montane coastal forest habitat.
San Joaquin kit fox *Vulpes macrotis mutica*	FE/CT	Allensworth	San Joaquin kit fox is known to occur at Allensworth and would benefit from purchase and enhancement of saltbush scrub habitat. In addition, re-establishing microtopography would provide new burrowing opportunities for this species.

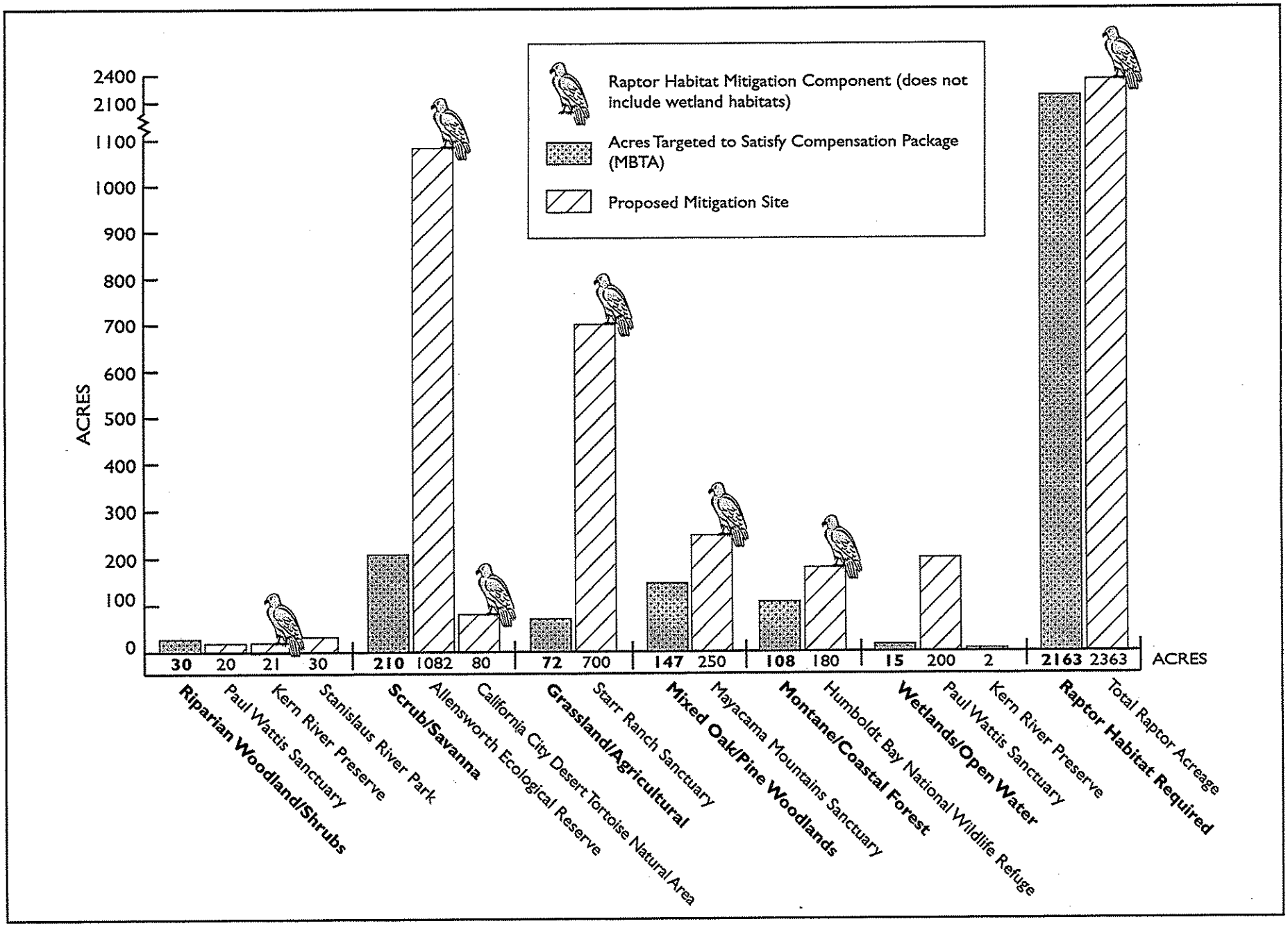
[1] U.S. Fish and Wildlife Service (USFWS) Federal Listing Categories:
- FE Federal Endangered
- FT Federal Threatened

California Department of Fish and Game (CDFG) State Listing Categories:
- CE California Endangered
- CT California Threatened
- CSC California Species of Special Concern

[2] Abbreviations for mitigation opportunities are:

Allensworth: Allensworth Ecological Reserve
California City: California City Desert Tortoise Preserve
Humboldt Bay: Humboldt Bay National Wildlife Refuge
Imperial Valley: Imperial Valley Burrowing Owl Management Plan
Kern River: Kern River Preserve
Mayacama: Mayacama Mountains Sanctuary
O'Neal Canyon: O'Neal Canyon adjacent to R.J. Donovan Correctional Facility
Paul Wattis: Paul Wattis Sanctuary
Stanislaus River: Stanislaus River Park
Starr Ranch: Starr Ranch Sanctuary

[3] ALL: This species would benefit from all mitigation opportunities except the cowbird trapping program.



Comparison of Tier 3 "Acres Targeted" vs. "Acres Achieved"

EXHIBIT 5.2-11

California Department of Corrections
Habitat Conservation Plan

EDAW

6 HCP FUNDING

Implementation of this HCP is being funded through a number of State funding mechanisms and sources. Table 6.1 provides a breakdown of costs associated with each Tier of mitigation.

Biological studies and mitigation research, development, and testing have been funded from a General Fund appropriation for the Statewide Electrified Fence Project and various bond fund appropriations for new prison construction. Implementation of Tier 1 mitigation has been and will continue to be funded from the General Fund as part of each CDC correctional facility's annual operating budget. Tier 2 implementation has been funded from two sources: CDC Minor Capital Outlay General Fund appropriation, and various bond fund appropriations for new prison construction. Tier 2 implementation for fences at three future prison sites will come from bond funds appropriated at the time the projects are authorized and will be incorporated into the initial fence/prison construction appropriation. The 1998-1999 State Budget includes funding for all Tier 3 measures described in the HCP (see Section 5.2), and the funds are now available for use (as of January 1999). The size of this General Fund Capital Outlay appropriation was based on initial cost estimates developed by CDC for implementation of Tier 3 measures. If additional funds are deemed necessary, then CDC will request additional appropriations as needed to carry out all of the plan's mitigation requirements.

CDC understands that a failure to provide adequate funding, and a consequent failure to implement the terms of this HCP in full, could result in temporary permit suspension or permit revocation.

Table 6.1
Mitigation Funding [1]

Mitigation Tier	Cost
Tier 1	
Research and Development	$84,000
Implementation	$58,000
Tier 2	
Research and Development	$440,000
Prototype Net	$233,000
Implementation	$3,052,000
Tier 3	
Research and Development	$134,140
Implementation	$3,308,222
Total Mitigation Cost	**$7,319,362**

[1] Other costs associated with mitigation that were not calculable and are not included in the above cost estimate are: custody, legal, and project management staff costs for participation in the development and implementation of all mitigation; institution staff costs for development of Tier 2 design; and institutional staff costs to man guard towers during installation of Tier 2.

7 ALTERNATIVES

When seeking a permit for incidental take, Section 10(a)(2)(A) of the Endangered Species Act states that the HCP must specify, among other things, "what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized." The consideration of alternatives is important in supporting the finding that "the applicant will, to the maximum extent practicable, minimize ... the impacts of such taking" (§10[a][2][B]). This section describes the alternatives that have been considered by CDC for the Statewide Electrified Fence Project.

Alternatives were first defined as part of the EIR, pursuant to the California Environmental Quality Act (CEQA). In accordance with §15126(d) of the State CEQA Guidelines, a range of reasonable alternatives to the project that could feasibly attain the basic project objectives were addressed. A comprehensive evaluation of the No Project Alternative, in accordance with §15126(d)(2) of the State CEQA Guidelines, was also included.

The alternatives considered by CDC include:

- No Project Alternative
- Selective Use of Electrified Fences Alternative
- Additional Netted Fences Alternative
- "Netting to Top" Alternative
- Stun-Lethal Fence Design Alternative
- Other Tier 2 Measures Considered and Rejected As Infeasible

These alternatives are summarized below and reasons for eliminating them from further consideration are provided in the following text.

7.1 NO PROJECT ALTERNATIVE

DESCRIPTION OF THE NO PROJECT ALTERNATIVE

The electrified fences of the Statewide Electrified Fence Project are installed and operating at all funded sites. Therefore, in the context of this project, the No Project Alternative would involve returning to the perimeter security approach that was in place before the electrified fences were installed and activated; that is, staffing of all guard towers and berm surveillance positions. It would require turning off the electrified fences that are already in operation. Correctional staff would again be placed in all guard towers and berm positions for 24-hour per day surveillance. At prisons where the electrified fence has not been installed, the secured perimeter would continue to consist of the standard, double chain link fences topped with razor wire, and security procedures would be based on 24-hour per day staffing of guard towers and berm surveillance positions.

CHANGE IN THE LEVEL OF TAKE WITH THE NO PROJECT ALTERNATIVE

None of the potential take of wildlife by electrocution associated with use of the electrified fences would occur, if the No Project Alternative were implemented. The electrified fences would not be energized, so the risk of wildlife electrocution would be eliminated.

REASONS FOR ELIMINATING CONSIDERATION OF THE NO PROJECT ALTERNATIVE

The No Project Alternative is not acceptable to CDC for two reasons: inability to meet the basic objectives of the project and the absence of legislatively authorized funding for guard positions necessary to implement the alternative.

The No Project Alternative would not be able to achieve the basic objectives of the project. The primary reason for implementing the Statewide Electrified Fence Project is to reduce operational costs of State prisons, while maintaining perimeter security. Implementing the No Project Alternative would preclude cost savings by requiring the continuation of 24-hour per day staffing of guard towers or berm surveillance positions. Therefore, it would be contrary to the objectives of the project.

It is not administratively feasible for CDC to implement the No Project Alternative because there is no funding available for the guard tower and berm staff surveillance positions. The funding has been removed by the Legislature from the department's operational budget. Legislative approval would be necessary to restore the funding for these positions in the CDC budget.

7.2 SELECTIVE USE OF ELECTRIFIED FENCES ALTERNATIVE

DESCRIPTION OF THE SELECTIVE USE OF ELECTRIFIED FENCES ALTERNATIVE

Selective use of the electrified fences for perimeter security would involve reducing the number of prisons where the fence is operated. The purpose of this alternative would be to decrease the wildlife mortality impacts of the project. This could be achieved in a number of ways. For instance, CDC could not operate electrified fences at prisons where the highest degree of wildlife impact occurs. Also, three prisons where only deactivation of several berm surveillance positions are involved could be considered for elimination because they represent the sources of the smallest amount of cost savings. In such cases, the traditional approach of 24-hour per day staffing of guard towers or berm surveillance positions would be reinstituted for perimeter security purposes.

The prisons with the highest rate of uncovered MBTA-protected species mortality are Avenal State Prison, California State Prison - Corcoran, and California State Prison - Sacramento. The prisons with the highest number of ESA/CESA-covered species killed are Calipatria State Prison, Avenal State Prison, California State Prison - Solano, Pleasant Valley State Prison, and R. J. Donovan Correctional Facility.

Three of the prisons - Chuckawalla Valley State Prison, Central California Women's Facility, and Valley State Prison for Women - are designed with only two perimeter surveillance positions on earthen berms and two towers located at the prison entrances. Because the number of berm surveillance positions deactivated by the use of the electrified fence is small, the operational cost to reinstate the staff positions would be less at these prisons than at prisons with the more common tower design.

CHANGE IN THE LEVEL OF TAKE WITH THE SELECTIVE USE OF ELECTRIFIED FENCE ALTERNATIVE

Reinstating the traditional perimeter security approach of guard tower surveillance at the seven prisons with the highest wildlife mortality or the three prisons with the least labor cost to staff guard positions would reduce the overall loss of uncovered MBTA-protected species and the risk of take of ESA/CESA-covered species. This alternative would be expected to eliminate much of the mortality of uncovered MBTA-protected species, based on mortality data. The risk ESA/CESA-covered species take would also substantially decrease, but the degree is not feasible to estimate, recognizing that no federally-listed species and only one state-listed species has been taken to date, so risk of covered species take is only prospective, with no actual trend data to support it.

However, the selective use alternative would not eliminate all mortality of uncovered MBTA-protected species, nor would it eliminate the risk of take of ESA/CESA-covered species. Wildlife electrocution would still occur at the 19 other prisons in the project, even if all 10 of the above listed electrified fence sites were turned off. Therefore, some risk of take of all protected wildlife species would remain with this alternative.

REASONS FOR ELIMINATING CONSIDERATION OF THE SELECTIVE USE OF ELECTRIFIED FENCES ALTERNATIVE

CDC could not feasibly implement this alternative administratively. As with the No Project Alternative, legislative action would be necessary to restore funding for staff surveillance positions at the prisons without electrified fences. Also, this alternative would only partially achieve the objective of the project to reduce the operational cost of the prisons.

7.3 ADDITIONAL NETTED FENCES ALTERNATIVE

DESCRIPTION OF THE ADDITIONAL NETTED FENCES ALTERNATIVE

Tier 2 netting has been installed at 14 prison sites and is planned for 3 future electrified fence sites as part of the project, with the selection of netted sites being based on an evaluation of wildlife mortality and mitigation feasibility (see Section 5.1.2). In conducting its evaluations, CDC considered installation of Tier 2 netting at all 29 electrified fence prison sites. One alternative to the Statewide Electrified Fence Project's program of mitigation would be to increase the number of sites where netting is installed in an attempt to further reduce the potential for wildlife electrocution. This alternative would involve use of netting at as many of the electrified fence prison sites as is feasible.

Because of weather conditions, installation of the net at certain sites is not viable. After the extensive research and testing of various netting concepts conducted by CDC, the primary technical factor affecting the viability of netting is winter weather. Where snow and ice can accumulate, use of netting on the electrified fences is not viable. As a design criterion, the netting must be able to collapse under a light enough weight load to prevent climbing on the net in an escape attempt. Consequently, the load bearing strength of the net's support brackets and wires is not able to support the weight of ice or snow accumulation. With sufficient accumulations of ice or snow, the net could sag, causing it to contact the fence, or it could collapse. Therefore, netting is not viable at the following sites: two prison sites in Susanville (CCC Level III and High Desert State Prison), three sites in the Tehachapi Mountains (CCI

Levels III, IV-A, and IV-B), and two desert sites near Lancaster and California City (CSP-Los Angeles and CSP at California City).

Recognizing the problems of installing netting at seven sites subject to ice and snow conditions, this alternative could involve the installation of the net at the five remaining sites that have not or are not currently scheduled to receive nets. These sites are Chuckawalla Valley State Prison, Ironwood State Prison, Centinela State Prison, Mule Creek State Prison, and Pelican Bay State Prison.

CHANGE IN THE LEVEL OF TAKE WITH THE ADDITIONAL NETTED FENCES ALTERNATIVE

Installation of Tier 2 netting at the five additional prison sites where it is viable would not substantially change the risk of take of ESA/CESA-covered species or substantially reduce electrocution of uncovered MBTA-protected birds. These five sites have the lowest rates of mortality and least risk of take among the sites in the Statewide Electrified Fence Project, based on mortality data to date. Because of the low number of electrocutions, CDC originally decided not to install netting at these five sites, recognizing limitations of available funding and the need to use limited mitigation funds in the most cost-effective manner (refer to Section 4.6, Mitigation Criteria, in the Draft EIR). No federally or state-listed species have been electrocuted at any of these sites. At all five sites, loss of uncovered MBTA-protected species averages less than 1.0 per week. A small number of unlisted ESA/CESA-covered species have been lost at Centinela State Prison (6 over 35 months), Ironwood State Prison (1 over 33 months) and Chuckawalla Valley State Prison (2 over 22 months). No ESA/CESA-covered species have been electrocuted at Mule Creek State Prison or Pelican Bay State Prison. Consequently, this alternative would not achieve a substantial benefit in reducing the risk of take of listed or unlisted ESA/CESA-covered species, or the number of uncovered MBTA-protected species lost.

REASONS FOR ELIMINATING CONSIDERATION OF THE ADDITIONAL NETTED FENCES ALTERNATIVE

Because of budgetary restrictions and limitations of available funds, CDC has been making mitigation decisions based on the best use of its monies. It is clear that some electrified fence sites contribute substantially to the risk of take and loss of migratory birds, while other sites do not. In the effort to most cost-effectively use limited funding, CDC has committed to installing netting at all viable sites that have contributed substantially to the risk of take or loss of migratory birds. The five sites with the lowest risk of take and smallest numbers of migratory bird electrocutions have been determined by CDC to not warrant the cost of netting, because little benefit in species protection would be gained. (Instead, any residual mortality at unnetted sites is incorporated into the determinations of appropriate Tier 3 compensatory mitigation.) Therefore, the alternative of installing additional nets at these five sites has been eliminated from further consideration, unless such action would become necessary as a result of excessive mortality at these five prisons, and as described in Section 8.2.

7.4 "NETTING TO TOP" ALTERNATIVE

DESCRIPTION OF THE NETTING TO THE TOP ALTERNATIVE

To prevent certain types of wildlife from entering the perimeter and encountering the risk of electrocution, a tented net that could be installed over-the-top of the entire electrified fence or the entire secured perimeter has been considered. One potential design is to envelop the entire electrified fence with a

vertical net suspended from a support cable stretched above the highest lethal wire. Another concept could involve a second, upper section of vertical netting above the proposed lower vertical net, suspended from a similar support cable above the highest lethal wire. A third idea is to span netting, in a tented fashion, over the secured perimeter by attaching it to the tops of the inner and outer chain link fences, and then suspending it in the middle above the electrified fence wires via a special cable installed at the top of the support posts.

CHANGE IN THE LEVEL OF TAKE WITH THE NETTING TO THE TOP ALTERNATIVE

Depending on the mesh size of the netting, various size categories of wildlife could be entirely excluded from contact with the electrified fence if a net were to entirely envelop all lethal wires. With a small enough mesh, essentially all animals, including small birds, could be prevented from contacting the lethal wires. Substantial reduction of risk of take and loss of migratory birds is conceivable, if a viable tented net or over-the-top net design existed or was developed.

REASONS FOR ELIMINATING CONSIDERATION OF THE NETTING TO THE TOP ALTERNATIVE

Several versions of tented netting and over-the-top netting were field evaluated in test mock-ups at Pleasant Valley State Prison (July 28, 1994) and Salinas Valley State Prison (May 22-23 and July 18, 1995). Many feasibility factors were evaluated, with the result being that neither over-the-top vertical netting enveloping the entire lethal fence nor tented netting over the entire perimeter were considered viable for a variety of reasons, with security concerns being the most compelling.

It would be cost prohibitive to install netting up the sides of both chain link fences and tented over the electrified fence. This complete netting of the perimeter would interfere substantially with surveillance visibility within and through the perimeter. Netting on the chain link fences would also aid in climbing the fences. Tented netting over the perimeter would also pose maintenance problems, as wind-blown trash and debris would inevitably accumulate because of the tented design. The height of the netting would also necessitate removal of debris with heavy equipment, thus making it time-consuming and costly. Consequently, design concepts involving a tented net over the entire perimeter are not viable.

The reasons for eliminating vertical netting concepts to the top of the lethal fence wires relate to excessive security risks. Extensive testing and evaluation concluded that the security problems posed by netting to the top, or even near the top, of the electrified fence proved to be insurmountable. The primary concern is the extent to which a net up to or near the top of the lethal electrified wires would serve as an aid for escapes. Potential footholds up to the top of the fence from net support brackets and the possibility of directly climbing the net would pose unacceptable security risks. The support cable that would be needed to suspend the net over the electrified fence would have to be strong enough to carry the weight of the netting, which would enable it to potentially help an inmate climb over the top, avoiding contact with lethal wires. This would be true even with an upper-section concept where netting that is only half the height of the fence would need to be supported by an upper cable. In-depth engineering analysis has resulted in a netting mesh and strength that results in a break-away system where the net collapses (from its post support brackets or from tearing) under the weight of an inmate. However, even though a netting system can be designed to break, rip, tear, or not burn, an escaping inmate could still use something to distribute weight over a larger area (such as cardboard, heavy clothing, plywood, or pieces of lumber), thus defeating the break-away system. Also, the upper cable supporting the net could not be designed

with such a break-away capacity, because the weight of the net it carries would be greater than inmates' weight. After a lengthy review, the consensus among CDC security experts was that an over-the-top, or near the top, vertical net design enveloping the lethal wires posed excessive security problems that were unacceptable. Consequently, this alternative is not feasible and has been eliminated from consideration.

7.5 ALTERNATIVE ELECTRIFIED FENCE DESIGN: STUN-LETHAL FENCE

DESCRIPTION OF THE ALTERNATIVE ELECTRIFIED FENCE DESIGN

CDC has investigated an alternative fence design called the "stun-lethal" electrified fence. The electrical system of the stun-lethal fence would be designed so that when the first contact is made, the voltage of the charge received would be a lower than lethal level for humans. If a subsequent contact is made, the charge would then be lethal to humans. After the source of an alarm is resolved by correctional officers, the fence's electrical system is returned to its stun-level mode by the control center.

CHANGE IN THE LEVEL OF TAKE WITH THE ALTERNATIVE ELECTRIFIED FENCE DESIGN

The alternative stun-lethal design would not diminish the risk to wildlife of receiving an electrical charge, because the post and wire design is similar. It would, however, reduce the strength of the charge for first contact. It is speculative, and likely variable, whether an electrical charge designed to stun a person would protect a bird or other animal. Birds and small animals may still be electrocuted by a charge designed to stun a human, or they may be mortally injured. Some larger species may be stunned and still be able to recover, thus reducing the potential risk of wildlife mortality. For the period between an initial contact/alarm and the time when the control center returns the fence to stun-level mode, any animal contacting the fence would be electrocuted. Consequently, the risk of take of ESA/CESA-covered and uncovered MBTA-protected species would not be eliminated and may not be significantly reduced by this alternative design.

Although the degree of reduced impact is not certain, it is reasonable to conclude that this alternative stun-lethal fence design may decrease the loss of wildlife, but it would not eliminate it and may not significantly reduce it. The uncertainties of wildlife response to electrical charges designed to stun humans prevents a definitive conclusion about the degree of impact reduction. Therefore, it cannot be assured that the alternative would substantially reduce the risk of take or loss of wildlife at the prison fences.

REASONS FOR ELIMINATING CONSIDERATION OF THE ALTERNATIVE ELECTRIFIED FENCE DESIGN

Feasibility reviews of this alternative by CDC institutional staff, security specialists, and technical project support staff have determined that the stun-lethal fence system would not be viable for security and public safety reasons related to reliability, maintenance, and deterrence value factors.

Reliability and Maintenance

Factors considered in the review of reliability and maintenance of the stun-lethal design include complexity of design, opportunity for failure, and ease of maintenance/repair. The most reliable electric and electronic systems are the result of straightforward, simple designs with limited computer functions

and a small number of electronic parts. As the complexity and number of parts increases, so does the probability of a part or function failure affecting reliability and increasing the downtime and costs for repair and maintenance. With a prison perimeter security system, the highest level of reliability and the minimum amount of downtime for repairs and maintenance are critical to prison security and public safety.

Stun-lethal systems require more computer functions, more system design complexity, and a larger number of parts than a full-time lethal system. The additional complexity relates to the fact that the system must operate in two different power modes and additional electrical circuitry, system monitoring features, logic characteristics, and computer functions are required for the system to detect a fence contact and switch power levels and supplies from the stun to lethal mode. Each additional component or function also adds opportunity for failure, including the potential for failure in the switch from stun to lethal mode. A failure when the system is assumed to be operating properly could be devastating, if that failure occurred at the time of an escape attempt. The greater complexity of a stun-lethal system, which results in inferior reliability when compared to a full-time lethal fence, is one factor contributing to why CDC has determined that the stun-lethal system alternative does not meet security objectives for California prisons.

Public Safety and Deterrence Value

One of the crucial characteristics of a safe and effective prison perimeter security system is its ability to deter inmates from attempting escapes. A full-time lethal fence system possesses a type of deterrence lethality that is obvious to the inmate population. Insufficient deterrence is dangerous to inmates, prison staff, and the public. Based on extensive experience with inmate behavior, CDC has concluded that a stun-lethal fence system would not provide an adequate level of deterrence to discourage inmates from attempting escapes.

An inmate committed to life in prison may feel he has little or nothing to lose in an escape attempt, if he feels there is a chance of success. Experience has shown that an inmate can exhibit extreme levels of tenacity and risk-taking in that circumstance. If an inmate believes there may be even a slight chance of defeating the stun-to-lethal mode switch of the fence, or withstanding an electrical stun and continuing, the system's deterrence value is substantially diminished. If the stun-lethal system decreases the risk to an outside accomplice in fact, or an accomplice perceives that the risk is lessened, deterrence value is again substantially damaged. If an escape is successful, the inmate is a serious risk to the public and to public safety officers charged with his apprehension and return. If an escape is attempted because there is the perception of a chance to succeed, but it is unsuccessful, the attempt puts at risk the safety of the inmate, any involved accomplices, and correctional officers responding to the attempt. Therefore, because of its inferior deterrence value, CDC has concluded that the stun-lethal fence is not as safe for inmates, prison staff, and the public. In comparison, the full-time lethal system has been shown to be extremely effective as a deterrent as there has been only one failed attempt to escape through the electrified fence.

As a result of the review of reliability factors, maintenance needs, and deterrence value of the stun-lethal fence, CDC has concluded that this alternative would not provide adequate levels of security and public safety. Also, it cannot be assured that the stun-lethal design would significantly reduce mortality to wildlife compared to the lethal electrified fence. The stun-lethal fence design is not a feasible alternative to the full-time lethal fence system.

7.6 OTHER TIER 2 MEASURES CONSIDERED AND REJECTED AS INFEASIBLE OR INEFFECTIVE

CDC conducted a mitigation research effort beginning in early 1994 after the unanticipated problem of accidental wildlife electrocution became apparent at Calipatria State Prison. Because there are no other projects of this kind in the country, data related to the specific problem of wildlife mortality with electrified fences was not available. More traditional methods of controlling wildlife or preventing the unwanted use of an area by wildlife were reviewed for applicability. Many of these methods were first developed for use in the agriculture industry to reduce crop loss by wildlife. Other measures were designed by animal control specialists to keep pest species, such as rock doves (i.e., pigeons), from roosting on buildings or to prevent foraging at landfills and fish hatcheries by gulls and herons.

Most of the measures identified during the research effort were categorized as wildlife exclusion and deterrent devices. Nearly all were developed with birds in mind and, although used commercially, none had been proven effective in a scientific study. A few of the measures were suggested by experts as possibly being effective in reducing or preventing wildlife use of a prison's perimeter. All of the measures identified and discussed below had at least some initial potential to be effective. Each was then more carefully evaluated and critiqued for biological effectiveness, as well as for security, maintenance/ operations, and cost considerations. For a few of the more promising measures, CDC conducted studies to field evaluate them for feasibility issues and effectiveness concerns. Those described below were determined to be ininviable or ineffective in early evaluations and field testing for one or more reasons.

SOUND DEVICES

A variety of noise-making devices have been used in the agriculture industry to reduce crop losses caused by foraging birds. They are based on the premise that loud noises will scare birds and other wildlife away. Traditionally, these devices produce sounds replicating shotgun blasts, sirens, or firecrackers. Another version of these devices relies on tape recordings of bird distress calls broadcast over loudspeakers to frighten birds away. While a variety of sound devices are commercially available, their purported effectiveness has not been substantiated. It is possible the devices may be effective, if they are used only seasonally and sounds are produced randomly; this would help to avoid the problem of reduced effectiveness through acclimation.

Devices that produce loud sounds were dismissed as innot viable because they would interfere with the ability of correctional staff to detect weapon noises or other sounds, thus jeopardizing security at the prisons.

A second category of sound devices produces noise in the ultrasonic frequencies (greater than 20,000 Hz), thus making them inaudible to humans. While this would avoid the security risks of the audible devices, the effectiveness of ultrasonic devices is highly questionable. In fact, one report states that most birds do not even hear in the ultrasonic frequency ranges (Erickson, et al. 1992). Vendors have claimed that ultrasonic devices work well to repel rodents and other mammals; however, no data could be obtained to substantiate those conclusions. The unsubstantiated claims of the manufacturers made the ultrasonic sound devices innot viable.

Flashing Tapes

Flashing tapes, a unique type of anti-perching device, were only considered for use in this project to deter birds from perching in and on the razor wire coils (at the tops of the inner and outer chain link fences). As with colored ribbon, flashing tape has been used effectively by farmers and wildlife control specialists to deter avian activity in crop fields and on building ledges. These devices are intended to visually disturb birds, thus discouraging roosting and perching behavior. Unlike colored ribbon, which flutters loosely in the breeze, flashing tape is attached at fixed points using metal clips.

The flashing tape that was considered for installation in the razor wire coils is called "Irritape"; it is a commercially available, two-inch wide, polyester film ribbon, coated with a reflective material and printed with holographic circles. Flashing tape is different from dangling, colored ribbons because it is typically attached in a twisted fashion parallel to a surface. By installing this material inside the razor wire coils, it was believed that perching behavior might be deterred. However, concerns regarding lack of durability and the need for frequent replacement caused this device to be dropped from future consideration. Also, the safety hazards posed by installing this device within the razor wire coils contributed to the conclusion that the measure is innot viable.

Chemical Irritants

A report indicated that as many as 19 different chemically-based bird repellent products were commercially available and registered with the U.S. Environmental Protection Agency (Mason and Clark 1992). Most of these products were developed for non-agricultural uses. They generally involve chemical irritants applied as sticky sprays or tacky gels to possible roost and perch sites. While these products seem to have some demonstrated benefit, they are short-lived and expensive and their effectiveness can be reduced by the washing-effect of persistent rains and by accumulations of wind-blown dust and debris. Because nearly all of the prisons are located in areas where seasonal winds or heavy rains are a problem, it was concluded that these substances would need to be reapplied frequently. The materials and labor costs for regular replacement make these products innot viable for use at prison sites.

Alternative Food Sources

It was considered possible to lure wildlife away from the electrified fence by providing an attractive source of food at a remote location. The original concept was that bird feeders may be more of an attractant than the insects, seeds, and vegetation available near the perimeter. The problems with this concept are three-fold: (1) most of the State-owned prison properties do not have enough available acreage to "lure" species to a place far enough from the fence to be safe; (2) artificial feeding may actually attract more wildlife to the property than away from the fence; and (3) it would be impractical to devise a feeding program that works for all species of wildlife at risk of electrocution. Because of issues relating to effectiveness, this mitigation concept was dismissed as innot viable.

Lighting Alternatives

Most of the wildlife electrocuted at night on the electrified fences are nocturnal owls feeding on insects attracted to the perimeter lights. This is generally believed to be the cause of the burrowing owl losses

at Calipatria State Prison; the owls have been opportunistically foraging on insects in the well-lit perimeter. Other owls, such as barn owls and great horned owls, are attracted to the nocturnal rodents that sometimes forage between the fences. The premise of this measure is that the attractiveness of the perimeter could be diminished by altering the color, intensity, or position of the lights. However, further evaluation of alternative lighting scenarios resulted in dismissal from further consideration for a variety of reasons. Yellow lighting is generally regarded as attracting the fewest numbers of insects; but all State prisons are already using energy-efficient, low-pressure sodium lights that produce a yellowish-cast around the perimeter. Because of strict surveillance guidelines pertaining to the amount of light required in the perimeter, it is not possible to reduce the intensity of the lighting.

Avian Scare Devices

A variety of avian scare devices that are commercially available were evaluated for feasibility. Because the initial evaluations did not conclude that these devices were innot viable from a security, maintenance, or cost perspective, CDC decided to field test some of them to determine their effectiveness. Scare devices that were field tested included reflective ribbon, hard plastic owl decoys, inflatable owl decoys, and inflatable "Terror Eyes". These devices are intended to discourage bird activity, either by relying on visual perturbation (reflective ribbon) or natural predator aversion (owl decoys and "Terror Eyes"). A combination of reflective ribbon, owl decoys, and Terror Eyes were installed near the perimeters at Avenal State Prison and California State Prison (CSP)-Corcoran in 1995 in order to determine if they would reduce bird activity around the electrified fences, thereby reducing mortality caused by accidental electrocution. Each device was strategically placed near the perimeter fences that parallel both sides of the electrified fence. After installation, biologists began a field monitoring program to evaluate the effectiveness of the devices. Also, biologists reviewed mortality data reports to compare the number of electrocutions before and after installation of the deterrent devices. Field testing at Avenal State Prison and CSP-Corcoran continued into 1996.

Preliminary results, issued in 1995 after two months of study, were tentative but not favorable (Michael Brandman Associates 1995). Early findings were that: 1) none of the deterrent devices tested were completely effective at keeping birds from perching on the electrified fence; 2) the influence of the surrounding physical environment (e.g., "puddled" water, landscaping, etc.) was a more dominant factor; and 3) many of the devices failed (e.g., faded, deflated, detached) under harsh climatic conditions (e.g., intense sunlight, high temperatures, and strong winds). Additional surveys conducted in 1996 further supported the earlier findings (EDAW 1997a). The overall conclusion, after two years of study, was that the deterrents tested were not effective at reducing the number of birds visiting the fenced perimeter because avoidance behavior was either nonexistent or only short-term. Based on the findings that the devices were both ineffective and suffered durability problems, CDC decided not to include them in the adopted Tier 2 mitigation package.

8 PLAN IMPLEMENTATION, CHANGED CIRCUMSTANCES, AND UNFORESEEN CIRCUMSTANCES

8.1 PLAN IMPLEMENTATION

Installation and activation of electrified fences has occurred at 25 of the 29 State Prisons covered by the HCP. Electrified fences at the other prison sites are not yet authorized for installation. Of these four future electrified fence sites, three are future prisons that may never be authorized by the State Legislature for construction, and one is an existing women's institution that will only receive an electrified fence if the Legislature authorizes its conversion to a men's facility. While CDC plans currently include building electrified fences in the future at these four sites, they may never be implemented.

Implementation of minimization and mitigation measures for CDC's Statewide Electrified Fence Project is occurring in two phases - one for Tier 1 and Tier 2 measures, and a second phase for Tier 3 measures. Tier 1 minimization is already in effect at all existing institutions with electrified fences. Tier 2 exclusion/deterrent devices are in place at 14 existing prisons, and planned for installation at another 3 future electrified fence prison sites. Tier 3 measures will require a number of years to complete, and will be initiated immediately after approval of the ESA Section 10(a)(1)(B) and CESA Section 2081(b) incidental take permits. Tier 3 involves acquisition of land from multiple private landowners, as well as habitat enhancement and restoration programs.

It is expected that at least two years will be required to negotiate price, purchase properties, and process all title transfers for the habitat acquisition components of the program. Habitat restoration efforts on some sites will involve a multi-year methodology to implement, and all will require 5 or more years of subsequent monitoring to ensure success of vegetation establishment.

Because the Tier 3 program, by necessity, will require 5 or more years to implement, CDC will submit an annual report to keep USFWS and CDFG informed and updated on Tier 3 activities (see Section 5.4.3). The report will cover the following topics that were relevant to the previous calendar year: 1) site audits to inspect for Tier 1 implementation; 2) site audits to ensure that Tier 2 devices are being properly maintained; 3) an analysis of netting effectiveness; (4) a summary of land acquisition efforts; (5) an evaluation of the success of enhancement efforts, and remedial actions undertaken or planned; and (6) a summary of other measures implemented (e.g., cowbird trapping).

A rough schedule of HCP-related events is as follows:

1) Permit Issuance - The permit is assumed to be granted by September 1999.

2) Completion of all Mitigation Implementation Agreements and all Restoration Plans - Mitigation agreements, restoration plans, and funding for other activities (e.g., cowbird trapping, contributions to MSCP and DTNA) are expected to require approximately 1 year, and will formally begin after permits are issued. Therefore, assuming permits are issued by September 1999, the USFWS and CDFG approved agreements and plans should all be completed by early fall 2000.

3) Property Appraisals for Acquired Parcels - This activity is expected to begin by June 1, 1999. The length of time for completion of appraisal activity is dependent on whether the current owners are willing sellers, and if not, the length of time needed to locate alternative parcels.

4) Property Acquisition - The acquisition process is expected to take about 1 year to complete, assuming that willing sellers and appropriate parcels can be identified at all three locations where property acquisition is proposed (i.e., Humboldt Bay NWR, Allensworth Ecological Reserve, and Kern River Preserve). With appraisals proposed to take place in the summer of 1999, all acquisition activity should be completed by early fall 2000.

5) Enhancement Activity at Mitigation Sites - The process of implementing enhancement activity varies at each site. For the mitigation sites where no restoration activity is being conducted by CDC or its representatives, the enhancement actions should be completed within 1 year following successful completion of the above steps. Mitigation sites included in this category are: California City Desert Tortoise Preserve, O'Neal Canyon, and Burrowing Owl Mitigation within the San Diego MSCP. For the mitigation sites where active restoration is being conducted by CDC or its representatives, all enhancement activity should be completed upon fulfillment of agency-approved success criteria for the originally chosen sites, or their alternatives (if restoration efforts must occur at back-up sites). Mitigation sites included in this category are: Allensworth Ecological Reserve, Cowbird Trapping at Paul wattis Sanctuary, Humboldt Bay NWR, Kern River Preserve, Mayacama Mountains Sanctuary, Paul Wattis Sanctuary, Stanislaus River Park, and Starr Ranch Sanctuary. In general, most restoration activities are expected to require 5 years to complete, assuming success is achieved and no remedial actions are needed. Assuming successful completion of all proposed restoration actions, Humboldt Bay NWR will be the last to be completed because it requires substantial site preparation work and two 5-year revegetation periods. Based on successful completion of restoration work at Humboldt Bay NWR, which is expected to take 11 years assuming no remedial actions are needed, all enhancement activity at all mitigation sites involving active restoration work should be completed by the end of 2011.

8.2 CHANGED CIRCUMSTANCES

The USFWS HCP Handbook points out the conflict that often arises from the two primary goals of the HCP program: 1) adequately minimizing and mitigating for the incidental take of listed species; and 2) providing regulatory assurances to Section 10 permittees that the terms of an approved HCP will not change over time, or that necessary changes will be minimized to the extent possible, and will be agreed to by the applicant. The remainder of Section 8 addresses the mechanisms that are designed to help resolve conflicts arising from changed and unforeseen circumstances throughout the life of the plan. This subsection (8.2) discusses a set of strategies and administrative actions that can be applied to foreseeable changes. The Habitat Conservation Plan Assurances Rule [50 CFR 17.2,17.22(b)(5) and (6) 63 F.R. 8859] (see Appendix G); offers the following definition of "changed circumstances": "changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the USFWS and that can be planned for (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events)."

CDC, in consultation with USFWS and CDFG, has identified five changed circumstances that may occur during the life of the HCP. CDC acknowledges that the following situations or circumstances represent changed circumstances, not unforeseen circumstances and may require additional mitigation and/or restrictions on project activities

1) Newly-listed uncovered species. If a new species, which is not covered by the HCP but may be affected by activities covered by the HCP, is listed under ESA during the term of the Section 10(a)(1)(B) permit, USFWS will consider this to be a changed circumstance. In such case, the Section 10(a)(1)(B) permit will be reevaluated by USFWS and the HCP-covered activities may be modified, as necessary, to ensure that the activities covered under the HCP are not likely to jeopardize or result in take or adverse modification of any designated critical habitat of the newly listed species. CDC shall implement the modifications to the HCP covered activities identified by the USFWS as necessary to avoid the likelihood of jeopardy to, or take, or adverse modification of the designated critical habitat of the newly listed species. CDC shall continue to implement such modifications until such time as CDC has applied for and USFWS has approved an amendment of the Section 10(a)(1)(B) permit, in accordance with applicable statutory and regulatory requirements, to cover the newly listed species or until the USFWS notifies CDC in writing that the modifications to the HCP-covered activities are no longer required to avoid the likelihood of jeopardy to, or take of, or adverse modification of designated critical habitat of the newly listed species. Further, if CDC requests coverage for any other species under this HCP, CDC shall be responsible for any additional mitigation measures required to satisfy the permit issuance criteria under Section 10(a)(2)(B) of ESA for such species.

2) Excessive mortality at the electrified fences. This could be the result of exposed/un-netted upper wires, net failure due to design flaws or improper maintenance, or improper implementation of Tier 1 measures (i.e., operation and maintenance measures to reduce/eliminate wildlife attractants near the perimeter). Should excessive mortality of wildlife occur at any of the prison fences, CDC will immediately consult with USFWS and CDFG to determine what additional measures, if any, would be necessary.

3) Net ineffectiveness. This could be the result of net failure due to design flaws or improper maintenance. Should post-net mortality increase over the desired 80% reduction level for HCP species (that is, in comparing it to the collective pre-net mortality rate for ESA/CESA-covered and MBTA-protected species), CDC will immediately consult with USFWS and CDFG to determine what corrective actions, if any, need to be taken.

4) Failure of habitat enhancement efforts or restoration programs. Each enhancement and restoration effort will have performance criteria associated with it, including both quantitative and qualitative measures. If annual monitoring determines that annual performance criteria are not being achieved, then remedial actions will be undertaken. If, at the end of the pre-determined monitoring period, the enhancement or restoration effort is deemed a failure, then CDC will consult with USFWS and CDFG to determine an appropriate replacement opportunity or alternative measure.

5) A change in prison construction plans. One or more of the four future electrified fence sites addressed in this HCP may be dropped from the project by CDC, or they may never be authorized by the State Legislature. In either event, CDC will initiate consultation with CDFG and USFWS to discuss re-allocating ESA/CESA "mitigation credits" for the dropped or unauthorized electrified fence site to another CDC project (e.g., a different new prison or electrified fence), as long as the habitat types and species affected are similar.

USFWS guidelines provide for the inclusion of "adaptive management" strategies into HCPs to allow for the incorporation of new biological or technological information into a functioning HCP. These strategies are important to the planning process when new information or changing circumstances may be foreseen, as they represent a mechanism for adjustment which allows the HCP's biological objectives to be met. And, in order to recognize when strategy adjustments are needed, monitoring must be incorporated into the plan (see Section 5.4).

For this HCP, adaptive management strategies are included to ensure that Tier 2 (take avoidance) and Tier 3 (habitat enhancement) objectives are being met.

For Tier 2, CDC has committed to monitor each net for a period of three years following installation (refer to Section 5.4.1). Of the 17 prisons that are scheduled to receive netting, only 14 sites currently have electrified fences (the other 3 are either future prison sites or existing prisons whose electrified fence systems are not yet authorized). For these 14 prisons, net installation was completed in March 1998, and pre- and post-net monitoring is expected to be completed by March 2001. CDC will continue to include an evaluation of netting effectiveness in its annual report (see Sections 5.4.1 and 5.4.3) until such time as all netting effectiveness monitoring is completed. Data obtained from wildlife mortality monitoring will be incorporated into the annual report. The report will include a comparison of accrued annual take for the ESA/CESA-covered species to the authorized 5-year take thresholds for these species, and it will include total annual take for all MBTA-protected species.

For Tier 3, each restoration effort will have performance criteria associated with it, including both quantitative and qualitative measures. If annual monitoring determines that annual performance criteria are not being achieved, then remedial actions will be undertaken and reported to USFWS and CDFG at the end of the year (refer to Sections 5.4.2 and 5.4.3). If performance criteria are not achieved by the end of the pre-determined monitoring period, the restoration effort will be reported as a failure in the final report for that site.

Should any of the following changed circumstances occur, then CDC will initiate immediate consultation with CDFG and USFWS: 1) if a 5-year take threshold authorized by the incidental take permits is exceeded; 2) if netting effectiveness drops below the desired overall 80% reduction in mortality for HCP species (i.e., ESA/CESA-covered and MBTA-protected species) at a netted site; 3) if excessive mortality of wildlife, in general, occurs at any of the prison fences; or 4) if a restoration effort fails to meet its performance criteria by the end of the pre-determined monitoring period. For Tier 2 issues, the objective of the consultations will be to determine what additional minimization measures or corrective actions, if any, would be necessary to reduce or prevent further incidents of the specific mortality problem. For Tier 3 efforts, the consultation will involve determining an appropriate replacement opportunity or alternative measure.

USFWS will conduct its own review of CDC's annual reports to monitor incidental take and mitigation implementation, and to evaluate whether or not mitigation is proving to be successful. Annually, the Service shall review annual reports submitted by CDC to monitor incidental take. Also, the Service shall conduct its own review of the project every 5 years to confirm that efforts to reduce, minimize, and avoid take of migratory birds remain adequate to protect the migratory bird resource

8.3 UNFORESEEN CIRCUMSTANCES

Section 10 regulations [50 CFR 17.22(b)(2)(iii)] require that an HCP specify the procedures to be used for dealing with unforeseen circumstances that may arise during the implementation of the HCP. In addition, the Habitat Conservation Plan Assurances ("No Surprises") Rule [50 CFR 17.21(b)(5)-(6) and 17.22 (b)(5)- (6); 63 F.R. 8859] defines "unforeseen circumstances" and describes the obligations of the permittee and USFWS (see Appendix G). The purpose of the Assurances Rule is to provide assurances to non-federal landowners participating in habitat conservation planning under ESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee. The policy defines "unforeseen circumstances" as changes in circumstances that affect a species or geographic area covered by the HCP that could not reasonably be anticipated by CDC and USFWS at the time of the plan's negotiation and development and that result in a substantial and adverse change in the status of the covered species.

In determining whether any event constitutes an unforeseen circumstance, the USFWS shall consider, but not be limited to, the following factors: size of the current range of the affected species; percentage of range adversely affected by the HCP; percentage of range conserved by the HCP; ecological significance of that portion of the range affected by the HCP; level of knowledge about the affected species and the degree of specificity of the species' conservation program under the HCP; and whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

If USFWS determines that the unforeseen circumstance will affect the outcome of the HCP, additional conservation and mitigation measures may be necessary for ESA/CESA-covered species. Where the HCP is being properly implemented and an unforeseen circumstance has occurred, the additional measures required of the permittee must be as close as possible to the terms of the original HCP and must be limited to modifications within any conserved habitat area or to adjustments within lands or waters that are already set aside in the HCP's operating conservation program. Additional conservation and mitigation measures shall not involve the commitment of additional land or financial compensation or restrictions on the use of land or other natural resources otherwise available for development or use under the original terms of the HCP without the consent of CDC. Resolution of the situation shall be documented by letters between USFWS and CDC.

Thus, in the event that unforeseen circumstances adversely affecting the ESA/CESA-covered species occur during the term of the ESA Section 10(a)(1)(B) permit, CDC would not be required to provide additional financial mitigation or additional land use restrictions above those measures specified in the HCP, provided that the HCP is being properly implemented. However, CDC acknowledges that the situations or circumstances described in the changed circumstances and adaptive management discussion above are not considered unforeseen circumstances and, therefore, may require additional mitigation or restrictions on project activities as described in the HCP.

This HCP expressly incorporates by reference the permit assurances set forth in the Habitat Conservation Plan Assurances ("No Surprises") Rule adopted by the USFWS and published in the Federal Register on February 23, 1998 (see Appendix G). Except as otherwise required by law or provided for under the HCP, including those provisions regarding Changed Circumstances, no further mitigation for the effects of the Statewide Electrified Fence Project on ESA/CESA-covered species may be required from CDC if

it is properly implementing the terms of the HCP and the permit. The HCP will be properly implemented if the commitments and provisions of the HCP and the permit have been or are being fully implemented by CDC.

8.4 PERMIT AMENDMENTS

HCP AMENDMENTS

The CDC Statewide Electrified Fence Project HCP may, under certain circumstances, be amended without amending its associated permits, provided that such amendments are of a minor or technical nature and that the effect on the species involved and the levels of take resulting from the amendment are not significantly different than those described in the original HCP. Examples of minor amendments to the CDC prison fences HCP that would not require permit amendment include but are not limited to: a) minor revisions in the plan's Tier 1 minimization program (e.g., changes to operations and maintenance procedures designed to eliminate wildlife attractants at the prison fence sites); b) minor revisions to the Tier 2 or Tier 3 programs (e.g., minor alterations or maintenance needs found to be necessary in the Tier 2 exclusionary netting and minor alterations in the plan's habitat restoration and enhancement designs, including any corrective or remedial measures found to be necessary); c) minor revisions to monitoring or reporting protocols; and d) minor revisions in strategies for handling ESA/CESA-covered species or MBTA-protected species that are killed or injured at CDC's prison fences.

To amend the HCP without amending the permit, CDC must submit to USFWS and CDFG, in writing, a description of: a) the proposed amendment; b) an explanation of why the amendment is necessary or desirable; and c) an explanation of why CDC believes the effects of the proposal are not significantly different than those described in the original HCP. If USFWS and CDFG concur with CDC's proposal, they shall authorize the HCP amendment in writing, and the amendment shall be considered effective upon the date of USFWS's and CDFG's written authorization. Any amendments to the HCP will also be made in accordance with applicable ESA and CESA regulations (for CESA, see 14CFR Section 783.b(c).) If USFWS and CDFG do not concur that any such CDC proposal constitutes a minor HCP revision, a permit revision may be necessary.

PERMIT AMENDMENTS

Amendment of CDC's ESA Section 10(a)(1)(B) permit or CESA Section 2081(b) permit would be required for any change in the following: a) a decision by CDC to install prison fences at prisons not currently described in this HCP; b) the listing under ESA or CESA of a new species not currently addressed in the HCP that may be taken by project activities; c) modification of any important project action or mitigation component under the HCP, including funding, that may significantly affect authorized ESA/CESA take levels, effects of the project on wildlife, or the nature or scope of the mitigation program (e.g., a need to significantly alter the Tier 2 fence design as a result of excessive wildlife mortalities at the fences); and d) any other modification to the HCP likely to result in significant adverse effects to the plan's ESA/CESA-covered species or MBTA-protected species not addressed in the original HCP and permit application.

Amendment of a Section 10(a)(1)(B) or Section 2081(b) permit must be treated in the same manner as an original permit application. Therefore, permit amendments typically require a revised HCP, a permit application form and applicable fee, an Implementing Agreement, a NEPA document, and a 30-day public comment period. However, the specific documentation needed in support of a permit amendment

may vary depending on the nature of the amendment. Actual documentation requirements will be determined by USFWS and CDFG at the time any such permit amendment is requested by CDC.

8.5 ADDITIONAL MITIGATION PURSUANT TO CESA

The amendment, suspension and revocation of Section 2081(b) permits is governed by CESA and regulations promulgated thereunder. (See Title 14 California Code of Regulations, Section 783.0, et seq.). Neither CESA, nor CESA regulations, contain a rule or regulation analogous to the federal "No Surprises Rule." However, subject to CESA regulations, CDFG can provide assurances regarding additional mitigation based on the specific minimization and mitigation measures provided for in individual permits. If there is an adequate basis for determining that the measures in a particular CESA permit will effectively minimize and fully mitigate the impacts of taking authorized during the full term of the CESA permit, CDFG can provide commensurate assurances to the permit holder that additional measures will not be required.

Based on this HCP, CDFG has concluded that assurances to CDC regarding additional mitigation requirements are warranted. For so long as CDC implements and adheres to the HCP and the Section 2081(b) permit, CDFG will not amend, suspend or revoke the Section 2081(b) permit, nor otherwise impose or seek to impose on CDC any mitigation or compensation requirements for the permitted activities in addition to the mitigation and compensation provided for in the HCP and the Section 2081(b) permit, including but not limited to commitments of additional land or financial compensation, unless CDFG determines that continuation of the activities authorized under the Section 2081(b) permit would jeopardize the continued existence of a 2081(b) permit species, or unless otherwise required by law. If CDFG makes a jeopardy determination, it shall amend, suspend or revoke, or require such additional mitigation or compensation only if, and to the extent, necessary to avoid jeopardy.

8.6 OTHER MEASURES AS REQUIRED BY USFWS DIRECTOR

An Implementing Agreement among the permit applicant, USFWS, and CDFG is required by the USFWS's Director. This Agreement is included as Appendix E.

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Appendix A

Biological Studies Completed and Reports Prepared

BIOLOGICAL STUDIES COMPLETED AND REPORTS PREPARED

California Department of Corrections. 1997(Jun). *Findings Of Fact And Statement Of Overriding Considerations For The Statewide Electrified fence Project.*

Summary:

This report discusses project alternatives and the different "Tier" mitigation measures. These mitigation measures are intended to minimize, avoid, or compensate for the project's contribution to cumulative wildlife mortality; however, these measure cannot reduce the effect to a less-than-significant level. It is concluded that the unavoidable adverse effects are acceptable, based on overriding considerations listed in this report.

California Department of Corrections. 1997 (Jun). *Mitigation Monitoring Program For The Statewide Electrified Fence Project.*

Summary:

This report describes the guidelines for monitoring the implementation of the mitigation measures discussed in the Final EIR and adopted by CDC.

Michael Brandman Associates. 1994 (Dec). *Results of Wildlife Surveys Conducted for the Statewide Analysis of Electrified Fence Impacts.* Prepared for Department of Corrections.

Summary:

The results of 1994 research efforts identifying sensitive-status and other wildlife species at risk of electrocution at 23 prison facilities. An in-depth research effort was undertaken to identify and preliminarily evaluate ways to prevent or minimize wildlife electrocution. "Potentially feasible" and effective mitigation measures were identified for consideration and testing and were summarized in this letter report.

Michael Brandman Associates. 1995a (Mar). *Results of Wildlife Surveys Conducted for the Statewide Analysis of Electrified Fence Impacts.* Prepared for California Department of Corrections.

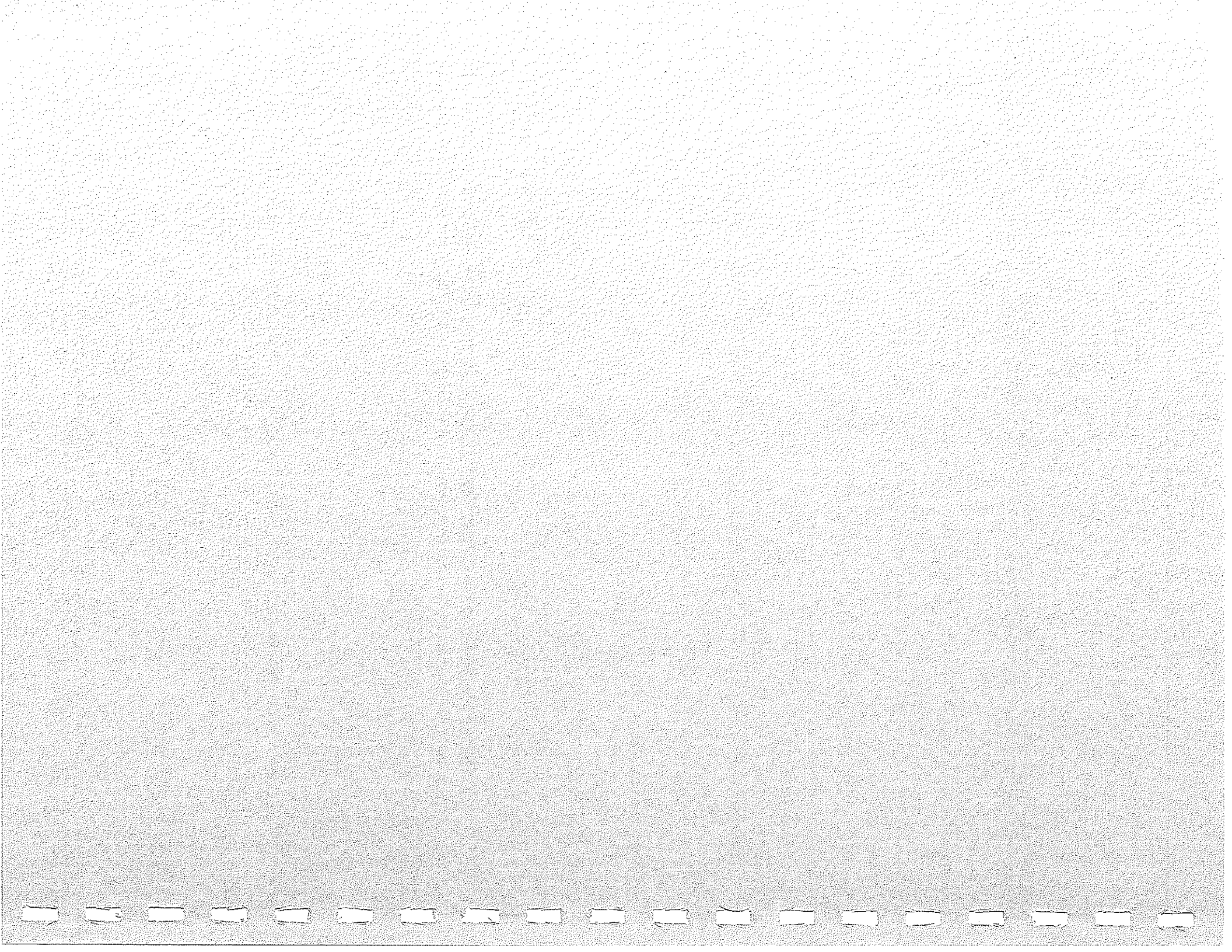
Summary:

This study included six additional prisons, and follow-up surveys were completed at the 23 prisons visited in 1994. This work was conducted in the winter and early spring so that use of these sites by wintering avian species could be described.

Michael Brandman Associates. 1995b (Feb). *Final Report of Findings for Burrowing Owl (Speotyto cunicularia) Monitoring, Calipatria State Prison, Imperial County, California.* Prepared for the Department of Corrections.

Summary:

This report included owl population counts and the results of monitoring the effectiveness of anti-perching devices, hardware cloth over drainages, and grade-beam stretch wires in reducing burrowing owl mortality at Calipatria State Prison.



State of California

Department of Corrections

Memorandum

Date : December 17, 1997

To : Joe Vincenty
Department of Fish and Game
1416 9th Street, Suite 1341
Sacramento, CA 95814

Subject: ELECTRIFIED FENCE-MONTHLY REPORT ON WILDLIFE DEATHS

As per our agreement, attached is the November 1997 report of bird deaths including all information through November 30, 1997.

If you have any questions regarding this data, please contact me at (916) 323-2251 or Brian Hoffman of EDAW, Incorporated, at (916) 362-3606.

Deborah Donaldson

DEBORAH DONALDSON
Branch Secretary
Construction Operations Branch
Planning and Construction Division

Attachments

bcc: Judith A. McGillivray
Susan V. Hancock
Bernd Beutenmuller
Gary Straughn
Evelyn Matteucci, AG
Mark Littlefield, USFWS
Mark Pavalka, USFWS
Bill Lehman, USFWS
Dwight Harvey, USFWS
Curtis Alling, EDAW, Inc.
Brian Hoffman, EDAW, Inc.
Leo Edson, EDAW, Inc.
Jack Richardson, KCEM
Division Files - SW/Site Issues-Elec. Fence-Environmental Issues

HANCOCK/dd BIRD LOG:EFTURNER.DOC

STATE OF CALIFORNIA--YOUTH AND ADULT CORRECTIONAL AGENCY PETE WILSON, Governor

DEPARTMENT OF CORRECTIONS
P.O. Box 942883
Sacramento, CA 94283-0001

December 17, 1997

Mr. Scott Pearson
U.S. Fish and Wildlife Service
Division of Law Enforcement
3310 El Camino Avenue - Suite 140
Sacramento, CA 95821-6340

Dear Mr. Pearson:

ELECTRIFIED FENCE - MONTHLY REPORT ON WILDLIFE DEATHS

As per our agreement, enclosed is the November 1997 report of bird deaths including all information through November 30, 1997.

If you have any questions regarding this data, please contact me at (916) 323-2251 or Mr. Brian Hoffman of EDAW, Incorporated, at (916) 362-3606.

Sincerely,

Deborah Donaldson

DEBORAH DONALDSON
Branch Secretary
Construction Operations Branch
Planning and Construction Division

Enclosures

bcc: Ms. Judith A. McGillivray
Ms. Susan V. Hancock
Mr. Bernd Beutenmuller
Mr. Gary Straughn
Ms. Evelyn Matteucci, AG
Mr. Joe Vincenty, CDFG
Mr. Bill Lehman, USFWS
Mr. Mark Littlefield, USFWS
Mr. Dwight Harvey, USFWS
Mr. Mark Pavalka, USFWS
Mr. Brian Hoffman, EDAW, Inc.
Mr. Curtis Alling, EDAW, Inc.
Mr. Leo Edson, EDAW, Inc.
Mr. Jack Richardson, KCEM
Div. Files - SW/Site Issues-Elec. Fence-Environmental Issues

HANCOCK:dd Bird Log:EFPears.doc

California Department of Corrections

Statewide Electrified Fence Project

Reported Wildlife Deaths by Institution

November 1997

Institution	Fence Name	November 1997 Take	1997 YTD Take	November 1996 Take	1996 Total Take	November 1995 Take	1995 Total Take	November 1994 Take	1994 Total Take
Avenal State Prison	Avenal	0	206	0	245	8	578	27	65
California Correctional Center	CCC	0	169	8	152	3	39	0	0
California Correctional Institution	Level III	0	11	0	36	4	61	0	0
California Correctional Institution	MAX IVA	2	23	4	16	0	5	0	0
California Correctional Institution	MAX IVB	4	14	1	15	0	0	0	0
California Institution for Men	Chino	0	35	0	42	1	300	0	0
California State Prison, Corcoran	Corcoran	1	247	1	129	7	288	36	105
California State Prison, LA County	Lancaster	0	14	1	17	2	60	3	6
California State Prison, Sacramento	Sacramento	1	201	13	374	16	563	0	8
California State Prison, Solano	Solano	0	23	3	34	0	57	0	0
Calipatria State Prison	Calipatria	8	76	4	59	8	120	7	117
Centinela State Prison	Centinela	0	3	1	16	1	26	0	8
Central California Women's Facility	CCWF	1	26	5	91	3	29	0	0
Chuckawalla Valley State Prison	CVSP	11	27	0	23	4	13	0	0
CSATF and State Prison at Corcoran	CSATFSP	0	8	0	0	0	0	0	0
High Desert State Prison	HDSP	0	23	0	104	0	0	0	0
Ironwood State Prison	Ironwood	0	2	3	18	1	46	0	0
Mule Creek State Prison	MCSP	1	63	2	90	3	91	13	17
North Kern State Prison	NKSP	0	101	5	83	2	164	15	25
Pelican Bay State Prison	PBSP	0	11	0	12	0	13	0	0

Institution	Fence Name	November 1997 Take	1997 YTD Take	November 1996 Take	1996 Total Take	November 1995 Take	1995 Total Take	November 1994 Take	1994 Total Take
Pleasant Valley State Prison	PVSP	6	99	7	118	0	180	2	20
R.J. Donovan Correctional Facility	RJD	0	20	1	20	6	115	0	0
Salinas Valley State Prison	SVSP	0	67	7	69	0	0	0	0
Valley State Prison for Women	VSPW	0	15	2	16	0	0	0	0
Wasco State Prison - Reception Center	Wasco	27	103	6	146	7	128	0	2

California Department of Corrections

Statewide Electrified Fence

Netting Result Totals

November 1997

Institution	Fence Name	Activation Date	Start of Netting Construction	End of Netting Construction	Native Species Take	
					Total Take Before Netting	Total Take After Netting
California State Prison, Corcoran	Corcoran	9/2/94	6/16/97	7/10/97	206	1
California State Prison, Sacramento	Sacramento	12/1/94	7/11/97	8/1/97	967	2
California State Prison, Solano	Solano	3/16/95	8/4/97	8/22/97	72	1
Central California Women's Facility	CCWF	8/8/95	9/15/97	9/30/97	89	1
Salinas Valley State Prison	SVSP	5/1/96	8/25/97	9/12/97	98	1

California Department of Corrections
Statewide Electrified Fence Species Loss
Data Through November 1997

	Current Month Losses	Year to Date Losses	Prior Years Losses	Total to Date Losses
Brown-headed Cowbird	0	0	27	27
Badger	0	1	0	1
Cassin's Kingbird	0	0	3	3
Black Phoebe	0	5	24	29
Black-crowned Night-heron	0	0	1	1
Black-headed Grosbeak	0	0	1	1
Black-tailed Jackrabbit	0	1	1	2
Lark Sparrow	0	4	28	32
Brewer's Blackbird	1	42	155	197
Killdeer	0	4	17	21
Bullfrog	0	0	2	2
California Ground Squirrel	0	10	23	33
Audubon's Cottontail	0	12	52	64
House Wren	0	1	0	1
Sora Rail	0	1	1	2
Steller's Jay	0	0	1	1
Striped Skunk	0	5	8	13
Tree Swallow	0	0	5	5
Violet-green Swallow	0	0	1	1
Western Bluebird	1	10	36	46
Song Sparrow	0	0	3	3
Western Flycatcher	0	0	1	1
Western Fence Lizard	0	0	2	2
Western Meadowlark	0	1	1	2
Western Tanager	0	0	8	8
White-crowned Sparrow	0	8	24	32
White-winged Dove	0	1	0	1
Wild Turkey	0	1	2	3
Wilson's Warbler	0	0	3	3
Yellow-billed Magpie	0	0	2	2
Yellow-rumped Warbler	8	89	259	348
Lazuli Bunting	0	0	1	1
Northern Oriole	0	8	19	27
Western Kingbird	0	86	238	324
Say's Phoebe	1	9	30	39
Lesser Goldfinch	0	10	12	22
Lincoln's Sparrow	0	1	0	1
Mink	0	0	1	1
Northern Mockingbird	0	2	14	16
Leach's Storm-petrel	1	1	0	1
Northern Rough-winged Swallow	0	0	2	2
Nothern Flicker	0	0	1	1
Opossum	0	3	3	6
Plain Titmouse	0	2	0	2
Raccoon	0	2	4	6
Red Fox	0	0	2	2
Red-winged Blackbird	1	6	24	30
Ring-billed Gull	0	6	21	27

California Department of Corrections
Statewide Electrified Fence Species Loss
Data Through November 1997

	Current Month Losses	Year to Date Losses	Prior Years Losses	Total to Date Losses
Ruby-crowned Kinglet	0	0	1	1
Savannah Sparrow	5	24	16	40
Mourning Dove	0	5	28	33
Total Non-Sensitive	**31**	**660**	**2373**	**3033**
4 Non-Native				
Norway Rat	0	0	1	1
Roof Rat	0	0	1	1
Rock Dove	0	1	2	3
Ring-necked Pheasant	0	1	0	1
House Sparrow	26	680	1753	2433
House Cat	0	10	57	67
European Starling	1	66	376	442
Cattle Egret	0	1	1	2
Total Non-Native	**27**	**759**	**2191**	**2950**
5 Unknown				
Bat (Species Unknown)	0	2	5	7
Bird (Species Unknown)	3	93	311	404
Kangaroo Rat (Species Unknown	0	0	1	1
Mouse (Species Unknown)	0	0	1	1
Rabbit (Species Unknown)	0	1	9	10
Skunk (Species Unknown)	0	0	1	1
Small Rodent (Species Unknown)	0	3	1	4
Squirrel (Species Unknown)	0	0	2	2
Total Unknown	**3**	**99**	**331**	**430**

Avenal State Prison

Wildlife Log

Data through November 30, 1997

Fence Name: Avenal
Activation Date: 10/4/94
Weeks Active: 165

Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Loss
1 Threatened or Endangered		0	0	0
	Total:	0	0	0
2 Sensitive	American Kestrel	0	0	
	Barn Owl	0	1	1
	Burrowing Owl	0	1	2
	Loggerhead Shrike	0	2	
	Tricolored Blackbird	0	1	2
	Total:	0	5	33
3 Non-Sensitive	Ash-throated Flycatcher	0	1	1
	Audubon's Cottontail	0	0	2
	Barn Swallow	0	0	
	Brewer's Blackbird	0	8	4
	Brown-headed Cowbird	0	0	7
	California Ground Squirrel	0	1	
	Cassin's Kingbird	0	0	
	Common Yellowthroat	0	1	1
	House Finch	0	25	16
	Killdeer	0	1	
	Lark Sparrow	0	1	
	Mourning Dove	0	4	19
	Northern Mockingbird	0	0	
	Red-winged Blackbird	0	1	
	Say's Phoebe	0	0	1
	Song Sparrow	0	0	
	Western Kingbird	0	13	5
	White-crowned Sparrow	0	0	1
	Yellow-rumped Warbler	0	5	45
	Total:	0	61	36
4 Non-Native	European Starling	0	20	9
	House Cat	0	0	
	House Sparrow	0	112	537
	Total:	0	132	63
5 Unknown	Bird (Species Unknown)	0	8	58
	Total:	0	8	5
	Fence Total:	0	206	1,094
	Fence Total of All Native Species:	0	66	39

California Correctional Center

Wildlife Log

Data through November 30, 1997

Fence Name: CCC
Activation Date: 8/30/95
Weeks Active: 118

Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Losse
1 Threatened or Endangered		0	0	0
	Total:	0	0	0
2 Sensitive		0	0	0
	Total:	0	0	0
3 Non-Sensitive	Barn Swallow	0	3	7
	Brewer's Blackbird	0	1	1
	Brown-headed Cowbird	0	0	1
	Horned Grebe	0	0	1
	House Finch	0	10	46
	Northern Oriole	0	0	1
	Ring-billed Gull	0	1	1
	Sora Rail	0	1	1
	White-crowned Sparrow	0	0	1
	Total:	0	16	60
4 Non-Native	European Starling	0	9	14
	House Cat	0	1	2
	House Sparrow	0	143	281
	Total:	0	153	297
5 Unknown	Bird (Species Unknown)	0	0	2
	Total:	0	0	2
	Fence Total:	0	169	359
	Fence Total of All Native Species:	0	16	60

California Correctional Institution

Wildlife Log

Data through November 30, 1997

Fence Name: Level III
Activation Date: 2/7/95
Weeks Active: 147

Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Los
1 Threatened or Endangered		0	0	
	Total:	0	0	
2 Sensitive	American Kestrel	0	0	
	Great Horned Owl	0	1	
	Loggerhead Shrike	0	2	5
	Total:	0	3	
3 Non-Sensitive	American Crow	0	0	
	American Robin	0	0	
	Audubon's Cottontail	0	0	1
	Brewer's Blackbird	0	1	6
	California Ground Squirrel	0	0	
	Common Raven	0	1	
	House Finch	0	0	2
	Northern Oriole	0	0	
	Western Bluebird	0	0	
	Western Kingbird	0	0	1
	Total:	0	2	3
4 Non-Native	European Starling	0	4	8
	House Cat	0	0	1
	House Sparrow	0	2	4
	Total:	0	6	61
5 Unknown	Bird (Species Unknown)	0	0	2
	Total:	0	0	
	Fence Total:	0	11	108
	Fence Total of All Native Species:	0	5	4

California Correctional Institution

Wildlife Log

Data through November 30, 1997

Fence Name: MAX IVA
Activation Date: 9/1/95
Weeks Active: 117

Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Loss
1 Threatened or Endangered		0	0	0
	Total:	0	0	0
2 Sensitive	American Kestrel	0	1	2
	Great Horned Owl	0	0	3
	Loggerhead Shrike	0	1	1
	Total:	0	2	6
3 Non-Sensitive	Acorn Woodpecker	0	0	1
	Audubon's Cottontail	0	1	1
	Brewer's Blackbird	0	0	3
	California Ground Squirrel	0	2	4
	Common Raven	1	1	4
	House Finch	0	2	2
	House Wren	0	1	1
	Lesser Goldfinch	0	0	1
	Northern Oriole	0	6	6
	Red-winged Blackbird	0	1	1
	Western Bluebird	1	1	5
	Western Kingbird	0	2	2
	Yellow-rumped Warbler	0	0	1
	Total:	2	17	32
4 Non-Native	European Starling	0	1	2
	House Cat	0	0	1
	House Sparrow	0	3	3
	Total:	0	4	6
5 Unknown		0	0	0
	Total:	0	0	0
	Fence Total:	2	23	44
	Fence Total of All Native Species:	2	19	38

California Correctional Institution

Wildlife Log

Data through November 30, 1997

Fence Name: MAX IVB
Activation Date: 9/15/95
Weeks Active: 115

Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Los
1 Threatened or Endangered		0	0	
	Total:	0	0	
2 Sensitive	Cooper's Hawk	1	1	
	Red-tailed Hawk	1	1	
	Sharp-shinned Hawk	0	1	1
	Total:	2	3	
3 Non-Sensitive	Brewer's Blackbird	0	0	
	California Ground Squirrel	0	0	
	Common Raven	0	2	
	Fox Sparrow	0	1	1
	House Finch	0	3	
	Lark Sparrow	1	1	
	Northern Oriole	0	1	2
	Red-winged Blackbird	0	0	
	Total:	1	8	
4 Non-Native	House Cat	0	0	
	House Sparrow	0	3	
	Ring-necked Pheasant	1	1	1
	Total:	1	4	
5 Unknown		0	0	0
	Total:	0	0	
	Fence Total:	4	15	2
	Fence Total of All Native Species:	3	11	2

California Institution for Men

Wildlife Log

Data through November 30, 1997

Fence Name: Chino
Activation Date: 1/20/95
Weeks Active: 149

Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Loss
1 Threatened or Endangered		0	0	0
	Total:	0	0	0
2 Sensitive	Barn Owl	0	0	1
	Burrowing Owl	0	0	1
	Loggerhead Shrike	0	0	7
	Red-tailed Hawk	0	0	1
	Total:	0	0	10
3 Non-Sensitive	American Crow	0	0	4
	Ash-throated Flycatcher	0	1	2
	Brewer's Blackbird	0	0	12
	California Ground Squirrel	0	4	9
	Cassin's Kingbird	0	0	1
	Common Raven	0	1	1
	House Finch	0	3	26
	Northern Mockingbird	0	0	5
	Red-winged Blackbird	0	0	1
	Say's Phoebe	0	1	2
	Striped Skunk	0	0	3
	Western Kingbird	0	4	7
	Yellow-rumped Warbler	0	0	1
	Total:	0	14	74
4 Non-Native	European Starling	0	0	78
	House Cat	0	0	5
	House Sparrow	0	19	203
	Total:	0	19	286
5 Unknown	Bird (Species Unknown)	0	1	6
	Small Rodent (Species Unknown)	0	1	1
	Total:	0	2	7
	Fence Total:	0	35	377
	Fence Total of All Native Species:	0	14	84

California State Prison, Corcoran

Wildlife Log

Data through November 30, 1997

Fence Name: Corcoran
Activation Date: 9/2/94
Weeks Active: 169

Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Loss
1 Threatened or Endangered		0	0	
	Total:	0	0	
2 Sensitive	Burrowing Owl	0	0	
	Loggerhead Shrike	0	1	
	Red-tailed Hawk	0	1	2
	Total:	0	2	1
3 Non-Sensitive	American Coot	0	1	8
	American Robin	0	0	
	Black Phoebe	0	0	
	Black-headed Grosbeak	0	0	1
	Botta's Pocket Gopher	0	1	
	Brewer's Blackbird	0	0	
	California Ground Squirrel	0	1	1
	House Finch	0	5	4
	Killdeer	0	2	
	Lark Sparrow	0	0	
	Mourning Dove	0	1	2
	Northern Mockingbird	0	0	
	Northern Oriole	0	0	
	Northern Rough-winged Swallow	0	0	1
	Red-winged Blackbird	0	0	
	Savannah Sparrow	0	0	
	Say's Phoebe	0	0	1
	Tree Swallow	0	0	2
	Western Kingbird	0	3	2
	Western Tanager	0	0	
	White-crowned Sparrow	0	1	1
	Yellow-rumped Warbler	0	24	9
	Total:	0	39	21
4 Non-Native	European Starling	0	0	1
	House Cat	0	0	
	House Sparrow	0	191	482
	Norway Rat	0	0	
	Rock Dove	0	1	
	Roof Rat	0	0	1
	Total:	0	192	4
5 Unknown	Bird (Species Unknown)	1	15	51
	Total:	1	15	

California State Prison, Corcoran

Wildlife Log

Data through November 30, 1997

Fence Name: Corcoran
Activation Date: 9/2/94
Weeks Active: 169

Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Losse
	Fence Total:	1	248	770
	Fence Total of All Native Species:	0	41	221

California State Prison, LA County

Wildlife Log

Data through November 30, 1997

Fence Name: Lancaster
Activation Date: 11/14/94
Weeks Active: 159

Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Los
1 Threatened or Endangered		0	0	
	Total:	0	0	
2 Sensitive	Barn Owl	0	1	
	Burrowing Owl	0	0	
	Loggerhead Shrike	0	0	2
	Total:	0	1	
3 Non-Sensitive	Audubon's Cottontail	0	0	?
	Brewer's Blackbird	0	0	
	California Ground Squirrel	0	0	4
	Common Raven	0	1	9
	House Finch	0	0	
	Ring-billed Gull	0	1	
	Say's Phoebe	0	0	1
	Total:	0	2	
4 Non-Native	European Starling	0	0	7
	House Cat	0	0	
	House Sparrow	0	11	
	Total:	0	11	59
5 Unknown	Bird (Species Unknown)	0	0	3
	Kangaroo Rat (Species Unknown	0	0	1
	Total:	0	0	
	Fence Total:	0	14	97
	Fence Total of All Native Species:	0	3	57

California State Prison, Sacramento

Wildlife Log

Data through November 30, 1997

Fence Name: Sacramento
Activation Date: 12/1/94
Weeks Active: 156

Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Losse
1 Threatened or Endangered		0	0	0
	Total:	0	0	0
2 Sensitive	Barn Owl	0	0	1
	Burrowing Owl	0	1	4
	Tricolored Blackbird	0	0	1
	Turkey Vulture	0	0	1
	Total:	0	1	7
3 Non-Sensitive	American Crow	0	0	8
	American Goldfinch	0	1	4
	American Robin	0	0	4
	Ash-throated Flycatcher	0	1	2
	Black Phoebe	0	4	6
	Botta's Pocket Gopher	0	0	1
	Brewer's Blackbird	0	4	14
	Brown-headed Cowbird	0	0	1
	California Ground Squirrel	0	0	2
	Herring Gull	0	1	1
	House Finch	0	119	759
	Killdeer	0	0	3
	Lark Sparrow	0	4	16
	Lesser Goldfinch	0	8	13
	Mourning Dove	0	0	4
	Northern Oriole	0	0	3
	Nothern Flicker	0	0	1
	Opossum	0	2	3
	Plain Titmouse	0	1	1
	Raccoon	0	1	4
	Ring-billed Gull	0	1	4
	Ruby-crowned Kinglet	0	0	1
	Savannah Sparrow	0	1	3
	Steller's Jay	0	0	1
	Striped Skunk	0	5	9
	Tree Swallow	0	0	1
	Violet-green Swallow	0	0	1
	Western Bluebird	0	8	36
	Western Fence Lizard	0	0	1
	Western Kingbird	0	4	26
	Western Meadowlark	0	0	1
	Wild Turkey	1	1	3
	Yellow-rumped Warbler	0	2	62
	Total:	1	168	999
4 Non-Native	European Starling	0	5	10
	House Cat	0	1	6
	House Sparrow	0	21	73

California State Prison, Sacramento

Wildlife Log

Data through November 30, 1997

Fence Name: Sacramento
Activation Date: 12/1/94
Weeks Active: 156

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Loss
4	Non-Native	Rock Dove	0	0	2
		Total:	0	27	91
5	Unknown	Bird (Species Unknown)	0	11	48
		Squirrel (Species Unknown)	0	1	1
		Total:	0	12	49
		Fence Total:	1	208	1,146
		Fence Total of All Native Species:	1	169	1,006

California State Prison, Solano

Wildlife Log

Data through November 30, 1997

Fence Name: Solano
Activation Date: 3/16/95
Weeks Active: 141

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Loss
1	Threatened or Endangered		0	0	0
		Total:	0	0	0
2	Sensitive	American Kestrel	0	1	2
		Burrowing Owl	0	0	2
		Great Horned Owl	0	1	2
		Loggerhead Shrike	0	5	19
		Red-tailed Hawk	0	0	1
		Total:	0	7	26
3	Non-Sensitive	American Robin	0	0	1
		Audubon's Cottontail	0	2	2
		Brewer's Blackbird	0	0	7
		House Finch	0	5	18
		Northern Mockingbird	0	1	3
		Northern Oriole	0	0	3
		Raccoon	0	0	1
		Red-winged Blackbird	0	0	2
		Striped Skunk	0	0	1
		Western Bluebird	0	0	2
		Western Kingbird	0	2	3
		White-crowned Sparrow	0	1	2
		Yellow-billed Magpie	0	0	1
		Yellow-rumped Warbler	0	0	1
		Total:	0	11	47
4	Non-Native	European Starling	0	0	3
		House Cat	0	0	7
		House Sparrow	0	4	14
		Total:	0	4	24
5	Unknown	Bird (Species Unknown)	0	3	16
		Rabbit (Species Unknown)	0	0	1
		Total:	0	3	17
		Fence Total:	0	25	114
		Fence Total of All Native Species:	0	18	73

Calipatria State Prison

Wildlife Log

Data through November 30, 1997

Fence Name: Calipatria
Activation Date: 11/1/93
Weeks Active: 213

Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Loss
1 Threatened or Endangered		0	0	0
	Total:	0	0	0
2 Sensitive	American Kestrel	0	0	3
	Barn Owl	0	0	2
	Burrowing Owl	1	18	102
	Loggerhead Shrike	0	0	3
	Total:	1	18	110
3 Non-Sensitive	Ash-throated Flycatcher	0	1	1
	Audubon's Cottontail	0	7	18
	Black Phoebe	0	0	1
	Botta's Pocket Gopher	0	0	1
	Great-tailed Grackle	1	2	3
	House Finch	0	0	2
	Killdeer	0	0	3
	Mourning Dove	0	0	2
	Northern Oriole	0	0	1
	Ring-billed Gull	0	3	13
	Say's Phoebe	0	5	13
	Western Kingbird	0	12	48
	Yellow-rumped Warbler	6	10	33
	Total:	7	40	140
4 Non-Native	Cattle Egret	0	1	1
	European Starling	0	0	18
	House Sparrow	0	19	114
	Total:	0	20	133
5 Unknown	Bird (Species Unknown)	0	2	6
	Total:	0	2	6
	Fence Total:	8	80	389
	Fence Total of All Native Species:	8	58	250

Centinela State Prison

Wildlife Log

Data through November 30, 1997

Fence Name: Centinela
Activation Date: 10/10/94
Weeks Active: 164

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Loss
1	Threatened or Endangered		0	0	0
		Total:	0	0	0
2	Sensitive	American Kestrel	0	0	3
		Burrowing Owl	0	0	2
		Great Horned Owl	0	0	1
		Loggerhead Shrike	0	0	1
		Total:	0	0	7
3	Non-Sensitive	Audubon's Cottontail	0	0	11
		Black Phoebe	0	0	2
		Gopher Snake	0	0	1
		House Finch	0	0	3
		Northern Mockingbird	0	0	1
		Ring-billed Gull	0	0	1
		Say's Phoebe	0	2	3
		Wilson's Warbler	0	0	1
		Yellow-rumped Warbler	0	0	1
		Total:	0	2	24
4	Non-Native	House Cat	0	0	1
		House Sparrow	0	1	12
		Total:	0	1	13
5	Unknown	Bat (Species Unknown)	0	0	1
		Bird (Species Unknown)	0	0	8
		Rabbit (Species Unknown)	0	0	1
		Total:	0	0	10
		Fence Total:	0	3	54
		Fence Total of All Native Species:	0	2	31

Central California Women's Facility

Wildlife Log

Data through November 30, 1997

Fence Name: CCWF
Activation Date: 8/8/95
Weeks Active: 121

Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Loss
1 Threatened or Endangered		0	0	0
	Total:	0	0	0
2 Sensitive	American Kestrel	0	0	2
	Barn Owl	0	3	4
	Burrowing Owl	0	1	1
	Loggerhead Shrike	1	7	25
	Red-tailed Hawk	0	1	1
	Total:	1	12	33
3 Non-Sensitive	American Crow	0	0	1
	Audubon's Cottontail	0	1	2
	Brewer's Blackbird	0	0	1
	House Finch	0	4	35
	Opossum	0	0	1
	Western Kingbird	0	3	12
	Yellow-rumped Warbler	0	1	14
	Total:	0	9	66
4 Non-Native	European Starling	0	1	3
	House Cat	0	1	4
	House Sparrow	0	3	24
	Total:	0	5	31
5 Unknown	Bird (Species Unknown)	0	2	16
	Total:	0	2	16
	Fence Total:	1	28	146
	Fence Total of All Native Species:	1	21	99

Chuckawalla Valley State Prison

Wildlife Log

Data through November 30, 1997

Fence Name: CVSP
Activation Date: 11/7/95
Weeks Active: 108

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Loss
1	Threatened or Endangered		0	0	0
		Total:	0	0	0
2	Sensitive	Burrowing Owl	0	0	1
		Loggerhead Shrike	0	0	2
		Sharp-shinned Hawk	0	0	1
		Total:	0	0	4
3	Non-Sensitive	Ash-throated Flycatcher	0	0	2
		Common Yellowthroat	0	3	4
		Greater Roadrunner	0	0	1
		Green Heron	0	0	1
		House Finch	1	1	1
		Lincoln's Sparrow	0	1	1
		Mourning Dove	0	0	1
		Northern Oriole	0	1	1
		Say's Phoebe	0	0	1
		Western Kingbird	0	0	3
		Western Meadowlark	0	1	1
		White-winged Dove	0	1	1
		Wilson's Warbler	0	0	1
		Yellow-rumped Warbler	5	5	7
		Total:	6	13	26
4	Non-Native	European Starling	0	0	1
		House Cat	0	2	5
		House Sparrow	4	8	19
		Total:	4	10	25
5	Unknown	Bat (Species Unknown)	0	0	2
		Bird (Species Unknown)	1	4	7
		Total:	1	4	9
		Fence Total:	11	27	64
		Fence Total of All Native Species:	6	13	30

CSATF and State Prison at Corcoran

Wildlife Log

Data through November 30, 1997

Fence Name: CSATFSP
Activation Date: 5/23/97
Weeks Active: 27

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Loss
1	Threatened or Endangered		0	0	0
		Total:	0	0	0
2	Sensitive	Barn Owl	0	1	1
		Total:	0	1	1
3	Non-Sensitive	House Finch	0	2	2
		Total:	0	2	2
4	Non-Native	House Sparrow	0	5	5
		Total:	0	5	5
5	Unknown		0	0	0
		Total:	0	0	0
		Fence Total:	0	8	8
		Fence Total of All Native Species:	0	3	3

High Desert State Prison

Wildlife Log

Data through November 30, 1997

Fence Name: HDSP
Activation Date: 7/11/95
Weeks Active: 125

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Losse
1	Threatened or Endangered		0	0	0
		Total:	0	0	0
2	Sensitive	Barn Owl	0	0	1
		Loggerhead Shrike	0	0	2
		Total:	0	0	3
3	Non-Sensitive	California Ground Squirrel	0	1	4
		Dusky-footed Woodrat	0	0	1
		House Finch	0	1	21
		Lark Sparrow	0	0	1
		Northern Oriole	0	0	1
		Ring-billed Gull	0	1	4
		Total:	0	3	32
4	Non-Native	House Cat	0	0	3
		House Sparrow	0	9	38
		Total:	0	9	41
5	Unknown	Bird (Species Unknown)	0	11	47
		Rabbit (Species Unknown)	0	0	3
		Skunk (Species Unknown)	0	0	1
		Total:	0	11	51
		Fence Total:	0	23	127
		Fence Total of All Native Species:	0	3	35

Ironwood State Prison

Wildlife Log

Data through November 30, 1997

Fence Name: Ironwood
Activation Date: 11/28/94
Weeks Active: 157

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Losse
1	Threatened or Endangered		0	0	0
		Total:	0	0	0
2	Sensitive	American Kestrel	0	0	1
		Bendire's Thrasher	0	0	1
		Loggerhead Shrike	0	0	6
		Total:	0	0	8
3	Non-Sensitive	Ash-throated Flycatcher	0	1	4
		Black Phoebe	0	0	1
		Brewer's Blackbird	0	0	2
		Brown-headed Cowbird	0	0	16
		Desert Kangaroo Rat	0	0	1
		Desert Kit Fox	0	0	1
		Killdeer	0	0	2
		Mourning Dove	0	0	2
		Northern Mockingbird	0	0	2
		Northern Oriole	0	0	1
		Red-winged Blackbird	0	0	2
		Say's Phoebe	0	0	8
		Sora Rail	0	0	1
		Western Kingbird	0	1	3
		Total:	0	2	46
4	Non-Native	Cattle Egret	0	0	1
		European Starling	0	0	2
		House Sparrow	0	0	7
		Total:	0	0	10
5	Unknown	Bird (Species Unknown)	0	0	2
		Total:	0	0	2
		Fence Total:	0	2	66
		Fence Total of All Native Species:	0	2	54

Mule Creek State Prison

Wildlife Log

Data through November 30, 1997

Fence Name: MCSP
Activation Date: 11/1/94
Weeks Active: 161

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Losse
1	Threatened or Endangered		0	0	0
		Total:	0	0	0
2	Sensitive		0	0	0
		Total:	0	0	0
3	Non-Sensitive	American Pipit	0	0	1
		Black Phoebe	0	0	7
		Brewer's Blackbird	0	10	30
		California Ground Squirrel	0	1	2
		House Finch	0	17	62
		Killdeer	0	1	3
		Lark Sparrow	0	0	2
		Lesser Goldfinch	0	3	7
		Mourning Dove	0	0	2
		Northern Oriole	0	0	2
		Plain Titmouse	0	1	1
		Savannah Sparrow	0	0	1
		Western Bluebird	1	2	2
		Wilson's Warbler	0	0	1
		Yellow-billed Magpie	0	1	1
		Yellow-rumped Warbler	0	1	12
		Total:	1	37	136
4	Non-Native	European Starling	0	0	8
		House Sparrow	0	25	102
		Total:	0	25	110
5	Unknown	Bird (Species Unknown)	0	4	14
		Mouse (Species Unknown)	0	0	1
		Total:	0	4	15
		Fence Total:	1	66	261
		Fence Total of All Native Species:	1	37	136

North Kern State Prison

Wildlife Log

Data through November 30, 1997

Fence Name: NKSP
Activation Date: 10/14/94
Weeks Active: 163

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Losse
1	Threatened or Endangered		0	0	0
		Total:	0	0	0
2	Sensitive	Barn Owl	0	1	2
		Burrowing Owl	0	1	5
		Loggerhead Shrike	0	1	3
		Total:	0	3	10
3	Non-Sensitive	American Crow	0	3	6
		American Pipit	0	0	3
		Barn Swallow	0	0	1
		Botta's Pocket Gopher	0	0	1
		Brewer's Blackbird	0	0	1
		Hermit Warbler	0	1	1
		House Finch	0	11	22
		Mourning Dove	0	0	1
		Northern Mockingbird	0	0	1
		Northern Rough-winged Swallow	0	0	1
		Red Fox	0	0	2
		Savannah Sparrow	0	0	3
		Western Kingbird	0	23	47
		Yellow-rumped Warbler	0	0	2
		Total:	0	38	92
4	Non-Native	European Starling	0	5	29
		House Cat	0	0	2
		House Sparrow	0	45	182
		Total:	0	50	213
5	Unknown	Bat (Species Unknown)	0	1	1
		Bird (Species Unknown)	0	9	57
		Rabbit (Species Unknown)	0	0	1
		Small Rodent (Species Unknown)	0	1	1
		Total:	0	11	60
		Fence Total:	0	102	375
		Fence Total of All Native Species:	0	41	102

Pelican Bay State Prison

Wildlife Log

Data through November 30, 1997

Fence Name: PBSP
Activation Date: 1/26/95
Weeks Active: 148

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Losse
1	Threatened or Endangered		0	0	0
		Total:	0	0	0
2	Sensitive		0	0	0
		Total:	0	0	0
3	Non-Sensitive	American Crow	0	1	2
		American Goldfinch	0	0	2
		American Robin	0	0	1
		Barn Swallow	0	1	6
		Black Phoebe	0	0	3
		Brewer's Blackbird	0	0	1
		Bullfrog	0	0	2
		Common Raven	0	1	1
		Golden-crowned Sparrow	0	1	1
		Herring Gull	0	0	1
		Killdeer	0	0	2
		Lazuli Bunting	0	0	1
		Leach's Storm-petrel	0	1	1
		Lesser Goldfinch	0	0	1
		Mink	0	0	1
		Savannah Sparrow	0	3	4
		Total:	0	8	30
4	Non-Native	House Sparrow	0	1	2
		Total:	0	1	2
5	Unknown	Bird (Species Unknown)	0	1	3
		Small Rodent (Species Unknown)	0	1	1
		Total:	0	2	4
		Fence Total:	0	11	36
		Fence Total of All Native Species:	0	8	30

Pleasant Valley State Prison

Wildlife Log

Data through November 30, 1997

Fence Name: PVSP
Activation Date: 9/20/94
Weeks Active: 167

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Los
1	Threatened or Endangered		0	0	
		Total:	0	0	
2	Sensitive	American Kestrel	0	0	
		Barn Owl	0	0	
		Burrowing Owl	0	0	2
		Loggerhead Shrike	0	2	2
		Red-tailed Hawk	0	1	
		Total:	0	3	31
3	Non-Sensitive	Audubon's Cottontail	0	1	1
		Badger	0	1	1
		Black Phoebe	0	0	
		Black-crowned Night-heron	0	0	
		Black-tailed Jackrabbit	0	0	1
		Brewer's Blackbird	0	13	5
		Brown-headed Cowbird	0	0	
		California Ground Squirrel	0	0	2
		Common Raven	0	1	1
		Dark-eyed Junco	0	0	
		Gopher Snake	0	1	
		House Finch	0	12	56
		Killdeer	0	0	
		Lark Sparrow	0	0	
		Red-winged Blackbird	0	2	5
		Savannah Sparrow	0	0	4
		Say's Phoebe	0	2	
		Western Kingbird	0	5	1
		White-crowned Sparrow	0	5	26
		Yellow-rumped Warbler	2	18	3
		Total:	2	61	22
4	Non-Native	European Starling	0	12	
		House Cat	0	2	
		House Sparrow	1	15	66
		Total:	1	29	1
5	Unknown	Bat (Species Unknown)	0	1	
		Bird (Species Unknown)	3	6	
		Small Rodent (Species Unknown)	0	0	
		Total:	3	7	
		Fence Total:	6	100	418
		Fence Total of All Native Species:	2	64	2

R.J. Donovan Correctional Facility

Wildlife Log

Data through November 30, 1997

Fence Name: RJD
Activation Date: 2/10/95
Weeks Active: 146

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Losse
1	Threatened or Endangered		0	0	0
		Total:	0	0	0
2	Sensitive	American Kestrel	0	0	5
		Barn Owl	0	0	1
		Burrowing Owl	0	1	3
		Loggerhead Shrike	0	0	1
		Tricolored Blackbird	0	0	10
		Total:	0	1	20
3	Non-Sensitive	Audubon's Cottontail	0	1	3
		Black Phoebe	0	0	1
		Brewer's Blackbird	0	0	3
		Brown-headed Cowbird	0	0	1
		Cliff Swallow	0	0	1
		Common Nighthawk	0	0	1
		Green Heron	0	1	1
		House Finch	0	4	7
		Opossum	0	0	1
		Raccoon	0	1	1
		Red-winged Blackbird	0	1	8
		Yellow-rumped Warbler	0	1	1
		Total:	0	9	29
4	Non-Native	European Starling	0	2	64
		House Sparrow	0	6	25
		Total:	0	8	89
5	Unknown	Bird (Species Unknown)	0	2	13
		Rabbit (Species Unknown)	0	0	3
		Squirrel (Species Unknown)	0	0	1
		Total:	0	2	17
		Fence Total:	0	20	155
		Fence Total of All Native Species:	0	10	49

Salinas Valley State Prison

Wildlife Log

Data through November 30, 1997

Fence Name: SVSP
Activation Date: 5/1/96
Weeks Active: 83

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Loss
1	Threatened or Endangered		0	0	0
		Total:	0	0	0
2	Sensitive	American Kestrel	0	3	3
		Barn Owl	0	1	1
		Burrowing Owl	0	0	5
		Total:	0	4	1
3	Non-Sensitive	Barn Swallow	0	2	2
		Black Phoebe	0	0	
		Brewer's Blackbird	0	6	1
		California Ground Squirrel	0	1	1
		House Finch	0	17	3
		Lark Sparrow	0	0	
		Northern Mockingbird	0	1	1
		Opossum	0	1	1
		Red-winged Blackbird	0	1	
		Savannah Sparrow	0	2	2
		Say's Phoebe	0	1	1
		Song Sparrow	0	0	
		White-crowned Sparrow	0	1	
		Yellow-rumped Warbler	0	20	23
		Total:	0	53	8
4	Non-Native	European Starling	0	3	8
		House Cat	0	1	
		House Sparrow	0	5	2
		Total:	0	9	34
5	Unknown	Bird (Species Unknown)	0	1	2
		Total:	0	1	
		Fence Total:	0	67	136
		Fence Total of All Native Species:	0	57	10

Valley State Prison for Women

Wildlife Log

Data through November 30, 1997

Fence Name: VSPW
Activation Date: 2/1/96
Weeks Active: 95

Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Losse
1 Threatened or Endangered		0	0	0
	Total:	0	0	0
2 Sensitive	American Kestrel	0	0	1
	Barn Owl	0	0	4
	Burrowing Owl	0	1	3
	Loggerhead Shrike	0	1	1
	Red-tailed Hawk	0	1	1
	Total:	0	3	10
3 Non-Sensitive	Black-tailed Jackrabbit	0	1	1
	California Ground Squirrel	0	0	1
	House Finch	0	3	8
	Total:	0	4	10
4 Non-Native	European Starling	0	3	4
	House Sparrow	0	1	1
	Total:	0	4	5
5 Unknown	Bird (Species Unknown)	0	4	6
	Total:	0	4	6
	Fence Total:	0	15	31
	Fence Total of All Native Species:	0	7	20

Wasco State Prison - Reception Center

Wildlife Log

Data through November 30, 1997

Fence Name: Wasco
Activation Date: 12/27/94
Weeks Active: 153

	Catagory	Species	Current Month Losses	12 Months Losses	Total to Date Loss
1	Threatened or Endangered	Bank Swallow	0	0	1
		Total:	0	0	1
2	Sensitive	American Kestrel	0	1	4
		Barn Owl	0	1	1
		Burrowing Owl	0	1	4
		Total:	0	3	9
3	Non-Sensitive	American Pipit	2	5	9
		Audubon's Cottontail	0	0	
		Black Phoebe	0	1	
		Botta's Pocket Gopher	0	0	1
		House Finch	2	16	83
		Killdeer	0	0	
		Lark Sparrow	0	0	3
		Savannah Sparrow	16	19	21
		Tree Swallow	0	0	
		Western Fence Lizard	0	0	
		Western Flycatcher	0	0	1
		Western Kingbird	0	14	7
		Yellow-rumped Warbler	3	4	2
		Total:	23	59	216
4	Non-Native	European Starling	0	1	10
		House Cat	0	2	2
		House Sparrow	1	29	12
		Total:	1	32	137
5	Unknown	Bird (Species Unknown)	3	12	1
		Rabbit (Species Unknown)	0	1	1
		Total:	3	13	1
		Fence Total:	27	107	379
		Fence Total of All Native Species:	23	62	22

Avenal State Prison

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			Avenal Activated in 10/04/1994						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**0**		0	0	0	0	0	0
	This Months Wildlife Kills	**0**		0	0	0	0	0	0
	Totals to date	**1094**		**333**	**332**	**221**	**162**	**0**	**46**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

California Correctional Center

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			CCC Activated in 08/30/1995						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**0**		0	0	0	0	0	0
	This Months Wildlife Kills	**0**		0	0	0	0	0	0
	Totals to date	**359**		**103**	**256**	**0**	**0**	**0**	**0**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

California Correctional Institution

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
Level III Activated in 02/07/1995									
11/01/97 to 11/07/97 No bird/animal deaths have occurred									
11/08/97 to 11/14/97 No bird/animal deaths have occurred									
11/15/97 to 11/21/97 No bird/animal deaths have occurred									
11/22/97 to 11/28/97 No bird/animal deaths have occurred									
11/29/97 to 11/30/97 No bird/animal deaths have occurred									
	Fence Total	**0**		0	0	0	0	0	0
MAX IVA Activated in 09/01/1995									
11/01/97 to 11/07/97 No bird/animal deaths have occurred									
11/08/97 to 11/14/97 No bird/animal deaths have occurred									
11/17/97	Common Raven	7077	Verified by a Biologist	1					
11/28/97	Western Bluebird	7081	Verified by a Biologist	1					
11/29/97 to 11/30/97 No bird/animal deaths have occurred									
	Fence Total	**2**		2	0	0	0	0	0
MAX IVB Activated in 09/15/1995									
11/01/97 to 11/07/97 No bird/animal deaths have occurred									
11/09/97	Cooper's Hawk	7079	Verified by a Biologist	1					
11/20/97	Lark Sparrow	7078	Probable		1				
11/21/97	Red-tailed Hawk	7076	Verified by a Biologist	1					
11/28/97	Ring-necked Pheasant	7080	Verified by a Biologist		1				
11/29/97 to 11/30/97 No bird/animal deaths have occurred									

California Correctional Institution

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
	Fence Total	**4**		2	2	0	0	0	0
	This Months Wildlife Kills	**6**		4	2	0	0	0	0
	Totals to date	**181**		**86**	**89**	**5**	**0**	**0**	**1**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

California Institution for Men

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			Chino Activated in 01/20/1995						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**0**		0	0	0	0	0	0
	This Months Wildlife Kills	**0**		0	0	0	0	0	0
	Totals to date	**377**		**251**	**125**	**0**	**0**	**0**	**1**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

California State Prison, Corcoran

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			Corcoran Activated in 09/02/1994						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/21/97	Bird (Species Unknown)	7065	Unverifiable			1			
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total		**1**	0	0	1	0	0	0
	This Months Wildlife Kills		**1**	0	0	1	0	0	0
	Totals to date		**770**	260	135	209	155	1	10

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

California State Prison, LA County

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			Lancaster Activated in 11/14/1994						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**0**		0	0	0	0	0	0
	This Months Wildlife Kills	**0**		0	0	0	0	0	0
	Totals to date	**97**		**26**	**14**	**19**	**30**	**0**	**8**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Species - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

California State Prison, Sacramento

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			Sacramento Activated in 12/01/1994						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/28/97	Wild Turkey	7075	Verified by a Biologist			1			
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total		1	0	0	1	0	0	0
	This Months Wildlife Kills		1	0	0	1	0	0	0
	Totals to date		1146	314	400	106	167	159	0

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

California State Prison, Solano

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			Solano Activated in 03/16/1995						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**0**		0	0	0	0	0	0
	This Months Wildlife Kills	**0**		0	0	0	0	0	0
	Totals to date	**114**		**27**	**14**	**41**	**29**	**0**	**3**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

Calipatria State Prison

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			Calipatria Activated in 11/01/1993						
11/02/97	Burrowing Owl	7043	Verified by a Biologist			1			
11/02/97	Yellow-rumped Warbler	7044	Verified by a Biologist				1		
11/04/97	Yellow-rumped Warbler	7048	Verified by a Biologist			1			
11/04/97	Yellow-rumped Warbler	7049	Verified by a Biologist			1			
11/04/97	Yellow-rumped Warbler	7047	Unverifiable			1			
11/04/97	Yellow-rumped Warbler	7046	Verified by a Biologist			1			
11/04/97	Yellow-rumped Warbler	7045	Verified by a Biologist	1					
11/08/97 to 11/14/97 No bird/animal deaths have occurred									
11/16/97	Great-tailed Grackle	7051	Verified by a Biologist		1				
11/22/97 to 11/28/97 No bird/animal deaths have occurred									
11/29/97 to 11/30/97 No bird/animal deaths have occurred									
		Fence Total	**8**	1	1	5	1	0	0

Calipatria State Prison

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
	This Months Wildlife Kills		**8**	1	1	5	1	0	0
	Totals to date		**389**	**89**	**85**	**84**	**130**	**0**	**1**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

Centinela State Prison

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			Centinela Activated in 10/10/1994						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**0**		0	0	0	0	0	0
	This Months Wildlife Kills	**0**		0	0	0	0	0	0
	Totals to date	**54**		**20**	**6**	**12**	**4**	**0**	**12**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

Central California Women's Facility

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			CCWF Activated in 08/08/1995						
11/01/97	Loggerhead Shrike	7066	Verified by a Biologist	1					
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**1**		1	0	0	0	0	0
	This Months Wildlife Kills	**1**		1	0	0	0	0	0
	Totals to date	**146**		27	50	39	29	0	1

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Species - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

Chuckawalla Valley State Prison

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			CVSP Activated in 11/07/1995						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/11/97	Yellow-rumped Warbler	7063	Verified by a Biologist				1		
11/11/97	Yellow-rumped Warbler	7064	Verified by a Biologist				1		
11/11/97	Bird (Species Unknown)	7061	Unverifiable			1			
11/11/97	House Sparrow	7060	Verified by a Biologist				1		
11/11/97	Yellow-rumped Warbler	7058	Verified by a Biologist				1		
11/11/97	Yellow-rumped Warbler	7059	Probable				1		
11/18/97	House Sparrow	7055	Verified by a Biologist	1					
11/21/97	Yellow-rumped Warbler	7054	Verified by a Biologist			1			
11/22/97	House Finch	7057	Verified by a Biologist				1		
11/26/97	House Sparrow	7052	Verified by a Biologist				1		
11/29/97	House Sparrow	7053	Verified by a Biologist				1		
			Fence Total **11**	1	0	2	8	0	0

Chuckawalla Valley State Prison

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
	This Months Wildlife Kills	**11**		1	0	2	8	0	0
	Totals to date	**64**		**23**	**6**	**17**	**17**	**0**	**1**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

CSATF and State Prison at Corcoran

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			CSATFSP Activated in 05/23/1997						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**0**		0	0	0	0	0	0
	This Months Wildlife Kills	**0**		0	0	0	0	0	0
	Totals to date	**8**		0	0	6	1	0	1

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

High Desert State Prison

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			HDSP Activated in 07/11/1995						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**0**		0	0	0	0	0	0
	This Months Wildlife Kills	**0**		0	0	0	0	0	0
	Totals to date	**127**		**24**	**13**	**77**	**13**	**0**	**0**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

Ironwood State Prison

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			Ironwood Activated in 11/28/1994						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**0**		0	0	0	0	0	0
	This Months Wildlife Kills	**0**		0	0	0	0	0	0
	Totals to date	**66**		**28**	**21**	**6**	**11**	**0**	**0**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

Mule Creek State Prison

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			MCSP Activated in 11/01/1994						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97	Western Bluebird	7067	Verified by a Biologist	1					
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**1**		1	0	0	0	0	0
	This Months Wildlife Kills	**1**		1	0	0	0	0	0
	Totals to date	**261**		135	80	46	0	0	0

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

North Kern State Prison

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			NKSP Activated in 10/14/1994						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**0**		0	0	0	0	0	0
	This Months Wildlife Kills	**0**		0	0	0	0	0	0
	Totals to date	**375**		**113**	**35**	**115**	**73**	**2**	**37**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

Pelican Bay State Prison

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			PBSP Activated in 01/26/1995						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total		**0**	0	0	0	0	0	0
	This Months Wildlife Kills		**0**	0	0	0	0	0	0
	Totals to date		**36**	16	8	8	4	0	0

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Species - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

Pleasant Valley State Prison

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			PVSP Activated in 09/20/1994						
11/01/97 to 11/07/97 No bird/animal deaths have occurred									
11/11/97	Bird (Species Unknown)	7071	Unverifiable		1				
11/11/97	Bird (Species Unknown)	7072	Unverifiable		1				
11/11/97	Bird (Species Unknown)	7073	Unverifiable		1				
11/15/97 to 11/21/97 No bird/animal deaths have occurred									
11/25/97	Yellow-rumped Warbler	7069	Verified by a Biologist		1				
11/25/97	House Sparrow	7068	Probable	1					
11/25/97	Yellow-rumped Warbler	7070	Verified by a Biologist				1		
11/29/97 to 11/30/97 No bird/animal deaths have occurred									
	Fence Total	**6**		1	4	0	1	0	0
	This Months Wildlife Kills	**6**		1	4	0	1	0	0
	Totals to date	**418**		**89**	**118**	**133**	**78**	**0**	**0**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

R.J. Donovan Correctional Facility

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			RJD Activated in 02/10/1995						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total		**0**	0	0	0	0	0	0
	This Months Wildlife Kills		**0**	0	0	0	0	0	0
	Totals to date		**155**	15	38	40	58	0	4

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

Salinas Valley State Prison

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			SVSP Activated in 05/01/1996						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**0**		0	0	0	0	0	0
	This Months Wildlife Kills	**0**		0	0	0	0	0	0
	Totals to date	**136**		**27**	**19**	**50**	**38**	**1**	**1**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

Valley State Prison for Women

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			VSPW Activated in 02/01/1996						
11/01/97 to 11/07/97	No bird/animal deaths have occurred								
11/08/97 to 11/14/97	No bird/animal deaths have occurred								
11/15/97 to 11/21/97	No bird/animal deaths have occurred								
11/22/97 to 11/28/97	No bird/animal deaths have occurred								
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**0**		0	0	0	0	0	0
	This Months Wildlife Kills	**0**		0	0	0	0	0	0
	Totals to date	**31**		5	13	4	7	0	2

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

Wasco State Prison - Reception Center

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
			Wasco Activated in 12/27/1994						
11/01/97 to 11/07/97 No bird/animal deaths have occurred									
11/08/97 to 11/14/97 No bird/animal deaths have occurred									
11/16/97	Savannah Sparrow	7090	Verified by a Biologist			1			
11/16/97	Savannah Sparrow	7088	Probable			1			
11/16/97	Savannah Sparrow	7094	Verified by a Biologist			1			
11/16/97	Savannah Sparrow	7095	Verified by a Biologist			1			
11/16/97	House Finch	7096	Probable			1			
11/16/97	Savannah Sparrow	7097	Probable			1			
11/16/97	Savannah Sparrow	7098	Verified by a Biologist			1			
11/16/97	House Sparrow	7092	Verified by a Biologist			1			
11/16/97	Bird (Species Unknown)	7091	Unverifiable			1			
11/16/97	Bird (Species Unknown)	7093	Unverifiable			1			
11/16/97	Savannah Sparrow	7089	Probable			1			
11/16/97	Bird (Species Unknown)	7087	Unverifiable			1			
11/16/97	Yellow-rumped Warbler	7099	Verified by a Biologist			1			
11/17/97	American Pipit	7101	Verified by a Biologist		1				
11/17/97	House Finch	7100	Verified by a Biologist		1				
11/19/97	Savannah Sparrow	7105	Verified by a Biologist				1		
11/19/97	Savannah Sparrow	7104	Verified by a Biologist				1		
11/19/97	Savannah Sparrow	7103	Verified by a Biologist			1			
11/19/97	Savannah Sparrow	7102	Verified by a Biologist			1			
11/20/97	American Pipit	7108	Verified by a Biologist				1		
11/20/97	Yellow-rumped Warbler	7107	Verified by a Biologist				1		
11/20/97	Yellow-rumped Warbler	7106	Verified by a Biologist			1			
11/26/97	Savannah Sparrow	7085	Verified by a Biologist			1			
11/26/97	Savannah Sparrow	7086	Verified by a Biologist			1			
11/26/97	Savannah Sparrow	7084	Verified by a Biologist			1			
11/26/97	Savannah Sparrow	7083	Verified by a Biologist				1		
11/26/97	Savannah Sparrow	7082	Verified by a Biologist				1		

Wasco State Prison - Reception Center

Electrified Fence

Wildlife Log - Detailed

Data through November 30, 1997

Date of Death	Species Name	Ref. No	Identification Quality	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Unknown Zone
11/29/97 to 11/30/97	No bird/animal deaths have occurred								
	Fence Total	**27**		0	2	19	6	0	0
	This Months Wildlife Kills	**27**		0	2	19	6	0	0
	Totals to date	**379**		**120**	**42**	**164**	**47**	**0**	**6**

V - Verified Species - Species that were identified by wildlife biologists from EDAW using photographs.

P - Probable Species - Probable species identification in instances where: (a) no photographs are available, but the identification made by correctional staff is likely to be correct based on the known/suspected species' use of the site; or (b) photograph quality was not good, but EDAW biologist identified the species using the photograph in combination with familiarity of habitats and species' use of the site.

U - Unverified Specifies - "Unverifiable bird species" or "unverifiable mammal species" indicates an instance when no photograph is provided, and the preliminary identification made by the correctional staff was determined by EDAW biologists to be incorrect based on the species' geographic distribution and/or habitat affinities.

Appendix C

CDC's Electrified Fence Netting Construction Schedule

APPENDIX C

CDC'S ELECTRIFIED FENCE NETTING CONSTRUCTION SCHEDULE

Institution	Start Date	Completion Date
California Institution for Men, West [1]	01//96	01//96
CSATF and SP @ Corcoran (Phase I) [2]	05/27/97	06/13/97
California State Prison, Corcoran	06/16/97	07/10/97
California State Prison, Sacramento	07/11/97	08/01/97
California State Prison, Solano	08/04/97	08/22/97
Salinas Valley State Prison	08/25/97	09/12/97
Central California Women's Facility	09/15/97	09/30/97
Valley State Prison for Women	10/01/97	10/15/97
CSATF and SP @ Corcoran (Phase II) [2]	10/20/97	11/31/97
Calipatria State Prison	11/03/97	11/21/97
Avenal State Prison	12/08/97	12/23/97
North Kern State Prison	12/29/97	01/09/98
Wasco State Prison - Reception Center	01/13/98	01/21/98
Pleasant Valley State Prison	01/26/98	02/11/98
R.J. Donovan Correctional Facility	02/16/98	03/04/98
Northern California Women's Facility [3]	TBD	TBD
CSP - Kern County @ Delano II [4]	TBD	TBD
CSP - San Diego County II [4]	TBD	TBD

1 California Institution for Men, West - was the prototype site for net testing; construction dates are estimated.

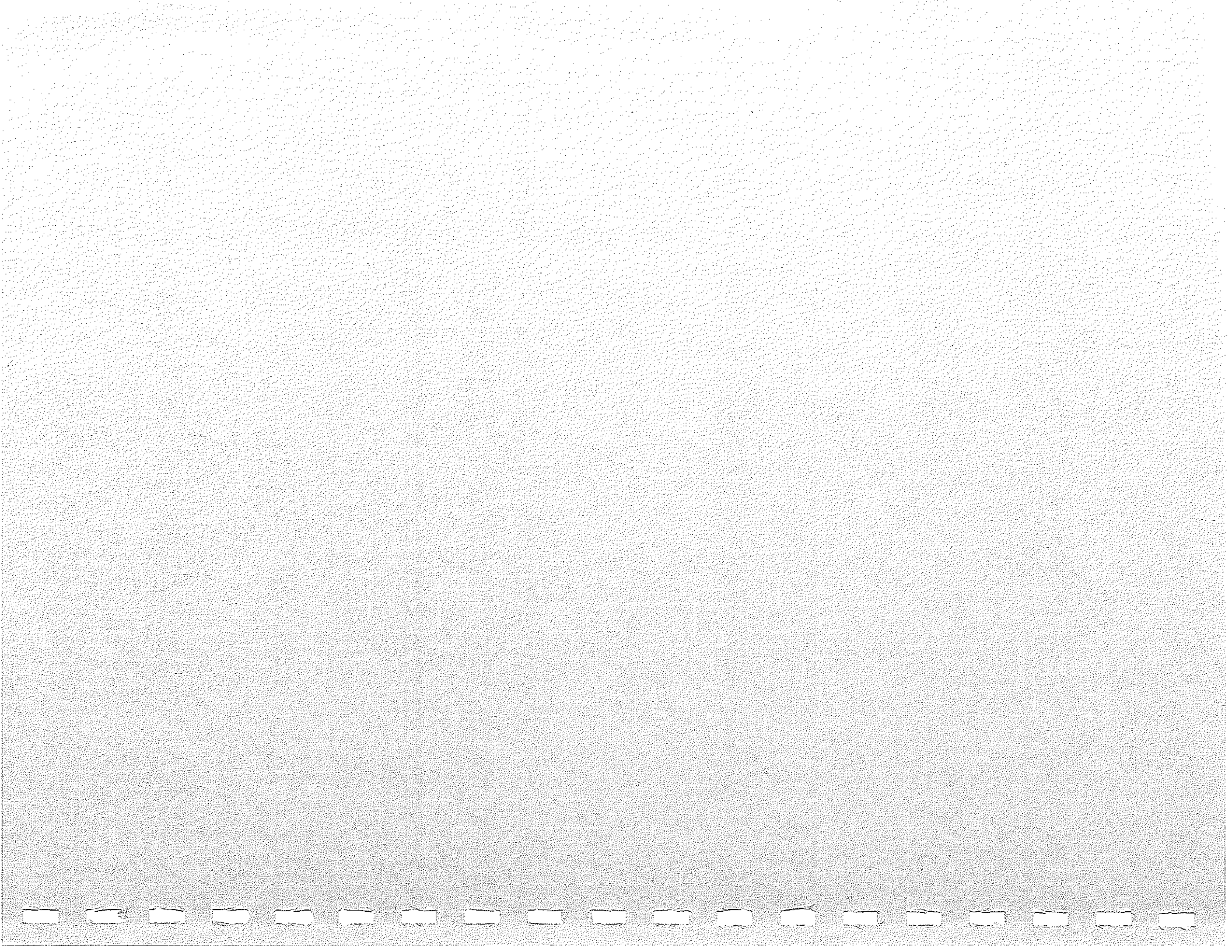
2 California Substance Abuse and Treatment Facility and State Prison @ Corcoran - is the first "new" prison where the netting is being installed concurrently with construction of the electrified fence; also, due to the unusual size of the prison, construction was phased and the complete electrified fence (with netting) was not fully activated until 11/30/97.

3 Northern California Women's Facility - is an existing prison that is currently considered part of the project, even though it does not have an electrified fence; the net would be installed concurrent with construction of an electrified fence, should the facility ever be approved for conversion to a men's institution.

4 CSP - Kern County @ Delano II and CSP - San Diego County II - two future prisons that have not been authorized yet; should the prisons ever be built, netting would be installed concurrent with electrified fence construction.

Appendix D

Methodology



METHODOLOGY FOR THE BASIC COMPENSATION PACKAGE

This package is designed to benefit all native species being affected by the project, including common and special-status species. Habitats and representative target species were selected and current literature search was conducted to determine the average clutch size, number fledged, number of broods, and breeding pair territory size. This information was used to calculate the amount of land needed within each of the component habitat types to sustain successful reproduction to replace the projected statewide losses after netting is installed. Refer to Section 9 of this HCP for literature references.

Habitat Selection

Eleven general habitat types occur on or adjacent to electrified fence prison sites included in this project. These habitat types include agricultural land, coastal sage scrub, emergent wetland/open water, Great Basin (High Desert) sage scrub, mixed oak-foothill pine woodland, Mojave Desert scrub and woodland, northwestern coastal forest, San Joaquin Valley grassland/scrub, Sonoran Desert scrub and woodland, urban landscape, and valley-foothill riparian. The priority for mitigating the various habitat associations was determined by comparing the total number of "user" species in each, and by comparing the statewide annual kill rates for species in each (e.g., special-status species, birds protected by the Federal Migratory Bird Treaty Act, and all native species).

Through consultation with USFWS and CDFG, six habitat mosaics were identified as having the highest priority for inclusion in the basic compensation package. Habitat mosaics were generally classified to allow for flexibility in meeting mitigation objectives. The six habitat mosaics supporting the majority of species most affected by the project include riparian woodland/shrubs, scrub/savanna, grassland/ agricultural (including cropland, pasture, ruderal fields, and grasslands), mixed oak/pine woodland, emergent wetland/open water, and montane/coastal forest. Even though montane coastal forest is not a habitat that occurs near or adjacent to any prisons, it does represent breeding habitat for the yellow-rumped warbler, a species that is killed on the electrified fence during winter months.

Target Species Selection

A priority of target species selection was to choose resident special-status species that are vulnerable to electrocution on the electrified fence. To avoid duplication of target species, a different one was chosen to represent each of the six habitat types. Even though in some cases all of these criteria were difficult to achieve, the target species that were chosen for each habitat type can generally be characterized by the following: a resident species with a moderate-to-large nesting territory; that are somewhat dependent on the habitat type they represent; and they have been killed in the past and will likely continue to be killed in the future. Selected target species include northern oriole for riparian woodland/shrubs; western kingbird for scrub/savanna; burrowing owl for grassland/agricultural; loggerhead shrike for mixed oak/pine woodland; red-winged blackbird for emergent wetland/open water; and yellow-rumped warbler for montane/coastal forest.

Raptor Category

Unlike all the other species being affected by the project, which were grouped by habitat associations for mitigation purposes, most raptor species could not be mitigated by enhancement of a single habitat type. They, therefore, had to be addressed differently, starting by grouping most of them into their own unique category. Only burrowing owl was excluded from this special raptor group, because it was

already being specifically addressed as the target species for the agricultural/grassland category. The raptors included in this special group were those that had been taken as of August 30, 1997: turkey vulture (*Cathartes aura*), great horned owl (*Bubo virginianus*), barn owl (*Tyto alba*), American kestrel (*Falco sparverius*), sharp-shinned hawk (*Accipiter striatus*), and red-tailed hawk (*Buteo jamaicensis*). The need for the special raptor category was due to their large home ranges, and the fact that most are generalists and would be benefitted by other component parts of this package. American kestrel was chosen as the target species mostly because its home range size represents an average for the group.

As a reasonable attempt to deal with the large amount of land that would be needed to compensate for these wide-ranging species, and to recognize that they are generalists and would be benefitted by other components of the package, the decision was made during consultation to allow some dual crediting of mitigation land. The formula for achieving this is as follows: the net acreage needed to compensate for the mortality of this group is the difference between the target species' gross requirement (2,163 acres, based on the same methodology applied to other target species for other habitat types), and the sum of the mitigation acreage being considered for other habitat types (567 acres; not including wetland/open water, which is not used much by the raptor species considered); this net additional acreage required to compensate for raptor losses is 1,596 acres.

Average Clutch Size

Average clutch size for each species was either reported in the literature or obtained from species experts. Information for each target species is reported and referenced as appropriate in the footnotes of Table 1 at the end of this section

Average Number Fledged

Average number fledged was either reported in the literature for each target species or was estimated based on information provided in the 1992 Monitoring Avian Productivity and Survivorship Annual Report (MAPS). From MAPS, survival probabilities for 1990 to 1991 for 13 different species ranged from 0.19 to 0.85, with an average of 0.52 (or 50%). For this compensation package, when average number of young fledged per year was not available in the literature for a particular target species, it was calculated as 50% of clutch size based on the MAPS 50% average.

Average Number of Broods

Average number of broods for each species was obtained from the literature and is reported as the average number of "successful broods" that a species produces in a given year. Successful broods takes into account failed nest attempts and subsequent re-nesting.

Calculation of Annual Productivity (fledglings/pair/year)

Annual productivity was calculated based on the average number fledged multiplied by the average number of broods for each species. For example, the northern oriole's average number fledged can be estimated as 50% of the clutch size, or 2.3 fledglings per year. With an average of one brood per year, the calculation would be as follows: 2.3 fledglings x 1 brood per year = 2.3 fledglings per year.

Calculation of Average Territory Density (per 100 acres)

The average density information for each species was obtained primarily from the Breeding Bird Census (BBC). When there was insufficient BBC data available for a particular species, average density information was obtained from the literature (i.e., BBC, Birds of North America (BNA) Reports, and journal articles); however, no data were reported in the literature, information was obtained from species experts. BBC data was collected only for plots in California to avoid introducing unnecessary geographic variation into the calculations. When using BBC data, the sample plot must have met the following requirements to be included in the analysis: 1) data must be collected from relevant habitat types (those being considered for this package), 2) sample plots must be ≥10 ha (25 acres) to avoid introducing "edge effect" inaccuracies from smaller plots, and 3) each data year must have ≥ 3 territories for a given species. Average territory density is reported as number of territories per 100 acres. For example, the literature reported a territory density of 20.5 territories per 100 acres for the northern oriole.

Adjusted Post-net Annual Take

Post-net annual take is an estimate of residual, statewide annual kills that would occur after implementation of netting. To estimate the effectiveness of netting on species at risk, preliminary test results from the prototype field test at the California Institution for Men - West (Chino) were applied to all 29 prisons of the project. Refer to Section 4.0 for a complete discussion on post-net annual take projections.

Calculation for Fledglings Needed to Replace Take

The number of fledglings needed to replace take is adjusted to accommodate variations in reproduction strategies, age, and breeding potential that occur within populations. Because the basic compensation package is based on compensation via new production, and because fledged young are the product of successful breeding, the older segments of the take need to be replaced with greater numbers of fledged young to offset the mortality that occurs between juvenile and subsequent adult years. Variations in reproductive strategies among selected target species were dealt with by calculating different replacement ratios for songbirds, burrowing owl, and American kestrel.

songbirds (i.e., northern oriole, western kingbird, loggerhead shrike, red-winged blackbird, and yellow-rumped warbler) - Based on the current literature, it was determined that the average age structure in songbird populations could be approximated at *76% juveniles and 24% adults* (Busse 1978). From current literature, it was determined that about *50% of fledglings would be expected to survive to breeding* age. Therefore, it is assumed that the age composition in the annual take of passerine species (songbirds) can be estimated at 76% juveniles and 24% adults, that juveniles are replaced at a 1:1 ratio (i.e., one juvenile taken is "replaced" with one fledgling), and that adults are replaced at a 2:1 ratio (i.e., one adult taken is "replaced" with two fledglings to offset the expected 50% mortality from fledge to breeding). This equates to 124 fledged young/per 100 birds taken; or, the number of songbirds taken multiplied by 1.24.

burrowing owl - Because no age class structure data was reported in the literature for burrowing owl, an estimate of the size of the juvenile vs. adult population segments was derived from annual productivity data. Assuming: (a) that age at first breeding for burrowing owls is 1 year, and (b) that one pair of adults will fledge 3.3 young, and (c) accounting for some post-fledge losses by using a 25% mortality estimate for the fledge-juvenile period, *the adult/juvenile ratio can be estimated at 1:0.86, which equates to 54% adults and 46% juveniles*. Survivorship information for burrowing owl is reported by Thomsen (1971) from a population study that was conducted at the Oakland Airport: *30% survivorship for juveniles and*

80% survivorship for adults. Replacement of juveniles and adults can then be calculated as follows: (a) each juvenile take is replaced with 1 fledgling because no mortality is factored in, and (b) each adult take is replaced with 3.33 fledglings to offset the 70% mortality from fledge to breeding reported by Thomsen. When rounded, this equates to 226 fledged young as the required replacement per 100 burrowing owls taken; or, the number of burrowing owls taken multiplied by 2.26.

American kestrel - In order to create a replacement ratio for kestrels that is reflective of raptors in general, the ratio was based on an average of the age-class structures and survivorship rates derived from the literature for American kestrel, red-tailed hawk, and great horned owl. Average survivorship rates were calculated using data for the three species reported in Henny and Wight (in press). The juvenile/adult survivorship rates based on banding studies for American kestrel, red-tailed hawk and great horned owl, respectively, were: 39.3%/54.0%, 46.0%/80.0%, and 47.5%/62.9%, *for an average of 44.4% juvenile survivorship and 65.6% adult survivorship*. Because no data could be found on typical age-class structures for these raptors, theoretical age classes were again derived from annual productivity data. Using productivity data from Henny and Wright (1972), the juvenile/adult population segments for American kestrel, red-tailed hawk, and great horned owl were calculated, respectively, as: 52%/48%, 40%/60%, and 35%/65%, *for an average of 42.3% juveniles and 57.7% adults*. Assuming that, on average, most raptors do not breed until their second adult year, the size of the non-breeding, subadult (i.e., 1st-year adults) population segment also needs to be estimated. Using the average 42.3% juvenile segment, and multiplying by the average 44.4% juvenile survivorship, the percentage surviving to subadults is estimated as 18.8%. Adjusting the three segment percentages so that they are based on number per 100 take, *the age-class structure is 35.6% juveniles (42.3/118.8), 15.8% subadults (18.8/118.8), and 48.6% adults (57.7/118.8)*. Replacement of the three population segments is calculated as follows: (a) each juvenile take is replaced with 1 fledgling because no mortality is factored in; (b) each subadult take is replaced with 2.25 fledglings to offset the 66.6% mortality from fledge to 1st adult year; and (c) each adult take is replaced with 3.44 fledglings to offset the 70.9% mortality (i.e., 44.4% x 65.6% = 29.1% survivorship, or 71% mortality) from fledge to second adult year. When rounded, this equates to 238 fledged young as the required replacement per 100 kestrels taken; or, the number of kestrels taken multiplied by 2.38.

Calculation of Territories Needed

This is the number of territories needed to provide the opportunity for pairs to breed and produce the required number of fledglings to replace take. This number is calculated as the number of fledglings needed to replace take divided by total annual productivity. Numbers are then rounded up to the nearest whole number, because successful breeding cannot be expected to occur on partial territories. For example, 11.74 northern oriole fledglings are needed to replace take and total annual productivity is 2.3 fledglings. The calculation is: 11.74/2.3, or 5.10 territories, which would be rounded up to 6 territories.

Calculation of Acres Needed Based on Territories

The acres needed to provide the appropriate number of territories for successful breeding to offset take, is a ratio of the average territory density per 100 acres and the number of territories needed to replace take, rounded up to the nearest whole number. For example, the northern oriole, a total of 6 territories are needed to provide for fledgling production that would offset the take, and the average territory density for this species is 20.5 territories per 100 acres. The ratio-based calculation would be as follows: 20.5/100 = 6/x, or 600 = 20.5x, or x = 29.3 acres, which would be rounded up to 30 acres required to replace take.

Table 1
Habitat Needed to Offset the Projected Statewide Losses

HABITAT TYPE (with Target Species)	REPRODUCTIVE PARAMETERS			Average Territory Density (per 100 acres)	Adjusted Post-Net Annual Take	Fledglings Needed to Replace Take	Number of Territories Needed	Acres Needed Based on Territories Needed
	Average Clutch Size/Average Number Fledged	Average Number of Broods	Total Annual Productivity (fledglings/pair/year)					
RIPARIAN WOODLAND/SHRUBS								
Northern Oriole [1]	4.5/2.3	1	2.3	20.50	9.47	11.74	6	30
SCRUB/SAVANNA								
Western Kingbird [2]	4/2	1	2.0	10.00	32.96	40.87	21	210
GRASSLAND/AGRICULTURAL (includes cropland, pasture, ruderal fields, grassland)								
Burrowing Owl [3]	7/3.3	1	3.3	15.39	14.71	33.25	11	72
MIXED OAK/PINE WOODLAND								
Loggerhead Shrike [4]	5.4/3.9	1	3.9	4.76	21.75	26.97	7	147
EMERGENT WETLAND/OPEN WATER								
Red-winged Blackbird [5]	3.3/1.7	1.7	2.9	13.50	3.15	3.91	2	15
MONTANE/COASTAL FOREST								
Yellow-rumped Warbler [6]	4/2	1	2.0	13.91	23.76	29.46	15	108
RAPTORS								
American Kestrel [7]	4.5/2.5	1	2.5	0.37	7.62	18.14	8	2,163

TABLE 1 NOTES:

1 Northern Oriole:

Clutch Size - Clutch size for northern orioles ranges from 3-6 eggs; although average clutch size is 4.5 eggs (USDA 1994). No specific data was found on northern oriole fledge rates; this number was calculated using 50% estimate of egg hatch as nestling survivorship.

Number of Broods - Northern orioles produce a single brood per year (USDA 1994).

Territory Density - Breeding density per 40 ha (100 ac) was 16-25 males in Sacramento Valley riparian forests, or an average of 20.5 males per 100 acres (Zeiner et al., 1990a). Because northern orioles tend to nest in loose colonies in higher quality habitat, it is impossible to determine from the Breeding Bird Census (BBC) densities whether or not the counted territories represented a colony; therefore the literature-reported density was used.

2 Western Kingbird:

Clutch Size - The western kingbird lays 3-7 eggs, and average clutch size is 4 eggs (Zeiner et al., 1990a). No specific data for western kingbird on fledge rates; this number was calculated using a 50% estimate of egg hatch and nestling survivorship.

Number of Broods - No data available for number of broods per year. Birds of North America (BNA) and other sources indicate that number of broods per year for taxonomically similar species, (e.g., eastern kingbird and Cassin's kingbird), is typically 1.

Territory Density - Kingbird densities described in the literature varied considerably. For eastern kingbird, there are sample densities of 10 pairs per 100 acres in residential-orchard-lawn habitat in Maryland (DeGraaf and Rudes 1986). Several ornithologists were consulted regarding the adequacy of this estimate and the consensus was that 10 acres of *good quality* grassland/scrub habitat would be enough land to support a pair of western kingbirds *if suitable nest sites are available*. The BBC's average of 10.68 territories per 100 acres supports this estimate.

3 Burrowing Owl:

Clutch Size - Clutch size for burrowing owl varies from 6-11 eggs, with a usual number of 7-9. From one California study, a mean clutch size of 7 (range 1-11, n=32). Average clutch size can therefore be estimated at 7 (Haug et al., BNA 1993). In New Mexico: 95% of the young fledge, and mean reproductive success is 4.9 young per pair; in a population in California (Haug et al., in BNA, 1993), average number fledged per pair was 2.7 in 1965 and 1.9 in 1966 (Haug et al., BNA 1993). A range of 4.9 to 1.9 from the two burrowing owl populations, or an average of 3.3 (Haug et al., BNA 1993). This average was used as an estimated of reproductive success for burrowing owl.

Number of Broods - Females typically lay only one clutch, but may re-nest if first clutch is destroyed (Haug et al., in BNA 1993). Number of successful broods per year will therefore be estimated at 1.

Territory Density - The breeding range for burrowing owl is estimated to be 6.5 acres (CDFG 1995). The breeding range estimate was converted to an average density of 15.39 territories

per 100 acres. No "valid" BBC date (i.e. census plots that were ≥10 ha in size and from which 3 or more territories were reported) was available for this species. Therefore the literature-reported number was used for this species.

4 Loggerhead Shrike:

Clutch Size - The mean clutch size for loggerhead shrike in all historical records (1872-1989) is 5.4 and the average number of young fledged per nesting attempt is 3.9 (Yosef, BNA 1996).

Number of Broods - The average number of broods per year is 1, although this species reportedly will re-nest if initial nesting attempts are unsuccessful (Yosef, BNA 1996).

Territory Density - The mean territory size for loggerhead shrike in mainland California is 8.5 ha (4.4-16, n=10) or 4.76 per 100 acres (Yosef, BNA 1996). The literature reported density of 4.76 territories per 100 acres was used because it is higher than the single BBC-based number for mixed oak/pine woodland (3 territories per 100 acres), but lower then the BBC-based average across all habitat types (5.32 per 100 acres).

5 Red-winged Blackbird:

Clutch Size - The mean clutch size for Red-winged blackbird in 20 different studies varied from 2.43 to 3.70, with an overall mean of 3.28 (Yasukawa and Searcy 1995). For these calculations, an average clutch size of 3.3 eggs per nest will be used. Fledge rates reported in the literature vary widely. In 20 studies that were summarized, the number of fledglings per successful nesting attempt varied from 0.58 to 4.20 (Yasukawa and Searcy 1995). Because more precise data could not be found in the literature, the number fledged is estimated at 1.7 young per nesting attempt; this number was calculated using a 50% estimate of egg hatch and nestling survivorship.

Number of Broods - Female Red-winged blackbirds initiate 1.7 nest attempts per season on average, although only 3.8% successfully produced 2 broods (Yasukawa and Searcy 1995).

Territory Density - Territory densities for this species were reported as 6.25 acres per pair (16 territories per 100 acres) in marsh habitat vs. 9.09 acres per pair (11 territories per 100 acres) in upland habitat (Orians 1980). An average of these numbers (13.5 pairs per 100 acres) was used for average density. Because it could not be distinguished from BBC data whether or not the number of territories reported represented loose nesting colonies or individual territories, the literature reported number was used.

6 Yellow-rumped Warbler:

Clutch Size - The yellow-rumped warbler lays 3-5 eggs, usually 4 (Zeiner et al., 1990a). No specific data for yellow-rumped warbler on fledge rates; this number was calculated using a 50% estimate of egg hatch and nestling survivorship.

Number of Broods - NMBR reports 2 broods per year (USDA 1994). For magnolia warbler, a taxonomically similar species, one brood per season is normal but they will re-nest once or twice if nests fail (Hall 1994). Because the extent of re-nesting due to nest failure is not known, an average of 1 brood per year was assumed for yellow-rumped warbler.

Territory Density - Because densities reported in the literature were highly variable, and there was no data from California studies, BBC-based densities were used for this species. The BBC-based average territory density for yellow-rumped warbler in montane/coastal plots is 13.9 territories per 100 acres, which was derived from 11 census years.

7 American Kestrel:

Clutch Size - A mean clutch size of 4 was reported for the American kestrel from a two year study of 42 nests in the Sierra Nevada of California (Balgooyen 1976). For fledge rates, literature reports that a pair normally raises 2 or 3 young from an average clutch of 4 or 5, or 50% of the eggs laid (Brown and Amadon 1968).

Number of Broods - This species produces 1 brood per year (DeGraaf and Rudes 1986), although, some studies reported 2 broods per year. Dr. Balgooyen of San Jose State University, an American kestrel expert stated that American kestrels have 1 brood per year. One brood per year was used for these calculations.

Territory Density - The average area used by the American kestrel of 32 of 43 territories studied was 109.4 ha, or 0.37 pairs per 100 acres (Balgooyen 1976). Dr. Balgooyen stated that this territory size is a good representation of territory size for this species in California. No BBC plots reported 3 or more American kestrel territories, so BBC-based density data was not used.

Appendix E

Implementing Agreement

IMPLEMENTING AGREEMENT

by and between

CALIFORNIA DEPARTMENT OF CORRECTIONS,

U.S. FISH AND WILDLIFE SERVICE

and the

CALIFORNIA DEPARTMENT OF FISH AND GAME

This Implementing Agreement ("Agreement"), made and entered into as of the ___ day of _____, 199_, by and among the CALIFORNIA DEPARTMENT OF CORRECTIONS (hereinafter the "Permittee" or CDC), the UNITED STATES FISH AND WILDLIFE SERVICE (hereinafter "Service"), and the CALIFORNIA DEPARTMENT OF FISH AND GAME (CDFG), hereinafter collectively called the "Parties," defines the Parties' roles and responsibilities and provides a common understanding of action that will be undertaken to minimize and mitigate the effects on the covered species affected by the Statewide Electrified Fence Project.

The Parties enter into this Agreement in accordance with the Endangered Species Act (ESA), the California Endangered Species Act (CESA), and the Migratory Bird Treaty Act (MBTA) as these laws relate to the Service's and CDFG's responsibilities for Covered Species located within the State of California.

1.0 RECITALS

This Agreement is entered into with regard to the following facts:

WHEREAS, the Statewide Electrified Fence Project has been determined after environmental review to have the potential to result in the take of ESA/CESA-covered species listed in Table 1-2 of the Habitat Conservation Plan (HCP), and to impact uncovered MBTA-protected species listed in Table 1-3 of the HCP; and,

WHEREAS, the Permittee, through consultation with and technical assistance from the Service and the CDFG, has developed a series of measures, described in Section 5 of the Habitat Conservation Plan, to minimize and mitigate to the maximum extent practicable (for ESA) and to minimize and fully mitigate (for CESA) the effects of the proposed Statewide Electrified Fence Project upon the Covered Species; and,

WHEREAS, procedures to obtain permits allowing incidental take of federally-listed species pursuant to Section 10(a)(1)(B) of the Endangered Species Act (ESA) allow a binding agreement committing the Parties to implement specified conservation measures for the Covered Species and procedures to obtain incidental take permits for state-listed species pursuant to Section 2081(b) of the California Endangered Species Act (CESA), as codified in the California Fish and Game Code, also allow a binding agreement committing the Parties to implement specified conservation measures for the Covered Species;

THEREFORE, the Parties hereto, for and in consideration of the mutual covenants and conditions herein, do hereby understand and agree as follows:

2.0 DEFINITIONS

The following acronyms and terms as used in this Agreement shall have the meanings set forth below:

2.1 The term "BGEPA" shall mean the federal Bald and Golden Eagle Protection Act (16 U.S.C. §668).

2.2 The term "CESA" shall mean the California Endangered Species Act (California Fish and Game Code Sections 2050, *et seq.*) and regulations promulgated pursuant to that Act.

2.3 The term "changed circumstances" means changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the Service and that can be planned for (e.g., the listing of new species or a fire or other natural catastrophic event in areas prone to such events).

2.4 The term "Covered Activities" shall mean those activities covered by the Permits as defined in section 3.4 of the HCP.

2.5 The term "Covered Species" shall mean species addressed in the HCP and identified in Table 1-2 of the HCP. Covered Species include Section 10(a)(1)(B) and Section 2081(b) Permit Species. However, the HCP is intended to benefit other species also, as discussed in Section 1.4 of the HCP. For the purposes of CESA, Covered Species do not include any species fully protected under §3505, §3511, §4700, §5050, §5515, and §5517 of the California Fish and Game Code.

2.6 The term "ESA" shall mean the federal Endangered Species Act (16 U.S.C. Sections 1531 through 1544) and regulations promulgated pursuant to that Act.

2.7 The term "HCP" shall mean the Habitat Conservation Plan for the Statewide Electrified Fence Project and any subsequent amendments thereto.

2.8 The term "MBTA" shall mean the Migratory Bird Treaty Act of 1918 (16 U.S.C. § 703 *et seq.*) and regulations promulgated pursuant to that Act.

2.9 The term "Mitigation Sites" as identified and described in Section 5.2.1 of the HCP shall mean the proposed acquisition, restoration, enhancement, management of land, and/or the contribution of funds thereto, by Permittee pursuant to the terms of the HCP as habitat for mitigating the impacts of both 1) authorized take and for conservation of Covered Species and; 2) benefit uncovered MBTA-protected species.

2.10 The term "Permit" and/or "Permits" shall mean any and all of the following:

1) An incidental take permit issued by the Service pursuant to Section 10(a)(1)(B) of ESA;
2) An CESA incidental take permit for state-listed species issued by CDFG pursuant to Section 2081(b) of the California Fish and Game Code;
3) A Special Purpose Permit (50 C.F.R. Section 21.27) to allow take of birds addressed in the HCP that are listed under the ESA, except for bald and golden eagles, that are also protected by the MBTA. Any such take shall not be in violation of the MBTA;
4) For the BGEPA, agreement that the Service will not refer for prosecution an incidental take by the Permittee under the BGEPA so long as such take is in compliance with the Permittee's Section10(a) permit under the ESA.

2.11 The term "Permittee" shall mean the California Department of Corrections.

2.12 The term "Permitting Agencies" shall mean the Service and CDFG.

2.13 The term "Plan Area" shall mean the area as described in Section 1.3 of the HCP.

2.14 The term "Project" shall mean the Statewide Electrified Fence Project.

2.15 The term "Section 10(a) Permit" shall mean an incidental take permit issued by the Service pursuant to Section 10(a)(1)(B) of the Endangered Species Act (ESA).

2.16 The term "Section 10(a)/2081(b) Permit Species" shall mean species for which the Permittee has an incidental take permit from the Service and CDFG for the Statewide Electrified Fence Project pursuant to Section 10(a)(1)(B) of the Endangered Species Act (ESA) and Section 2081(b) of CESA.

2.17 The term "Section 2081(b) Permit" shall mean a CESA incidental take permit issued by the CDFG pursuant to Section 2081(b) of the California Fish and Game Code.

2.18 The term "take" shall be as defined in the federal ESA, MBTA, BGEPA, as well as in the CESA and other provisions of the California Fish and Game Code.

2.19 The term "unforeseen circumstances" shall mean changes in circumstances affecting a species or covered geographic area covered by a conservation plan that could not reasonably have been anticipated by the plan developers and the Service at the time of the conservation plan's negotiation and development of the HCP, and that result in a substantial and adverse change in the status of the Covered Species.

3.0 HABITAT CONSERVATION PLAN

Pursuant to the provisions of the federal ESA, MBTA, and BGEPA, as well as CESA and Section 3513 of the California Fish and Game Code, as discussed in Section 1.2 of the HCP, the Permittee has prepared a Habitat Conservation Plan (HCP) and submitted it to the Service and the CDFG with a request that the Service issue a Permit to allow Covered Species to be incidentally taken within the Permit Area as depicted and described in Section 1.3 of the HCP.

The HCP proposes a minimization and mitigation program for the Covered Species and to benefit uncovered MBTA-protected species. The HCP, in conjunction with this Implementing Agreement, is intended to comply with the requirements of the federal ESA, MBTA, and BGEPA, as well as CESA and Section 3513 of the California Fish and Game Code, as discussed in Section 1.2 of the HCP.

4.0 INCORPORATION OF HCP

The HCP and each of its provisions are intended to be, and by this reference are, incorporated herein. In the event of any direct contradiction between the terms of this Agreement and the HCP, the terms of this Agreement shall control. In all other cases, the terms of this Agreement and the terms of the HCP shall be interpreted to be supplementary to each other.

5.0 LEGAL REQUIREMENTS

5.1 FEDERAL REQUIREMENTS

In order to fulfill the requirements that will allow the Service to issue the Section 10(a) Permit and to comply with other requirements of the federal ESA, MBTA, and BGEPA, as discussed in Section 1.2 of the HCP, the HCP sets forth measures that are intended to ensure that any take occurring as a result of the Project within the Permit Area will be incidental; that the impacts of the take will, to the maximum extent practicable, be minimized and mitigated; that procedures to deal with unforeseen circumstances will be provided; that compliance with and effectiveness of the minimization and mitigation measures will be monitored; that adequate funding for the HCP will be provided; and that the take will not appreciably reduce the likelihood of the survival and recovery of the Covered Species in the wild.

5.2 STATE REQUIREMENTS

In order to fulfill the requirements that will allow CDFG to issue a Section 2081(b) Permit and to comply with the other requirements of CESA and Fish and Game Code section 3513,as discussed in Section 1.2 of the HCP, the HCP sets forth measures that are intended to ensure:

-that any take occurring within the Permit Area will be incidental to otherwise lawful activities;

-that impacts of the authorized take will be minimized and fully mitigated;

-adequate funding to implement the required measures, and for monitoring compliance with, and effectiveness of, those measures; and

-that issuance of the incidental take permit will not jeopardize the continued existence of a Covered Species.

6.0 COOPERATIVE EFFORT

In order that each of the legal requirements as set forth in Section 5.0 hereof are fulfilled, each of the Parties to this Agreement must perform certain specific tasks as more particularly set forth in the HCP. The HCP thus describes a cooperative program by Federal and State agencies and private interests to minimize and mitigate the effects of the proposed Statewide Electrified Fence Project on the Covered Species.

7.0 TERMS USED

Terms defined and utilized in the HCP and the ESA and CESA shall have the same meaning when utilized in this Agreement, except as specifically noted.

8.0 PURPOSES

The purposes of this Agreement are:

8.1 To provide for the conservation of the HCP Covered Species;

8.2 To benefit uncovered MBTA-protected species addressed in the HCP;

8.3 To ensure implementation of each of the terms of the HCP;

8.4 To bind each Party to fulfill and faithfully perform the obligations, responsibilities, and tasks assigned to it pursuant to the terms of the HCP; and

8.5 As stated in Section 14.0 of this Agreement, to provide assurances to the Permittee that as long as the terms of the HCP and the Permit issued pursuant to the HCP and this Agreement are properly implemented, additional mitigation will not be required except as provided for in this Agreement or required by law.

8.6 To set forth remedies and recourse should any Party fail to perform its obligations, responsibilities, and tasks as set forth in this Agreement.

9.0 TERM

9.1 Stated Term. This Agreement shall become effective on the date that the Service and CDFG issue the Permits requested in the HCP and shall remain in full force and effect for a period of 50 years or until termination of the Permits, whichever occurs sooner, unless the Parties agree in writing to an extension to the stated term of this Agreement.

9.2 Notwithstanding the stated term as herein set forth, the Parties agree and recognize that once the Covered Species have been incidentally taken pursuant to the HCP, the take will be permanent. It is therefore the intention of the Parties that the provisions of the HCP and of this Agreement regarding the establishment and maintenance of habitat for the Covered Species shall be permanent.

10.0 FUNDING

10.1 Permittee will provide such funds as may be necessary to carry out its obligations under the HCP, including funding to monitor compliance with and effectiveness of mitigation measures described in the HCP. The Permittee should notify the Service and CDFG, if the Permittee's funding resources have materially changed, including a discussion of the nature of the change, from the information provided in Section 6 of the HCP.

10.2 The Service shall include in annual budget requests sufficient funds to fulfill its obligations under the HCP and its statutory requirements to protect the Covered Species and Covered Habitats.

10.3 The CDFG shall include in annual budget requests sufficient funds to fulfill its obligations under the HCP and its statutory requirements to protect the Covered Species and Covered Habitats.

10.4 In the event that adequate funding to implement the HCP is not provided by the Permittee, the Permitting Agencies along with Permittee will assess the impact of the funding deficiency on the scope and validity of the Permit. The Parties agree that they will then meet and confer to cooperatively develop a strategy to address the funding shortfall.

11.0 RESPONSIBILITIES OF THE PARTIES IN MITIGATION PROGRAM IMPLEMENTATION AND MONITORING RESPONSIBILITIES OF THE PERMITTEE

11.1 RESPONSIBILITIES OF THE PERMITTEE

a) The Permittee shall undertake all activities set forth in the HCP in order to meet the terms of the HCP and comply with the Permits, including adaptive management procedures described in Section 8.2 of the HCP.

b) The Permittee shall submit an annual report to the Permitting Agencies describing its activities and an analysis of whether the terms of the HCP were met for the reporting period. The report shall provide all reasonably available data regarding the incidental take, including data from the monitoring programs. In addition, the report shall include data regarding the short-term monitoring/reporting for net effectiveness, long-term monitoring/reporting for take of Covered Species, and monitoring/reporting for the effectiveness of habitat mitigation as determined by the performance criteria of habitat enhancement/restoration efforts, as described in Section 5.4 of the HCP.

11.2 RESPONSIBILITIES OF THE SERVICE

a) The Service shall cooperate and provide, to the extent funding is available, technical assistance to the Permittee as detailed in Section 5.4 of the HCP. Nothing in this Agreement shall require the Service to act in a manner contrary to the requirements of the Anti-Deficiency Act.

b) Concurrent with the issuance of the Permit, the Service shall by letter document the Services' intent to not refer the Permittee for prosecution under the MBTA for previous takings of species protected by the MBTA and addressed in the HCP and that it is highly unlikely that the Service will refer Permittee for prosecution in the future for takings of species protected by the MBTA and addressed in the HCP, if the plan is being fully implemented.

c) After issuance of the Permit, the Service shall monitor the implementation thereof, including each of the terms of this Agreement and the HCP in order to

ensure compliance with the Permit, the HCP and this Agreement. The Service shall review annual reports submitted by CDC to monitor incidental take, and the Service shall conduct its own review of the project every 5 years to confirm that efforts to reduce, minimize, and avoid take of migratory birds remain adequate to protect the migratory bird resource.

11.3 RESPONSIBILITIES OF THE CDFG

a) The CDFG shall cooperate and provide, to the extent funding is available, technical assistance to the Permittee as detailed in Section 5.2 and 5.4 of the HCP.

b) Concurrent with the issuance of the Permit, CDFG shall, by letter, document CDFG's intent to not refer the Permittee for prosecution under Fish & Game Code § 3513 (State statute adopting the MBTA) for previous takings of species protected by § 3513 and addressed in the HCP and that it is highly unlikely that CDFG will refer permittee for prosecution in the future for takings of species protected by § 3515 and addressed in the HCP, if the plan is being fully implemented.

c) After issuance of the Section 2081(b) Permit, the CDFG shall review the implementation thereof, including each of the terms of this Agreement and the HCP in order to ensure compliance with the Section 2081(b) Permit, the HCP and this Agreement.

12.0 REMEDIES AND ENFORCEMENT

Except as set forth below, each Party shall have all remedies otherwise available to enforce the terms of this Agreement, the Permit, and the HCP, and may seek remedies for any breach hereof, subject to the following:

12.1 NO MONETARY DAMAGES

No Party shall be liable in damages to the any other Party or other person for any breach of this Agreement, any performance or failure to perform a mandatory or discretionary obligation imposed by this Agreement or any other cause of action arising from this Agreement. Notwithstanding the foregoing:

a) RETAIN LIABILITY

All Parties shall retain whatever liability and defenses thereto they would possess for their present and future acts or failure to act without existence of this Agreement.

b) LAND OWNER LIABILITY

All Parties shall retain whatever liability and defenses thereto they possess as an owner of interests in land.

12.2 ACCEPTANCE OF HCP

The Parties acknowledge that their endorsement of this Agreement constitutes an acceptance of the HCP as adequate mitigation providing that the Permittee fully implements this Agreement. The Parties shall cooperate in any legal challenges to the HCP, the Permit and/or this Agreement.

13.0 PERMIT SUSPENSION, REVOCATION, OR TERMINATION

13.1 PERMIT SUSPENSION

a) In the event of any violation or breach of this Agreement, the Permitting Agencies may suspend, rather than revoke, this Agreement for a specified period of time. Suspension shall not occur without the Permitting Agencies first requesting that the Permittee take appropriate remedial action and without the Permitting Agencies first providing written notice of the facts or conduct that may warrant the suspension and an opportunity for the Permittee to demonstrate why suspension is not warranted.

b) In the event the Permit is suspended, as soon as possible, but not later than ten (10) working days after any suspension, the Permitting Agencies shall consult with the Permittee concerning actions to be taken to effectively redress the violation or breach that necessitated the suspension. At the conclusion of any such consultation, the Permitting Agencies shall make a determination of the actions necessary to effectively redress the violation or breach. In making this determination, the Permitting Agencies shall consider the requirements of the laws under which the Permit has been issued, the conservation needs of the Covered Species, the terms of the Permit and this Agreement, and any comments or recommendations received during the consultations. As soon as possible, but not later than thirty (30) days after the conclusion of the consultations, the Permitting Agencies shall transmit to the Permittee written notice of the actions necessary to effectively redress the violation or breach. Upon full performance of the necessary actions specified by the Permitting Agencies in their written notice, the Permitting Agencies shall immediately reinstate the Permit. It is the intent of the Parties hereto that in the event of any suspension of the Permit, all Parties shall act expeditiously and cooperatively to rescind any suspension to carry out the objectives of this Agreement.

c) Suspension or revocation of the Section 2081(b) permit is covered by Title 14, CCR section 783.7.

13.2 PERMIT REVOCATION/TERMINATION

a) <u>REVOCATION/TERMINATION BY THE PERMITTEE</u>

1) The Permittee may terminate this Agreement if it has complied with its obligations to date under this Agreement.
2) Termination shall be carried out as follows:

A. The Permittee shall make and adopt a written finding that further compliance with this Agreement is either not feasible or no longer in the best interest of the Permittee and shall identify any mitigation that had been approved by the Permitting Agencies but had not yet been completed prior to termination of the Agreement.

B. Termination of the Agreement shall not be effective before sixty (60) days after the Permittee provides written notice to the Permitting Agencies of their adoption of written findings. Coverage under this program shall thereafter be terminated.

b) REVOCATION/TERMINATION BY THE SERVICE

1) Termination of this agreement by the Service requires that the Service make written findings supported by the best scientific information available:

A. that the terms of this Agreement, HCP and/or Permits have been breached and that such violation cannot be effectively redressed by other remedies; or

B. That revocation or termination is required to fulfill a responsibility of the Permitting Agencies under state and/or federal law.

2) Revocation of a 10(a)(1)(B) permit is governed by 50 CFR § 13.27 through 13.29. The Service agrees that it will not revoke or terminate this permit without just cause and without first:

A. Requesting that the Permittee take appropriate remedial action if necessary; and

B. Providing the Permittee notice in writing of the facts or conduct that may warrant the revocation or termination and a reasonable opportunity, but not less than sixty (60) days to demonstrate or achieve compliance with the terms of this agreement.

c) REVOCATION/TERMINATION BY CDFG

1) Revocation/termination by CDFG is governed by Title 14 California Code of Regulations (CCR) section 783.7.

14.0 PERMIT ASSURANCES

14.1 NO ADDITIONAL LAND, COMPENSATION, OR MITIGATION REQUIRED

Consistent with the "No Surprises" Rule published in the Federal Register on February 23, 1998 (63 Fed. Reg. 8859), the Service shall not require the Permittee to commit additional mitigation in the form of additional land, property interests, water, other

natural resources, and/or financial or other compensation nor impose any land use restrictions on the Permittee for the Covered Species beyond that provided pursuant to this Agreement, provided that the Permittee is in compliance with their obligations under this Agreement.

14.2 UNFORSEEN CIRCUMSTANCES

a) RELEVANT FACTORS. In accordance with 50 C.F.R. section 17.22(b)(5)(C), in deciding whether unforseen circumstances that might warrant additional conservation measures exist, the Service will consider, but not be limited to, the following factors:

1) Size of the current range of the affected species;
2) Percentage or range adversely affected by the conservation plan;
3) Percentage or range conserved by the conservation plan;
4) Ecological significance of that portion of the range affected by the conservation plan;
5) Level of knowledge about the affected species and degree of specificity of the species' conservation program under the conservation plan; and
6) Whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

b) BURDEN AND DOCUMENTATION. As described in 50 C.F.R. section 17.22(b)(5)(C), the Director of the Service shall have the burden of demonstrating that unforeseen circumstances exist, using the best scientific and commercial data available. Any findings of unforseen circumstances must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of the affected species.

c) ADVANCE NOTICE. Except where there is substantial threat of imminent, significant adverse impacts to a Covered Species, the Service shall provide at least sixty (60) days notice of a proposed finding of unforeseen circumstances, during which time the Service shall meet with the Permittee to discuss the proposed finding and to provide the Permittee with an opportunity to submit information to rebut the proposed finding.

d) LIMITS ON ADDITIONAL CONSERVATION MEASURES. If the Service determines, in accordance with the provisions of this Agreement, that additional conservation and mitigation measures are deemed necessary to respond to unforeseen circumstances, the Service may require additional measures of the Permittee where the HCP is being properly implemented, but only if such measures are limited to modifications to the Mitigation Sites for the affected species, as identified in Section 5.2.1 of the HCP, and maintain and are consistent with the original terms of the HCP to the maximum extent possible and which do not result in an increase in costs to the Permittee. Additional conservation and mitigation measures will not involve the commitment of additional land, water or financial compensation or additional restrictions on land or the use of land, water, or other natural resources otherwise available for

development or use under the original terms of the HCP without the consent of the Permittee.

e) The Service may take any of the actions described in Section 14.3 of this Agreement either jointly, or separately and independently of each other.

14.3 CHANGED CIRCUMSTANCES

a) CHANGED CIRCUMSTANCES PROVIDED FOR IN THE HCP. If the Service determines that additional conservation and mitigation measures are deemed necessary to respond to changed circumstances and were provided for in the HCP's operating conservation program, the Permittee will implement the measures specified in Section 8.2 of the HCP, consistent with the provisions governing new species listings provided in Section 14.4 of this Agreement.

b) CHANGED CIRCUMSTANCES NOT PROVIDED FOR IN THE HCP. If the Service determines that additional conservation and mitigation measures are deemed necessary to respond to changed circumstances and such measures that were not provided for in the HCP's operating conservation program, the Service shall not require any conservation and mitigation measures in addition to those provided for in the plan without the consent of the Permittee, provided the HCP is being properly implemented, consistent with the provisions governing new species listings provided in Section 14.4 of this Agreement.

14.4 NEW SPECIES LISTINGS

a) COVERED SPECIES

In the event that a Covered Species that is not listed as threatened or endangered under the ESA as of the Effective Date becomes so listed during the term of this Agreement, then the Section 10(a) Permit shall become effective with respect to such species concurrent with its listing as threatened or endangered.

b) NON-COVERED SPECIES

If a new species that is not covered by the HCP but that may be affected by activities covered by the HCP is listed under the Federal ESA during the term of the section 10(a) Permit, the section10(a) Permit will be reevaluated by the Service and the HCP covered activities may be modified, as necessary, to insure that the activities covered under the HCP are not likely to jeopardize or result in take or adverse modification of any designated critical habitat of the newly listed species. CDC shall implement the modifications to the HCP covered activities identified by the Service as necessary to avoid the likelihood of jeopardy to or take or adverse modification of the designated critical habitat of the newly listed species. CDC shall continue to implement such modifications until such time as CDC has applied for and the Service has approved an amendment of the section 10(a) Permit, in accordance with statutory and regulatory requirements, to cover the newly listed species or until the Service notifies CDC in writing that the modifications to the HCP covered activities are no longer required to avoid the

likelihood of jeopardy or adverse modification of designated critical habitat of the newly listed species. Further, if CDC requests coverage for a newly listed species that is identified in Table 1-3, the Service shall consider the benefits of the mitigation provided under the HCP. CDC shall be responsible for any additional mitigation measures required to satisfy the permit issuance criteria under section 10(a)(2)(B) of the ESA for such species.

In the event that a new species that is not a Covered Species is listed as threatened or endangered under the ESA or the CESA as of the Effective Date of the HCP, a major amendment would be required, as described in Section 8.4.2 of the HCP and Section 16.1 of this Agreement.

14.5 PRIVATE PROPERTY RIGHTS AND LEGAL AUTHORITIES UNAFFECTED

Except as otherwise specifically provided herein, nothing in this Agreement shall be deemed to restrict the rights of the Permittee to the use or development of those lands, or interests in lands, constituting the Plan Area; provided, that nothing in this Agreement shall absolve the Permittee from such other limitations as may apply to such lands, or interests in lands, under other laws of the United States and the State of California.

15.0 CDFG PERMIT ASSURANCES

The amendment, suspension, and revocation of Section 2081(b) permits is governed by CESA and regulations promulgated thereunder. (See Title 14 California Code of Regulations (CCR), section 783.0 *et seq.*) Neither CESA nor CESA regulations contain a rule or regulation analogous to the federal "No Surprises Rule" related to assurances for unforseen circumstances (see section 14.2 above). However, subject to the CESA regulations, CDFG can provide assurances regarding additional mitigation based on the specific minimization and mitigation measures provided for in individual permits. If there is an adequate basis for determining that the measures in a particular permit will effectively minimize and fully mitigate the impacts of taking authorized during the full term of the permit, CDFG can provide commensurate assurances to the permit holder that additional measure will not be required.

Based on this Agreement and the HCP, CDFG has concluded that assurances to CDC regarding additional mitigation requirements are warranted. For so long as CDC implements and adheres to this Agreement, the HCP and the Section 2081(b) Permit, CDFG shall not amend, suspend or revoke the Section 2081(b) Permit, nor otherwise impose or seek to impose on CDC any mitigation or compensation requirements for the permitted activities in addition to the mitigation and compensation provided for in the HCP and the Section 2081(b) Permit, including but not limited to commitments of additional land or financial compensation, unless the CDFG determines that continuation of the activities authorized under the Section 2081(b) Permit would jeopardize the continued existence of a Covered Species, or unless otherwise required by law. If the CDFG makes a jeopardy determination, it shall amend, suspend or revoke, or require such additional mitigation or compensation.

Except where there is substantial threat of imminent, significant adverse impacts to a Covered Species, CDFG shall provide at least sixty (60) days notice of a proposed finding of jeopardy, during which time CDFG shall meet with the Permittee to discuss the proposed finding and to provide the Permittee with an opportunity to submit information to rebut the proposed finding.

15.1 CHANGED CIRCUMSTANCES

a) CHANGED CIRCUMSTANCES PROVIDED FOR IN THE HCP. If CDFG determines that additional conservation and mitigation measures are deemed necessary to respond to changed circumstances and the additional measures are provided for in the HCP, CDC shall implement the measures specified.

b) CHANGED CIRCUMSTANCES NOT PROVIDED FOR IN THE HCP If CDFG determines that additional conservation and mitigation measures are deemed necessary to respond to changed circumstances and the additional measures are not provided for in the HCP, CDFG shall not require the additional measures without the consent of CDC, unless the measures are necessary to ensure that the continuation of the permitted activities will not jeopardize the continued existence of a Covered Species.

15.2 NEW SPECIES LISTINGS

The Section 2081(b) Permit incidental take authorization shall extend to any unlisted Covered Species upon its acceptance as a candidate species pursuant to Fish and Game Code section 2974.2 or its listing as a threatened or endangered species pursuant to section 2076.5. The addition of any species to the list of Covered Species shall be considered a Major Permit Amendment under Title 14 CCR, section 783.6(c).

16.0 AMENDMENTS

Except as otherwise set forth herein, this Agreement may be amended consistent with the ESA CESA and with the written consent of each of the Parties hereto.

16.1 MAJOR AMENDMENTS

Major amendments to the HCP and to this Agreement proposed by the Permittee after the Effective Date of the Permit shall be processed by the Service and the CDFG as an amendment to the Permit in accordance with the ESA and Title 14 CCR section 783.6(c), and shall be subject to appropriate environmental review. As provided in Section 8.3 of the HCP, a major amendment, for the purposes of the HCP and this Agreement, would include:

a) adding a new species (i.e., not a Covered Species) to the Permit;
b) adding a new electrified fence prison site(s) (i.e., future prison site(s) not included in the Project) to the Permit;
c) modification of any important project action or mitigation component under the HCP, including funding, that may significantly affect authorized take levels, effects of the project on wildlife, or the nature or scope of the mitigation program (e.g., a need to significantly alter Tier 2 fence design as a result of excessive wildlife mortalities at the fences); and
d) any other modification to the HCP likely to result in significant adverse effects to the plan's ESA/CESA-covered species or MBTA-protected species not addressed in the original HCP and permit application.

16.2 MINOR AMENDMENTS

The Permittee may propose minor amendments to the HCP. Minor amendments are those changes that are not Major Amendments as defined in Section 16.1 above. Minor amendments to the Section 2081(b) Permit shall be processed in accordance with Title 14 CCR section 783.6(c)(4). The Permittee shall circulate to the Service and CDFG a statement of the reason for the proposed amendment. Minor amendments require the approval of the Service and CDFG. If the Service and CDFG determine, within sixty (60) days of receipt of the proposed amendment, that a proposed amendment to the HCP is a major amendment, the parties to the Agreement shall process the amendment as described in Section 15.1.

16.0 MISCELLANEOUS PROVISIONS

16.1 NO PARTNERSHIP

Except as otherwise expressly set forth herein, neither this Agreement nor the HCP shall make or be deemed to make any Party to this Agreement the agent for or the partner of any other Party.

16.2 SUCCESSORS AND ASSIGNS

This Agreement and each of its covenants and conditions shall be binding on and shall inure to the benefit of the Parties hereto and their respective successors and assigns.

16.3 NOTICE

Any notice permitted or required by this Agreement shall be delivered personally to the persons set forth below or shall be deemed given five (5) days after deposit in the United States mail, certified and postage prepaid, return receipt requested and addressed as follows or at such other address as any Party may from time to time specify to the other Parties in writing:

Assistant Regional Director
Department of the Interior
United States Fish and Wildlife Service
911 N.E. 11th Avenue
Portland, Oregon 97232-4181

Director (with copy to General Counsel)
California Department of Fish and Game
1416 9th Street
Sacramento, CA 95818

Deputy Director Planning & Construction
California Department of Corrections
P.O. Box 942883
Sacramento, CA 94283-0001

16.4 ENTIRE AGREEMENT

This Agreement, together with the HCP and the Permit, constitutes the entire Agreement between the Parties. It supersedes any and all other Agreements, either oral or in writing among the Parties with respect to the subject matter hereof and contains all of the covenants and Agreements among them with respect to said matters, and each Party acknowledges that no representation, inducement, promise or Agreement, oral or otherwise, has been made by any other Party or anyone acting on behalf of any other Party that is not embodied herein.

16.5 ELECTED OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress shall be entitled to any share or part of this Agreement, or to any benefit that may arise from it.

16.6 AVAILABILITY OF APPROPRIATED FUNDS

16.6.1 THE SERVICE

Implementation of this Agreement and the HCP by the Service is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this Agreement will be construed by the parties to require the obligation, appropriation, or expenditure of any money from the U.S. treasury. The parties acknowledge that the Service will not be required under this Agreement to expend any Federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

16.6.2 CDFG

Implementation of this Agreement and the HCP by CDFG is subject to the availability of appropriated funds. Nothing in this Agreement will be construed by the parties to require the obligation, appropriation, or expenditure of any money from the State Treasury. The parties acknowledge that CDFG will not be required under this Agreement to expend any appropriated funds unless and until an authorized official of CDFG affirmatively acts to commit to such expenditures as evidenced in writing.

16.7 DUPLICATE ORIGINALS

This Agreement may be executed in any number of duplicate originals. A complete original of this Agreement shall be maintained in the official records of each of the Parties hereto.

16.8 THIRD PARTY BENEFICIARIES

Without limiting the applicability of the rights granted to the public pursuant to the provisions of 16 U.S.C. § 1540(g), this Agreement shall not create any right or interest in the public, or any member thereof, as a third party beneficiary hereof, nor shall it

authorize anyone not a Party to this Agreement to maintain a suit for personal injuries or property damages pursuant to the provisions of this Agreement. The duties, obligations, and responsibilities of the Parties to this Agreement with respect to third parties shall remain as imposed under existing Federal or State law.

16.9 RELATIONSHIP TO THE ESA AND OTHER AUTHORITIES

The terms of this Agreement shall be governed by and construed in accordance with the ESA, CESA, and other applicable laws. In particular, nothing in this Agreement is intended to limit the authority of the Service and CDFG to seek penalties or otherwise fulfill its responsibilities under the ESA and CESA. Moreover, nothing in this Agreement is intended to limit or diminish the legal obligations and responsibilities of the Service as an agency of the Federal government or CDFG as an agency of the State of California. Further, nothing in this Agreement is intended to limit or diminish the legal defenses of the Permittee.

16.10 REFERENCES TO REGULATIONS

Any reference in this Agreement, the HCP, or the Permit to any regulation or rule of the Service shall be deemed to be a reference to such regulation or rule in existence at the time an action is taken.

16.11 APPLICABLE LAWS

All activities undertaken pursuant to this Agreement, the HCP, or the Permit must be in compliance with all applicable State and Federal laws and regulations.

IN WITNESS WHEREOF, THE PARTIES HERETO have executed this Implementing Agreement to be in effect as of the date last signed below.

BY _____ Date _____

Deputy Manager, California/Nevada Operations Office
United States Fish and Wildlife Service
Sacramento, California

BY _____ Date _____

Director
California Department of Fish and Game
Sacramento, California

BY _____ Date _____

Director
California Department of Corrections
Sacramento, California

Appendix **F**

USFWS HCP / MBTA Policy

Appendix F

USFWS HCP / MBTA Policy

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

IN REPLY REFER TO:
FWS/TE

FEB - 9 1996

Memorandum

To: Regional Directors, Regions 1, 2, 3, 4, 5, 6, and 7

From: Acting Director

Subject: ~~Incidental Take~~ of Migratory Birds and Bald Eagles

Under the Endangered Species Act, the Fish and Wildlife Service may grant a permit (section 10) or issue a statement (section 7) that allows the incidental take of endangered species. Some migratory birds, including the bald eagle, are ESA-listed species. The Migratory Bird Treaty Act prohibits the take of migratory birds, including any species also listed under the ESA. None of the regulations promulgated under the MBTA expressly provide for permits for incidental take.

Likewise, the Bald and Golden Eagle Protection Act prohibits the taking of bald eagles. The regulations promulgated under the BGEPA do not allow for permits to be issued for incidental take of eagles.

In many instances, Service biologists have concluded that incidental take of certain ESA-listed migratory birds (including bald eagles) could be allowed without harm to the species and their inclusion in a particular ESA section 7 statement or section 10 permit would be appropriate. However, the apparent inability to grant incidental take under the MBTA or BGEPA has caused confusion both within the Service and among permit applicants.

A means to allow incidental take of ESA-listed migratory birds, including the bald eagle, when such incidental take has been judged permissible under the ESA, and to remove the threat of prosecution under the MBTA and BGEPA (when warranted), has been needed. The Solicitor's Office has provided the attached opinion on this issue. We have determined to adopt the approach suggested by the Solicitor's Office as a matter of policy in the following manner:

1. In the ESA section 7 context, the following language should be included when appropriate in any incidental take statement concluding that take of ESA-listed migratory birds (including bald eagles) will result from the actions under consultation:

To the extent that this statement concludes that take of any threatened or endangered species of migratory bird will result from the agency action for which consultation is being made, the Service will not refer the incidental take of any such migratory bird for prosecution under the MBTA of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

2. In the ESA section 10 context, the Service will insert, when appropriate, the following language into any permit concerning the incidental take of ESA-listed migratory birds (including the bald eagle):

[For species other than the bald eagle] This permit also constitutes a Special Purpose Permit under 50 C.F.R. § 21.27 for the take of *[provide species' common and scientific names; species must be ESA-listed, and may not include the bald eagle]* in the amount and/or number and subject to the terms and conditions specified herein. Any such take will not be in violation of the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-12).

[For the bald eagle] The Service will not refer the incidental take of any bald eagle, *Haliaeetus leucocephalus*, for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald Eagle Protection Act of 1940, as amended (U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

This memorandum will serve to transmit these recommendations to the Regions as working interim guidance, and when appropriate, section 7(a)(2) incidental take statements and section 10(a)(1)(B) permits should incorporate this language regarding the incidental take of ESA-listed migratory birds. The Service will incorporate final guidance in the final versions of the section 7 and the Habitat Conservation Planning [section 10(a)(1)(B)] handbooks. However, until the section 7 and section 10(a)(1)(B) handbooks have been modified to ensure that their procedures guarantee consistency with the standards of the MBTA and BGEPA, and the procedural requirements of 50 C.F.R. §21.27, if applicable, any section 7 statement or section 10 permit including the above language should be reviewed by the regional Migratory Bird Coordinator.

Comments on this interim guidance are welcomed and to the extent possible, will be used in the final guidance. Comments should be sent to the Chief, Division of Endangered Species, within 30 days of receiving this memorandum.

Attachment

United States Department of the Interior

OFFICE OF THE SOLICITOR
Washington, D.C. 20240

TAKE PRIDE IN AMERICA

FEB 5 1996

Memorandum

To: John Rogers, Deputy Director, U.S. Fish & Wildlife Service

From: Pete Raynor, Assistant Solicitor, Fish & Wildlife Branch

Subject: Permitted Incidental Take Of Migratory Birds Listed Under the Endangered Species Act

You have asked whether an incidental take statement, under § 7 of the Endangered Species Act (ESA), 16 U.S.C. § 1536, or an incidental take permit, under § 10 of the ESA, 16 U.S.C. § 1539, (collectively, incidental take documents) can be used to provide an applicant or permittee with some assurance that the applicant or permittee will not be prosecuted under either the Migratory Bird Treaty Act (MBTA) or the Bald and Golden Eagle Protection Act (BGEPA) for that take expressly allowed under the ESA document. We conclude that the Service currently has the authority to do so, using a combination of permitting provisions under the MBTA and the Service's discretion in the enforcement of these statutes.

I. BACKGROUND

Under the ESA, the Service may grant a permit allowing the take of an endangered species incidental to an otherwise lawful activity. Section 10(a)(1). Similarly, pursuant to a consultation under § 7, the Service may issue a statement that incidental take resulting from a federal action will not jeopardize the continued existence of a listed species. Section 7(b)(4). Take of a listed species consistent with an incidental take statement, by the acting agency or an applicant before that agency, does not constitute a violation of the ESA. Section 7(o)(2).

The MBTA prohibits the take of migratory birds, 16 U.S.C. § 703, including migratory birds listed under the ESA. The MBTA authorizes the Secretary of the Interior to permit take consistent with the underlying treaties pursuant to regulation. None of the regulations promulgated under the MBTA expressly allows a permit to be issued for incidental take. See generally 50 C.F.R. part 21. However, 50 C.F.R. § 21.27 provides for the availability of "special purpose permits" for activities outside the scope of the standard permits. The general MBTA permits are not available for eagles; permits for eagles are controlled by the BGEPA regulations, found in 50 C.F.R. part 22. 50 C.F.R. § 21.4(b).

Like the MBTA, the BGEPA prohibits the taking of bald and golden eagles, 16 U.S.C. § 668, except as otherwise permitted pursuant to

regulation, id. § 668a. The regulations under the BGEPA allow for the issuance of permits for scientific or exhibition purposes, 50 C.F.R. § 22.21, for Indian religious purposes, id. § 22.22, to take depredating eagles, id. § 22.23, for falconry purposes, id. § 22.24, and to take golden eagle nests, id. § 22.25. The BGEPA regulations do not contain a provision equivalent to the special purpose permit under § 21.27.

Currently, ESA incidental take documents do not provide any relief from the prohibitions of the MBTA and BGEPA; indeed, some of those documents specifically state that they do not provide any such relief. Therefore, an applicant that wants complete protection from prosecution for the take of an ESA-listed migratory bird pursuant to an ESA incidental take document must also seek a permit under the MBTA, or if that bird is a bald eagle, the BGEPA. However, no such permit is currently available under the BGEPA, and § 21.27 under the MBTA has not traditionally been used to provide permits for unintentional take. Thus, applicants in the past have not been provided with assurance that they would not be prosecuted under the MBTA or BGEPA.

II. ALTERNATIVES

There are a number of theories on which ESA incidental take documents could be used to provide relief from liability under the MBTA and BGEPA. The first alternative is that the ESA documents could be expanded to act as permits under the other acts and their existing regulations as well. However, care would have to be taken to ensure that the ESA permit process was consistent with the legal requirements of the other applicable acts and their regulations. Some of the significant legal hurdles are:

- ESA § 7 incidental take statements are not considered to be permits. The process in which these statements are generated is one of scientific analysis. Adapting this process to conform to the procedural requirements of a permit-granting process would be difficult. Among other things, a permitting process may require NEPA analysis, currently not part of the § 7 process.

- An ESA permit could apply to the BGEPA only to the extent to which the activity to be permitted falls within the existing permit structure of the BGEPA regulations. This will rarely, if ever, be the case.

- The application of § 21.27 of the MBTA is limited to "activities related to migratory birds." However, we can argue that activity otherwise unrelated to birds can be considered an "activity related to migratory birds" by virtue of the fact that the activity causes bird mortality.

- An applicant for a permit under § 21.27 must demonstrate "a

sufficient showing of benefit to the migratory bird resource, important research reasons, reasons of human concern for individual birds, or other compelling justifications." Thus, most applications for a permit for take under the MBTA to be used in conjunction with an ESA incidental take document would require either a compelling justification or perhaps sufficient mitigation to show a positive benefit to the migratory bird resource.

We note that although § 21.27 appears to be broad enough to encompass the permitting of unintentional take for the purposes of the MBTA, that section is not narrowly focused on incidental take. A regulatory permitting program specifically geared to the problems of incidental take may be advisable. Indeed, such a program would be necessary in order to issue permits for incidental take with respect to the BGEPA, under which regulatory permitting authority for incidental take is essentially lacking. In the meantime, the use of § 21.27 to permit take in conjunction with an ESA § 10 permit is an acceptable approach.

A second alternative, in situations where 50 C.F.R. § 21.27 is not available, would be to include in ESA incidental take documents a statement of enforcement policy to the effect that the Service would not refer the beneficiary of the document for prosecution under the MBTA or BGEPA for the take of the ESA-listed migratory birds covered by the document, provided that such take was consistent with the terms and conditions of the document. The main advantage of this solution is its simplicity; the complications inherent in the permit alternative, discussed above, are avoided. In addition, there is authority to support the argument that such an announcement of enforcement policy under the MBTA is not subject to judicial review. See Alaska Fish & Wildlife Fed'n & Outdoor Council, Inc. v. Dunkle, 829 F.2d 933, 938 (9th Cir. 1987) ("The discretion granted to the Fish and Wildlife Service precludes our review of the Service's failure to enforce the MBTA"), cert. denied, 485 U.S. 988 (1988), on remand, No. J84-013CIVIL, slip op. at 15-16 (June 29, 1988) (distinguishing between reviewable agreement not to enforce and non-reviewable statement of enforcement priorities); see also 53 Fed. Reg. 16877 (May 12, 1988) (statement referred to by district court on remand). An announcement of enforcement policy may not be as satisfactory as an applicable permit to those seeking a safe haven from prosecution under the MBTA and BGEPA, but it will certainly provide a short-term solution pending development of a regulatory approach.

A third alternative would be to argue that the ESA, a comprehensive and more recent statute, trumps those areas in which it overlaps with the MBTA and the BGEPA. Under this theory, there would be no violation of the other statutes for ESA-listed birds if the ESA was complied with. There is no direct support for such a position; indeed it would be contrary, at a minimum, to a Memorandum from the Assistant Solicitor, Fish and Wildlife, dated Aug. 27, 1980, which

stated that the BGEPA, as the more specific statute, governed any situation in which it and the ESA conflict. Arguing that the ESA trumps the other statutes could have significant, unforeseen consequences, and thus seems an unwise course to pursue, particularly given the other options available.

III. RECOMMENDATION

In order for the Service to give, consistent with current regulatory authority, the maximum assurance of freedom from prosecution under the MBTA and BGEPA for the take of ESA-listed species consistent with ESA incidental take documents, we recommend the following.

1. In the ESA § 10 context, the § 10 handbook should be revised to require that the standards and procedures of 50 C.F.R. § 21.27 be included in the § 10 process if the permit will cover any non-eagle migratory bird. In addition, the Service should insert the following language into any permit allowing the incidental take of migratory birds:

> *[For species other than bald eagle]* This permit also constitutes a Special Purpose Permit under 50 C.F.R. § 21.27 for the take of *[provide species' common and scientific name; species must be ESA-listed, and may not include bald eagle]* in the amount and/or number and subject the terms and conditions as specified herein. Any such take will not be in violation of the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-12).
>
> *[For bald eagle]* The U.S. Fish & Wildlife Service will not refer the incidental take of any bald eagle, *haliaeetus leucocephalus*, for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) herein.

2. In the ESA § 7 context, the Service should include the following language in any incidental take statement concluding that take of ESA-listed migratory birds will result from the subject of the consultation:

> To the extent that this statement concludes that take of any threatened or endangered species of migratory bird will result from the agency action for which consultation is being made, the U.S. Fish & Wildlife Service will not refer the incidental take of any such migratory bird for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number)

specified herein.

3. The Division of Endangered Species and the Office of Migratory Bird Management should meet to discuss whether any additions to the ESA § 7 and § 10 processes are necessary in order to reflect the goals of the MBTA and BGEPA.

4. Consistent with the standard in Dunkle, under no circumstances should the Service bargain or extract concessions in return for the inclusion in an ESA incidental take document of the above language stating that the Service will not refer take for prosecution.

Should the Service decide to use ESA incidental take documents to provide assurances with regard to the MBTA and BGEPA, we would appreciate an opportunity to review the vehicle by which the Service implements any policy change. Please note that the above analysis and recommendations apply only to migratory birds that are also listed as threatened or endangered under the ESA. The Service should take steps to address the question of how to handle the incidental take of non-ESA-listed migratory birds. If you have any questions concerning the above, please contact me or Ben Jesup at (202) 208-6172.

cc: Jamie Clark
John Doggett
Paul Schmidt

Appendix G

Habitat Conservation Plan Assurances ("No Surprises") Rule

product adhesive operations at Solar Corporation's Libertyville, Illinois facility from 3.5 pounds VOM per gallon to 5.75 pounds VOM per gallon.

(i) Incorporation by reference. July 20, 1995, Opinion and Order of the Illinois Pollution Control Board, AS 94–2, effective July 20, 1995.

3. Section 52.720 is amended by adding paragraph (c)(136) to read as follows:

§ 52.720 Identification of plan.

* * * * *

(c) * * *

(136) On January 9, 1997, Illinois submitted a site-specific revision to the State Implementation Plan which grants a temporary variance from certain automotive plastic parts coating volatile organic material requirements at Solar Corporation's Libertyville, Illinois facility.

(i) Incorporation by reference. September 5, 1996, Opinion and Order of the Illinois Pollution Control Board, PCB 96–239, effective September 13, 1996. Certificate of Acceptance signed September 13, 1996.

[FR Doc. 98–4378 Filed 2–20–98; 8:45 am]

BILLING CODE 6560–50–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

National Marine Fisheries Service

50 CFR Part 222

[Docket No. 980212035–8035–01]

RIN 1018–AE24

Habitat Conservation Plan Assurances ("No Surprises") Rule

AGENCY: Fish and Wildlife Service, Interior; National Marine Fisheries Service, NOAA, Commerce.

ACTION: Final rule.

DATES: This rule is effective March 25, 1998.

SUMMARY: This final rule codifies the Habitat Conservation Plan assurances provided through section 10(a)(1)(B) permits issued under the Endangered Species Act (ESA) of 1973, as amended. Such assurances were first provided through the "No Surprises" policy issued in 1994 by the Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS), (jointly referred to as the "Services,") and included in the joint FWS and NMFS Endangered Species Habitat Conservation Planning Handbook issued on December 2, 1996 (61 FR 63854). The No Surprises policy announced in 1994 provides regulatory assurances to the holder of a Habitat Conservation Plan (HCP) incidental take permit issued under section 10(a) of the ESA that no additional land use restrictions or financial compensation will be required of the permit holder with respect to species covered by the permit, even if unforeseen circumstances arise after the permit is issued indicating that additional mitigation is needed for a given species covered by a permit. The Services issued a proposed rule on May 29, 1997 (62 FR 29091) and the comments received on that proposal have been evaluated and considered in the development of this final rule. This final rule contains revisions to parts 17 (FWS) and 222 (NMFS) of Title 50 of the Code of Federal Regulations necessary to implement the Habitat Conservation Plan assurances.

ADDRESSES: To obtain copies of the final rule or for further information, contact Chief, Division of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C., 20240; or Chief, Endangered Species Division, National Marine Fisheries Service, Office of Protected Resources, 1315 East-West Highway, Silver Spring, MD, 20910.

FOR FURTHER INFORMATION CONTACT: E. LaVerne Smith, Chief, Division of Endangered Species, U.S. Fish and Wildlife Service, (Telephone 703/358–2171, or Facsimile 703/358–1735), or Nancy Chu, Chief, Endangered Species Division, National Marine Fisheries Service (Telephone (301/713–1401, or 301/713–0376).

SUPPLEMENTARY INFORMATION: These final regulations and the background information regarding the final rule apply to both Services. The proposed rule has been revised based on the comments received. The final rule is presented in two parts because the Services have separate regulations for implementing the section 10 permit process. The first part is for the final changes in the FWS's regulations found at 50 CFR 17.22 and 17.32, and the second part is for the final changes in NMFS's regulations found at 50 CFR 222.22.

Background

Section 9 of the ESA generally prohibits the "take" of species listed under the ESA as endangered. Pursuant to the broad grant of regulatory authority over threatened species in section 4(d) of the ESA, the Services' regulations generally prohibit take of species listed as threatened. See, e.g., 50 CFR 17.31 and 17.21 (FWS). Section 3(18) of the ESA defines "take" to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." FWS regulations (50 CFR 17.3) define "harm" to include "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering."

Section 10 of the ESA, as originally enacted in 1973, contained provisions allowing the issuance of permits authorizing the taking of listed species under very limited circumstances for non-Federal entities. In the following years, both the Federal government and non-Federal landowners became concerned that these permitting provisions were not sufficiently flexible to address situations in which a property owner's otherwise lawful activities might result in limited incidental take of a listed species, even if the landowner were willing to plan activities carefully to be consistent with the conservation of the species. As a result, Congress included in the ESA Amendments of 1982 provisions under section 10(a) to allow the Services to issue permits authorizing the incidental take of listed species in the course of otherwise lawful activities, provided that those activities were conducted according to an approved conservation plan (habitat conservation plan or HCP) and the issuance of the HCP permit would not jeopardize the continued existence of the species. In doing so, Congress indicated it was acting to "* * * address the concerns of private landowners who are faced with having otherwise lawful actions not requiring Federal permits prevented by section 9 prohibitions against taking * * *" H.R. Rep. No. 835, 97th Cong., 2d Sess. 29 (1982) (hereafter "Conf. Report").

Congress modeled the 1982 section 10 amendments after the conservation plan developed by private landowners and local governments to protect the habitat of two listed butterflies on San Bruno Mountain in San Mateo County, California while allowing development activities to proceed. Congress recognized in enacting the section 10 HCP amendments that:

"* * * significant development projects often take many years to complete and permit applicants may need long-term permits. In this situation, and in order to provide sufficient incentives for the private sector to

participate in the development of such long-term conservation plans, plans which may involve the expenditure of hundreds of thousands if not millions of dollars, adequate assurances must be made to the financial and development communities that a section 10(a) permit can be made available for the life of the project. Thus, the Secretary should have the discretion to issue section 10(a) permits that run for periods significantly longer than are commonly provided [for other types of permits]." (Conf. Report at 31).

Congress also recognized that long-term HCP permits would present unique issues that would have to be addressed if the permits were to function to protect the interests of both the species involved and the non-Federal community. For instance, Congress realized that "* * * circumstances and information may change over time and that the original [habitat conservation] plan might need to be revised. To address this situation, the Committee expects that any plan approved for a long-term permit will contain a procedure by which the parties will deal with unforeseen circumstances." (Conf. Report at 31). Congress also recognized that non-Federal property owners seeking HCP permits would need to have economic and regulatory certainty regarding the overall cost of species mitigation over the life of the permit. As stated in the Conference Report on the 1982 ESA amendments:

"The Committee intends that the Secretary may utilize this provision to approve conservation plans which provide long-term commitments regarding the conservation of listed as well as unlisted species and long-term assurances to the proponent of the conservation plan that the terms of the plan will be adhered to and that further mitigation requirements will only be imposed in accordance with the terms of the plan. In the event that an unlisted species addressed in the approved conservation plan is subsequently listed pursuant to the Act, no further mitigation requirements should be imposed if the conservation plan addressed the conservation of the species and its habitat as if the species were listed pursuant to the Act." (Conf. Report at 30 and 50 FR 39681–39691, Sept. 30, 1985).

Congress thus envisioned and allowed the Federal government to provide regulatory assurances to non-Federal property owners through the section 10 incidental take permit process. Congress recognized that conservation plans could provide early protection for many unlisted species and, ideally, prevent subsequent declines and, in some cases, the need to list covered species.

The Services decided that a clearer policy regarding the assurances provided to landowners entering into an HCP was needed. This need prompted the development of the No Surprises policy, which was based on the 1982 Congressional Report language and a decade of working with private landowners during the development and implementation of HCPs. The Services believed that non-Federal property owners should be provided economic and regulatory certainty regarding the overall cost of species conservation and mitigation, provided that the affected species were adequately covered by a properly functioning HCP, and the permittee was properly implementing the HCP and complying with the terms and conditions of the HCP permit in good faith. A driving concern during the development of the policy was the absence of adequate incentives for non-Federal landowners to factor endangered species conservation into their day-to-day land management activities.

The Services issued the ESA No Surprises policy in August of 1994. This policy was then included in the joint Endangered Species Habitat Conservation Planning Handbook, which was published in draft form for public review and comment on December 21, 1994 (59 FR 65782), and, after consideration of the comments, was issued as final in December 1996 (61 FR 63854). In addition to that opportunity for public comment on the No Surprises policy in general, the application of the policy and its assurances have been and continue to be subject to an opportunity for public comment on each proposed HCP permit under section 10(c) of the ESA on a case-by-case basis. The Services were subsequently sued in *Spirit of the Sage Council* v. *Babbitt*, No. 1:96CV02503 (SS) (D. D.C.), which challenged the procedures under which the No Surprises policy was adopted and under which subsequent HCP permits were issued. In settling this lawsuit, the Services agreed to submit the No Surprises Policy to further public comment and to consider public comment in deciding whether to adopt the No Surprises policy as a final regulation. The Services agreed to this approach because they recognized the benefits of permanently codifying the No Surprises policy as a rule in 50 CFR, as well as the value of soliciting additional comments on the policy itself.

Summary of the Proposed Rule

The proposed rule stated that the Services, when negotiating unforeseen circumstances provisions for HCPs, would not require the commitment of additional land, property interests, or financial compensation beyond the level of mitigation that was otherwise adequately provided for a species under the terms of a properly functioning conservation plan. Moreover, the Services would not seek any other form of additional mitigation from a permittee except under unforeseen circumstances. However, if additional mitigation measures were subsequently deemed necessary to provide for the conservation of a species that was otherwise adequately covered under the terms of a properly functioning conservation plan, the obligation for such measures would not rest with the permittee.

Under the proposed rule, if unforeseen circumstances warrant additional mitigation from a permittee who is in compliance with the conservation plan's obligations, such mitigation would, to the maximum extent possible, be consistent with the original terms of the conservation plan. Further, any such changes will be limited to modifications within conserved habitat areas, if any, or to the conservation plan's operating conservation program for the affected species. Additional mitigation requirements would not involve the payment of additional compensation or apply to parcels of land or the natural resources available for development under the original terms of the conservation plan without the consent of the permittee.

Criteria were also developed by the Services that must be used for determining whether and when unforeseen circumstances arise.

Under the proposed rule, the Services also would not seek *any* form of additional mitigation for a species from a permittee where the terms of a properly functioning conservation plan were designed to provide an overall net benefit for that species and contained measurable criteria for the biological success of the conservation plans which have been or are being met. Nothing in the proposed rule would limit or constrain the Services, or any other governmental agency, from taking additional actions at its own expense to protect or conserve a species included in a conservation plan.

The Services also proposed a permit-shield provision in the proposed rule that stated that compliance with the terms of an incidental take permit constitutes compliance with the requirements of sections 9 and 10 of the ESA with respect to the species covered by the permit regardless of changes in circumstances, policy, and regulation, unless a change in statute or court order specifically requires that assurances given in the original permit be modified or withdrawn.

The Services also clarified in the proposed rule that the regulatory and economic assurances provided to HCP permittees are limited to section 10(a)(1)(B) permits. In addition, the assurances are not provided to Federal agencies.

Summary of Comments Received

The Services received more than 800 comments on the proposed rule from a large variety of entities, including Federal, State, County, and Tribal agencies, industry, conservation groups, religious groups, coalitions, and private individuals. The Services considered all of the information and recommendations received from all interested parties on the proposed regulation during the public comment period and appreciated the comments received on the proposed rule. In addition to comments that specifically addressed the proposed No Surprises policy in the proposed rule, the Services received numerous additional comments on the HCP process itself, comments which were beyond the narrow scope of this particular rulemaking on the No Surprises policy. The Services will utilize these more generic comments on HCPs, as appropriate, as we continue to improve the implementation of our HCP programs. However, at this time, the Services will only address comments received that are specific to the proposed No Surprises rule.

The Services have made changes in the proposed rule where appropriate. In addition, the Services intend to revise the HCP Handbook, both to reflect the final No Surprises rule and to further enhance the effectiveness of the HCP process in general through expanded use of adaptive management, monitoring provisions, and the establishment of overall biological goals for HCPs.

The following is a summary of the comments on the proposed regulations, and the Services' response.

Issue 1: Many commenters believed that to provide regulatory No Surprises assurances, the Secretary was directed to "* * * consider the extent to which the conservation plan is likely to enhance the habitat of the listed species or increase the long-term survivability of the species or its ecosystem * * *" (Conf. Report at 31.) and that the Services have no legislative authority to provide regulatory assurances for HCPs that do not meet this standard.

Response 1: A proposed HCP must satisfy the specific issuance criteria enumerated in section 10(a)(2)(B) of the ESA. In deciding whether these criteria have been satisfied and whether the permit should be issued for a given species, the Services consider, among other things, the extent to which the habitat of the affected species or its long-term survivability may be improved or enhanced. While it may be appropriate to consider an "enhancement factor" for an HCP, it is not a mandatory section 10(a)(2)(B) issuance criterion for all species.

Each HCP is analyzed on a case-by-case basis, using the best scientific information available. Habitat conditions are part of the data the Services evaluate to determine whether a proposed HCP meets the section 10 issuance criteria. The legislative history of the 1982 amendments to section 10 of the ESA indicates that Congress viewed habitat improvement and species conservation as appropriate considerations in determining whether to issue long-term incidental take permits. Certain types of HCPs, such as forest HCPs that include aquatic species, often allow for significant timber harvest and consequent species impacts during the initial years, while it may take decades before the riparian measures under the plan produce stream conditions that provide essential habitat functions for the listed species. The Services agree that, in appropriate situations, the legislative history supports including measures to provide for improved habitat over the life of the plan in section 10 permits. Severely depleted species and species for which the HCP covers all or a significant portion of the range are examples of circumstances in which essential habitat functions must be addressed to ensure that the conservation measures in the HCP provide a high probability that the habitat functions essential to the species' long-term survival will be achieved and maintained during the term of the permit.

Issue 2: Many commenters felt that this proposed regulation was driven solely by the needs of private landowners, and is not in the best interests of the species or other public concerns. Many commenters noted that the proposed regulation did not have commensurate certainties for protection of biological resources.

Response 2: The section 10(a) HCP provisions of the ESA were designed to help alleviate section 9 "take" liability for species on non-Federal lands. The ESA, as originally enacted, allowed the taking of listed species only under very limited circumstances, and did not, for example, allow the incidental take of listed species in the course of otherwise lawful activities. The 1982 ESA amendments to section 10(a) authorize the Services to issue HCP permits allowing the incidental take of listed species in the course of otherwise lawful activities, provided the activities are conducted according to an approved habitat conservation plan that minimize and mitigate take and avoids jeopardy to the continued existence of the affected species.

The Services disagree that the No Surprises policy has a narrow focus that excludes the consideration of listed species conservation. To the contrary, a driving concern in the development of the policy was the absence of adequate incentives for non-Federal landowners to factor endangered species conservation into their day-to-day land management activities. The Services knew that much of the habitat of listed species is in non-Federal lands and believed that HCPs should play a major role in protecting this habitat. Yet, while thousands of acres of species habitat were disappearing each year, only a handful of HCPs had been sought and approved since 1982. The No Surprises policy was designed to rechannel this uncontrolled ongoing habitat loss through the regulatory structure of section 10(a)(1)(B) by offering regulatory certainty to non-Federal landowners in exchange for a long-term commitment to species conservation. Given the significant increase in landowner interest in HCPs since the development of the No Surprises policy, the Services believe that the policy has accomplished one of its primary objectives—to act as a catalyst for integrating endangered species conservation into day-to-day management operations on non-Federal lands. The Services also believe that the HCP process, which is a mechanism that reconciles economic development and the conservation of listed species, is good for rare and declining species, and encourages the development of more of these plans. If species are to survive and recover, such plans are necessary because more than half of the species listed have 80 percent of their habitat on non-Federal lands.

Issue 3: Many commenters stressed that the proposed regulation would unlawfully allow the Services to avoid their mandatory duties under section 7 of the ESA. They argued that the proposed regulation precludes the Services from meeting the regulatory and statutory requirements under 50 CFR 402.16 and section 7(d) because it makes reinitiation of consultation useless and precludes any meaningful reexamination of mitigation measures if the measures in the HCP are later found to be inadequate to avoid jeopardy as required under section 7(a)(2). If jeopardy did arise, commenters do not

feel that the Services would be able to implement the necessary mitigation to avoid the jeopardy because of lack of funding. Other concerns were also raised by commenters regarding the respective balance of responsibilities among the participants to an HCP containing a No Surprises assurance. Also, some commenters suggested the Services would not be fulfilling their mandatory conservation obligations under section 7(a)(1).

Response 3: The Services are committed to meeting their responsibilities under section 7(a)(2) of the ESA. As required by law, the Services conduct a formal intra-Service section 7 consultation regarding the issuance of each permit issued under section 10(a)(1)(B). The purpose of any consultation is to insure that any action authorized, funded, or carried out by the Federal government, including the issuance of an HCP permit, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat of such species. In addition, the Services encourage all applicants to maximize benefits to species covered by their HCPs because of the Services' responsibilities under 7(a)(1). Moreover, as discussed in Response #1, in appropriate situations, such as when an HCP covers most or the entire range of a species or covers severely depleted species, the Services will seek measures necessary for the long-term survival of the species and its habitat.

The Services do not believe they are disregarding the requirements of section 7(d) in providing assurances to landowners through the section 10 process. During the formal section 7(a)(2) consultation process, and prior to the issuance of a final biological opinion, the Services (like any other Federal action agency) must not make any irreversible or irretrievable commitments of resources (in the case of proposing to issue an HCP permit, the Services cannot authorize incidental take) that would preclude the development of reasonable and prudent alternatives in the event that the action, as proposed, violates section 7(a)(2) of the ESA. In the context of HCP permit procedures, the only manner in which the Services could violate section 7(d) is if they authorized incidental take prior to making a final decision on a permit application, which is never the case.

In addition, the No Surprises assurances do not make reinitiation of consultation useless or preclude any meaningful reexamination of the HCP's operating conservation program. The Services will not require the landowner to provide additional mitigation measures in the form of additional land, water, or money. However, additional mitigation measures can be provided by another entity. Similarly, the No Surprises rule does not preclude the Services from shifting emphasis within an HCP's operating conservation program from one strategy to another in an effort to enhance an HCP's overall effectiveness, provided that such a shift does not increase the HCP permittee's costs. For example, if an HCP's operating conservation program originally included a mixture of predator depredation control and captive breeding, but subsequent research or information demonstrated that one of these was considerably more effective than the other, the Services would be able to request an adjustment in the proportionate use of these tools, provided that such an adjustment did not increase the overall costs to the HCP permittee.

Moreover, if the Services reinitiate consultation on the permitting action, and if additional measures are needed, the Services will work together with other Federal, State, and local agencies, Tribal governments, conservation groups, and private entities to ensure additional measures are implemented to conserve the species.

Regarding the concerns on the respective balance of responsibilities among the participants to an HCP containing a No Surprises assurance, the Services believe the No Surprises rule places the preponderance of the responsibility for protection beyond the terms of a specific HCP upon the Services. The only impediments to the Services' assumption of this additional responsibility will arise from limits on authority or funding to provide this additional protection.

The Services have significant resources and authorities that can be utilized to provide additional protection for threatened or endangered species that are the subject of a given HCP including land acquisition or exchange, habitat restoration or enhancement, translocation, and other management techniques. For example, lands managed by the Department of the Interior could be used to ensure listed species protection. Moreover, subsequent section 7 consultations and approval of subsequent section 10 permits will have to take into account the HCP and the status of the species at that time. The section 9 prohibition against unauthorized take by other landowners provides additional protection.

In addition, section 5 of the ESA authorizes the Services to acquire lands to conserve endangered and threatened fish, wildlife, and plants, and section 6 of the ESA authorizes the Services to cooperate with the States in conserving listed species. While many of these programs and authorities are subject to the availability of appropriations, others, such as the authority under the Federal Land Policy and Management Act to exchange land for conservation purposes, do not require appropriations. These authorities provide additional flexibility through which the Services could meet their section 7 responsibilities. While by no means exhaustive, the above discussion demonstrates the depth of authorities and resources available to the Services to meet their No Surprises commitments.

Utilizing these authorities and resources, the Services should be able to provide additional species protection that may be required in the unexpected event that an HCP falls short of providing sufficient protection.

Issue 4: Many commenters stated that the proposed regulation violates section 4(b)(8) of the ESA, which requires "* * * the publication in the Federal Register of any proposed or final regulation which is necessary or appropriate to carry out the purposes of this ESA shall include a summary by the Secretary of the data on which such regulation is based and shall show the relationship of such data to such regulation * * *".

Response 4: The Services believe section 4(b)(8) is intended to apply only to listing and critical habitat decisions under section 4. However, even if section 4(b)(8) did apply to this rule, the Services have complied with its requirements. The proposed rule contained a thorough discussion of the basis for the proposed rule (62 FR 29091, May 29, 1997). In addition, the Services had previously explained the background of the No Surprises Policy in the draft HCP Handbook, which was published for public comment in the Federal Register (59 FR 65782, December 21, 1994).

Issue 5: Many commenters believe that the Secretary of the Interior does not have the authority to issue assurances for species covered by the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA).

Response 5: The FWS believes that the ESA is more restrictive and protective of species than the MBTA and the BGEPA, and that species covered under an HCP that are also covered by the MBTA and the BGEPA will adequately be protected as long as the HCP is properly implemented. The FWS has concluded that under certain

conditions, a section 10 permit allowing incidental take of listed migratory birds is sufficient to relieve the permittee from liability under the MBTA and BGEPA for taking those species. For the MBTA, this is accomplished by having the HCP permit double as a Special Purpose Permit authorized under 50 CFR 21.27. For the BGEPA, the FWS would exercise its prosecutorial discretion not to prosecute an incidental take permittee under the BGEPA if such take is in compliance with a section 10 permit under the ESA.

However, there are conditions that must be satisfied before either of these protections apply, which are explained on pages 3–40 to 3–41 in the joint Endangered Species Habitat Conservation Planning Handbook (61 FR 63854, December 2, 1996). The FWS believes this approach is warranted because the permittee already would have agreed to an operating conservation program designed to conserve the species and minimize and mitigate the impacts of take of the listed species of migratory birds to the maximum extent practicable. Through the permitting provisions of the MBTA and the FWS's discretion in the enforcement of the BGEPA and the ESA, the FWS has the authority to provide a permittee with assurance that they will not be prosecuted under the MBTA or BGEPA for take expressly allowed under the ESA.

Issue 6: Many commenters stated that HCPs with No Surprises assurances are in conflict with the issuance criteria in the ESA because, in the event of unforeseen circumstances, the project impacts may not be fully mitigated and the plan may reduce the survival and recovery of a covered species.

Response 6: The assurances provided through this regulation are consistent with the issuance criteria of the ESA. Before issuing a permit, the Services ensure that the applicant minimizes and mitigates the project impacts, to the maximum extent practicable, and that the permitted activities avoid jeopardy to the continued existence of the affected species.

In addition, in cases where significant data gaps exist, adaptive management provisions are included in the HCP. The primary reason for using adaptive management in HCPs is to allow for up-front, mutually agreed upon changes in the operating conservation program that may be necessary in light of subsequently developed biological information. In the event of unforeseen circumstances, these strategies may be redirected as long as the redirection is consistent with the scope of the mutually agreed-upon adaptive management provisions of the HCP.

Issue 7: Many commenters stated that the applicant is legally required to address all unforeseen circumstances in the HCP pursuant to section 10. They noted that fire, disease, drought, flood, global climate change, and non-point source pollution may be unforeseen, but are not uncommon. Also the proposed regulation does not direct the applicant to provide for all unforeseen circumstances that might occur during the length of the permit because it is the Services' responsibility to determine that there was an unforeseen circumstance that was not addressed and is not the fault of the permittee implementing the HCP. In addition, commenters noted that the nature of many of the HCPs that the Services are approving increases the likelihood for unforeseen events to happen (i.e., the permits are issued for many years and cover large areas and many species).

Response 7: The Services disagree that HCPs must address *all* hypothetical future events, no matter how remote the probability that they may occur. Rather, the Services believe that only reasonably foreseeable changes in circumstances need to be addressed in an HCP. Moreover, these circumstances are likely to vary from HCP to HCP given the ever changing mix of species and affected habitats covered by a given plan. Nevertheless, the Services agree that the proposed rule's treatment of unforeseen circumstances could be strengthened, and a definition of unforeseen circumstances has been codified in this rule. In particular, the Services would like to clarify that unforeseen circumstances will only include events that could not reasonably have been anticipated. *All reasonably foreseeable circumstances, including natural catastrophes that normally occur in the area, should be addressed in the HCP.* The final rule specifies how unforeseen circumstances will be addressed if they occur during the life of the permit.

Issue 8: Commenters believe that the proposed regulation would not allow for social changes that could occur over the lifetime of the permit. For example, they claim that the development and implementation of the Emergency Salvage Timber rider has affected the success of the conservation measures of several HCPs.

Response 8: There may be situations that do arise related to social changes that could occur during the lifetime of the permit. In these situations, the Services will use all of their legal authorities to adequately address the changes. The Timber Salvage rider to the Appropriations bill is actually a good example of how the Administration responded to a change in social policy. On July 27, 1995, the President signed the Rescission Act (Public Law 104–19) that provided funds for disaster relief and other programs. This bill contained provisions for an emergency salvage timber sale, and directed the preparation, offer, and award of timber salvage sales nationwide. Although the bill passed, the President did not support the provision that waived compliance with environmental laws during timber salvage and directed the Secretaries of Agriculture, the Interior and Commerce, and the heads of other agencies, to move forward to implement the timber-related provisions of the bill in an expeditious and environmentally-sound manner. The Services worked with other Federal agencies to develop a process that, as a matter of Administration policy, addressed compliance with all environmental laws while also meeting the requirements of Pub. L. 104–19. An interagency team of Federal agencies then drafted a process that addressed compliance with the ESA through a streamlined section 7 consultation procedure to ensure that these sales did not jeopardize listed species. In this case, the Services and other Federal agencies cooperatively used their administrative discretion and legal authorities to ameliorate adverse impacts upon listed species conservation.

Issue 9: Several commenters believe that the proposed No Surprises rule negates adaptive management provisions incorporated into HCPs, and may not allow future jeopardy situations to be addressed, because adaptive management must allow for adaptions to changes as they occur rather than trying to plan for everything up front. In addition, many commenters believe that in order to get No Surprises assurances, an HCP must have an adaptive management program that addresses all foreseeable biological and environmental changes and that is designed so that new applicable scientific information and information developed through a monitoring program is incorporated into the plan.

Response 9: The Services do not believe that the proposed rule negates adaptive management provisions incorporated into HCPs for the species with biological data gaps. The No Surprises assurances only apply to an approved HCP that has otherwise satisfied the issuance criteria under section 10(a)(2)(B) of the ESA. When considering permits where there are significant biological data gaps, the

Services have two choices: either deny an HCP permit application due to the inadequacy of the overall proposed plan, or build in adaptive management and monitoring provisions where warranted because of biological data gaps and issue the permit. If there is significant uncertainty associated with the operating conservation program, adaptive management becomes an integral component of the HCP. Incorporating adaptive management provisions into the HCP becomes important to the planning process and the long-term interest of affected species when HCPs cover species with significant biological data gaps. Through adaptive management, the biological objectives of an operating conservation program are defined using techniques such as models of the ecological system that includes its components, interactions, and natural fluctuations. If existing data makes it difficult to predict exactly what conservation and mitigation measures are needed to achieve a biological objective, then an adaptive management approach should be used in the HCP. Under adaptive management, the HCP's operating conservation program can be monitored and analyzed to determine if it is producing the desired results (e.g., properly functioning riparian habitats). If the desired results are not being achieved, then adjustments in the program can be considered through an adaptive management clause of the HCP. Thus, adaptive management can be an integral part of the operating conservation program for an HCP and can be implemented to adjust strategies accordingly. The Services support continuing to strengthen the effectiveness of adaptive management provisions in HCPs and intend to do so in further revisions to the HCP Handbook.

Issue 10: Numerous commenters stated that the proposed regulation should identify secured sources of funding that do not rely on appropriations for the implementation of conservation measures that may be needed to address unforeseen circumstances.

Response 10: Funding mechanisms of this type would have to be established through Congressional action. Absent Congressional action on this matter, the Services must operate with the fiscal resources otherwise made available to them through the appropriations process. Moreover, in approving an HCP in the first instance, the Services must conclude that the permittee has provided for adequate funding to implement the terms of the HCP.

Issue 11: Many commenters stated that the Federal government is not capable of shouldering the financial burden of funding the implementation of conservation measures that may be needed to address unforeseen circumstances. The hardship of paying for any changes needed in the HCP on the government may have severe and far reaching effects on funding for other Federal activities. In addition, some commenters noted that the proposed regulation unlawfully shifts the burden of funding to the Services when section 10 clearly states that the applicant will provide the funding. Numerous commenters stated that the government does not have guaranteed funding for covering unforeseen circumstances and cannot make such guarantees in violation of the Anti-Deficiency Act.

Response 11: The ESA requires the Service to find that an incidental take permittee has provided adequate funding to implement an HCP in the first instance. In addition, the Services must ensure that HCPs are designed to adequately mitigate the incidental take authorized by the permit, include measures to deal with unforeseen circumstances that may arise, and comply with such other measures that the Secretary may require as being necessary or appropriate for purposes of the plan. Once the Services have concluded that a permittee has initially satisfied the issuance criteria in section 10(a), there is nothing in the ESA that precludes the Services from assuming additional responsibility for species covered under the terms of an HCP, especially when such responsibilities are limited to highly unlikely unforeseen circumstances. In fact, the Services have responsibility for listed species conservation regardless of whether an HCP is involved or not, and carrying out that responsibility (for example, through the initiation of litigation to enforce section 9 of the ESA) is also dependent upon the availability of appropriated funds. Therefore, at a conceptual level, the lack of guaranteed funding to handle a breakdown of an HCP due to unforeseen circumstances is no different from a lack of guaranteed funding to enforce the ESA generally.

The Anti-Deficiency Act applies to the Services' activities under the ESA as it does to their activities under all other environmental laws. In the face of an unexpected species decline, where additional conservation efforts are warranted, the Services have significant resources at their disposal to address the comparative needs of the species. As noted earlier in Response #3, the Services can also work with Congress, other Federal, State, and local agencies, tribes, environmental groups, and private entities to help ensure the continued conservation of the species in the wild. The Services have a variety of tools available to ensure that the needs of the species affected by unforeseen circumstances are adequately addressed, including land acquisition or exchange, habitat restoration or enhancement, translocation, and other management techniques. Thus, the Services believe they have a wide array of options and resources available to respond to any unforseen circumstances.

Issue 12: Many commenters noted that many HCPs do not have adequate funding, and the Services must not issue an incidental take permit unless an applicant has secured adequate funding to address all foreseeable changes that might be needed in the conservation measures during the lifetime of the permit. County or State Bonds that are not guaranteed should not be considered "adequate funding."

Response 12: Section 10(a)(2)(B)(iii) requires incidental take permit applicants to "ensure that adequate funding for the plan will be provided." This issuance criterion requires that the applicant detail the funding that will be available to implement the proposed operating conservation program. Therefore, all conservation plans specify funding requirements necessary to implement the plan. The Services issue a permit only when they have concluded that the operating conservation program will be adequately funded. No Surprises only applies to an HCP that is being properly implemented, and if a major component of an HCP, like its funding strategy, is never initiated or implemented, then No Surprises no longer applies and the assurances lapse.

The FWS has incorporated provisions into HCPs that allow for a reevaluation of species coverage in case a County or State Bond that is supposed to meet the adequate funding issuance criterion ultimately is not passed. Under these provisions, the list of species authorized for incidental take may be diminished if funding is not in place within a specified time frame, and any incidental take that would occur before the bond measure is acted upon would have to be adequately mitigated up-front. This reevaluation mechanism was used in the Multiple Species Conservation Program for southwestern San Diego County, California. This type of reevaluation process will be incorporated into other HCPs that rely on proposed bonds to provide required funding.

Issue 13: Many commenters stated that funding and accountability mechanisms are more complicated for permits that involve third party beneficiaries (e.g., certificates of inclusion), and that these types of permits should not include assurances.

Response 13: The Services believe that the assurances provided by the final rule should be available to individuals who participate in HCPs through a larger regional planning process. These large-scale, regional HCPs can significantly reduce the burden of the ESA on small landowners by providing efficient mechanisms for compliance, distributing the economic and logistical impacts of endangered species conservation among the community, and bringing a broad range of landowner activities under the HCPs' legal protection. In addition, these large-scale HCPs allow for ecosystem planning, which can provide benefits to more species than small-scale HCPs. Large-scale HCPs also provide the Services with a better opportunity for analyzing the cumulative effects of the projects, which is more efficient than the piecemeal approach that could result if each landowner developed his/her own HCP. The Services do believe, however, that the party that holds the "overarching" permit, and issues subpermits (e.g., Certificates of Inclusion or Participation Certificates) must have the legal authority to enforce the terms and conditions of the permit and the underlying funding mechanisms for the HCP.

Issue 14: Many commenters requested the Services to remove the permit-shield provision from the proposed regulation because it improperly restricts the authority of the Secretary and citizens to enforce the requirements of the ESA. These commenters assert that the Services do not have the authority to prevent citizens from suing those who are in violation of the ESA. One commenter stated that the permit-shield provision lacks important limitations found in other permit-shield provisions, such as the Clean Water Act and Resource Conservation and Recovery Act. Commenters also stated that the proposed permit-shield provision conflicts with the citizen suit provision in section 11(g) of the ESA. Other commenters supported the proposed permit-shield provision and urged the Service to incorporate it into the final rule. These commenters believe failure to include a permit-shield provision would undercut the No Surprises assurances by exposing permit holders to potential enforcement actions even if they are complying fully with the terms and conditions of valid permits.

Response 14: After further review of the permit-shield concept, including a review of legal authorities, the Services have decided not to include a legally binding permit-shield provision in the final rule. The purpose of the permit-shield provision was to provide certainty to permittees regarding their legal obligations. The current statutory and regulatory framework appears to already provide permittees with that certainty. Although commenters stated that a permit holder might still be vulnerable to government-initiated enforcement actions notwithstanding the No Surprises assurances, the Services cannot identify situations in which a permittee would be in violation of Sections 9 or 11 of the ESA, if in fact they were acting within the permit's authorization and were complying with the terms and conditions of the permit.

In addition, as part of the review of legal authorities, the Services reviewed the court decision in *Shell Oil Company v. Environmental Protection Agency,* 950 F.2d 741, 761–765 (D.C. Cir. 1991), which addressed the legality of the Environmental Protection Agency's permit-shield rule for permits issued under the Resource Conservation and Recovery Act (RCRA). Although that decision upheld the RCRA permit-shield rule promulgated by the EPA, 40 CFR 270.4(a), the Services are concerned that the incidental take permit program is sufficiently different from the RCRA permit program that the *Shell Oil* decision may not support a permit-shield rule for incidental take permits. For instance, the court noted that the maximum term of RCRA permits is 10 years, which is considerably shorter than the terms of most incidental take permits. In addition, the EPA retains explicit authority to modify or terminate RCRA permits in response to information arising after a permit is issued that would have justified different permit terms had it existed when the permit was issued. In contrast, the No Surprises rule commits the Service to issue permits that do not require additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources if unforeseen circumstances arise.

Although the Services have decided not to include a legally binding permit-shield provision in the final rule, they nonetheless strongly support a policy that permittees should feel free of potential prosecution if they are acting under the authorizations of their permit and are complying with the terms and conditions of the permit. The Services therefore will continue their policy of not enforcing the prohibitions of Section 9 of the ESA against any incidental take permittee who complies fully with the terms and conditions of the permit.

Many commenters requested that the Services remove the permit-shield provision from the proposed regulation because it improperly restricts the authority of citizens to enforce the requirements of the ESA. The purpose of the proposed permit-shield provision was to provide that the Services would not utilize Section 11(e) of the ESA to enforce Section 9 prohibitions against a permittee who is in full compliance with the terms and conditions of a permit. The permit-shield provision would not, therefore, have restricted citizen suits.

Issue 15: Commenters believe that the regulatory assurances provided to the permittee deprive citizens of the right to have general oversight of HCPs, including challenging government's management decisions, guaranteeing that landowners are in compliance with the agreements, and ensuring that the plans are actually working to conserve listed species.

Response 15: The No Surprises assurances do not deprive citizens of HCP oversight or of their ability to challenge an improperly issued HCP permit. In addition, all Service decision documents (such as approval of HCP management plans) are part of the Administrative Record for any individual HCP and are available to any member of the public upon request. Nothing in this rule prevents citizens from challenging the adequacy of those decisions or bringing HCP permit terms and conditions compliance issues to the Services' attention. The Services welcome citizen input on HCP implementation. Public comments must be considered in all permit decisions. Providing No Surprises assurances to an HCP permittee does not eliminate this public comment period. In addition, the Services or any party designated as responsible by the Services (e.g., State wildlife agency, local government) in the HCP will be expected to monitor the project for compliance with the terms of the incidental take permit and HCP. The Services also require periodic reporting from the permittee in order to maintain oversight to ensure the implementation of the HCP's terms and conditions. The final rule does nothing to affect these reporting requirements.

Issue 16: Numerous commenters stated that the proposed regulation should provide for permits to contain a reopener clause. Any entity (e.g., landowners, government agencies, ecologists, environmentalists) would then be able to reopen the permit for any of the following reasons: 1) Any

party fails to implement the terms and conditions of the permit; (2) new listings of any species not covered; and (3) monitoring indicates that conservation goals are not being met and that the operating conservation program is ineffective.

Response 16: The HCP process already provides various mechanisms for reopening an HCP. First, the Services may suspend, or in certain circumstances, revoke all or part of the privileges authorized by a permit if the permittee does not comply with the terms and conditions of the permit or with applicable laws and regulations governing the permitted activity. If an HCP permit is suspended or revoked, incidental take must cease. The provisions of most HCPs expressly address permit suspension or revocation procedures. Second, if a species was not initially listed on an HCP permit, it may not be automatically covered by an HCP when subsequently listed. For example, if a species was not originally listed on a permit, the HCP must be formally amended. Amendment of a section 10(a)(1)(B) permit is also required when the permittee wishes to significantly modify the project, activity, or conservation program as described in the original HCP. Such modifications might include significant boundary revisions, alterations in funding or schedule, or an addition of a species to the permit that was not addressed in the original HCP. The Services encourage the public to provide them with applicable information concerning any approved HCP that would be useful in evaluating the effectiveness of the HCP or other concerns they may have.

Issue 17: Numerous commenters stated that the assurances provided through these proposed regulations should not be automatic and should be commensurate with risk, and that the Services should provide assurances to a permittee only if the HCP includes specific objectives or measurable biological goals that must be met and that would ensure the conservation of the species, if they are attained.

Response 17: The Services believe that the commitments of an HCP must be specifically identified and scientifically based, reflecting the particular needs of the species that are covered. Thus, the concept of comparative risk to various species is factored in by the Services as they assess the adequacy of the operating conservation program for a given HCP. The Services will not approve an HCP permit request found to be inadequate, but will provide No Surprises assurances to all HCPs that are found to be adequate.

For many recent HCPs, the Services are defining specific biological goals. Furthermore, comprehensive monitoring programs provide added value for measuring progress toward meeting the goals and commitments and ensuring that the permittee is in compliance with the permit. The Services often incorporate monitoring measures to assess whether goals are being met, especially in cases where additional information may be desirable or there is significant scientific uncertainty. If existing data makes it difficult to predict exactly what measures are needed to achieve a biological objective, then an adaptive management strategy is usually required. Adaptive management, which then becomes an integral component of the operating conservation program, is not negated by the No Surprises assurances because it was a part of the HCP's operating conservation program as approved by the Services.

Issue 18: Most commenters stated that to get assurances, a multispecies HCP must adequately cover each individual species rather than collectively cover a group of species defined by some type of commonality (*e.g.*, guild or habitat).

Response 18: The Services believe that each species in a multispecies HCP must be adequately addressed by satisfying the permit issuance criteria under section 10(a)(2)(B) of the ESA. The Services believe, nevertheless, that in some cases, using a "guilding" or habitat-based approach to craft preserve designs or management measures may be appropriate.

However, even when such tools are used, the Services will ensure that for each species that receives assurances, the species must be specifically named in the HCP, and adequate conservation measures are included in the plan.

Issue 19: Commenters believe that to get assurances, an HCP must have an adequate and comprehensive biological monitoring program that addresses all foreseeable changes in circumstances that may occur over the lifetime of the permit.

Response 19: Monitoring is already an element of HCPs under the Services' Federal regulations [50 CFR 17.22(b)(1), 17.32(b)(1), and 222.22]. Monitoring is also an important tool for HCPs, and their associated permit and Implementing Agreements, and should be properly designed and implemented. The scope of the monitoring program should be sufficient to address reasonably foreseeable changes in circumstances that occur during the life of the permit. Monitoring is needed to obtain the information necessary to properly assess the impacts from the HCP and to ensure that HCPs are properly implemented. Monitoring will also allow the use of the scientific data obtained on the effects of the plan's operating conservation program to modify specific strategies through adaptive management, and to enhance future strategies for the conservation of species and their habitat.

While the Services appreciate the numerous benefits of a well-developed monitoring program, some low-effect HCPs have minimal monitoring requirements because the impacts from the plan are minor or negligible, and the attempt by the commenters to make an extensive monitoring program a requirement for No Surprises assurances is misplaced. A well-developed monitoring program will add to the credibility of an HCP proposal and will facilitate the eventual approval of the HCP. Thus, the Services believe that the real test for receiving the No Surprises assurances should be whether the issuance criteria under section 10(a) have been satisfied, and not whether a particular conservation tool, such as monitoring, has been extensively employed under an HCP whether it is needed or not.

Issue 20: Numerous commenters stated that to get assurances for unlisted species, a plan must be in place that describes what is necessary for their long-term conservation. Commenters encouraged a standard for unlisted species equal to that used in the proposed policy and regulations for the Candidate Conservation Agreements (CCAs).

Response 20: While the Services agree that these two types of agreements are similar, the purposes of the proposed CCA policy and the No Surprises rule are somewhat different. As stated in the proposed CCA policy, the ultimate goal of these agreements is to encourage landowners and State and local land managing agencies to manage their lands in a manner that, if adopted on a broad enough scale by similarly situated landowners, would remove threats to species and thereby obviate the need to list them under the ESA. The purposes of including unlisted species in HCPs and of making them subject to No Surprises assurances, are to enlist landowners in efforts to conserve these species and to provide certainty to landowners who are willing to make long-term commitments to the conservation of listed and unlisted species that they will not be subjected to additional conservation and mitigation measures if one of the species is listed, except as provided in their HCPs. The standards for including an unlisted species under an HCP are the

issuance criteria under section 10(a)(2)(B) of the ESA. For HCPs, the Services will continue to use the conservation standard identified in the Habitat Conservation Planning Handbook for unlisted species. The Handbook clearly states that an unlisted species is "adequately covered" in an HCP only if it is treated as if it were listed pursuant to section 4 of the ESA, and if the HCP meets the permit issuance criteria in section 10(a)(2)(B) of the ESA with respect to the species. The No Surprises assurances apply only to species (listed and unlisted) that are adequately covered in the HCP. Species, whether listed or nonlisted, will not be included in the HCP permit if data gaps or insufficient information make it impossible to craft conservation and mitigation measures for them, unless these data gaps can be overcome through the inclusion of adaptive management clauses in the HCP.

Issue 21: Many commenters requested an addition to the rule that would address the early termination of an HCP. Commenters want the Services to discuss the possibility of terminating an HCP, including how the assurances and applicable mitigation apply to the termination.

Response 21: The Services believe that such a requested change is unnecessary. The No Surprises assurances apply during the life of the permit, provided that the HCP is properly implemented and the terms and conditions of the HCP incidental take permit are being followed. Should a permit be terminated early, the No Surprises assurances also terminate as of the same date. The question of how outstanding mitigation responsibilities should be handled upon early termination is a more generic HCP policy issue that is unrelated to the No Surprises assurances and is, therefore, beyond the scope of this particular rulemaking.

Issue 22: Several commenters stated that the proposed rule was confusing regarding the different level of assurances established in the proposed rule (for regular HCPs and for HCPs that provide a "net benefit" to the covered species) and that the distinction between the two levels should be clarified further or only one level of assurances should be provided to HCP permittees.

Response 22: The Services agree that these distinctions were unnecessarily confusing and have revised the final rule accordingly. The final rule requires the Services to provide only one level of assurances to any permittee that has an approved HCP permit. The Services eliminated the level of assurances for HCPs that were developed to provide a net benefit for the covered species since the distinction between the two types of HCPs were very difficult to delineate in practice.

Issue 23: Commenters noted that there were differences between the regulations, such as FWS use of the term "unforeseen" circumstances throughout the proposed rule, whereas NMFS used the terms "unforeseen" and "extraordinary" circumstances in their proposed rule.

Response 23: The Services agree that there was some confusion and have made the regulations consistent between the two agencies, where possible. Moreover, there was never an intention in the August 1994 No Surprises announcement to create a substantive difference between "unforeseen" and "extraordinary" circumstances. NMFS will use the term "unforeseen" in its regulations in place of "extraordinary."

Revisions to the Proposed Rule

The following represents a summary of the revisions to the proposed rule as a result of the consideration of the public comments received during this rulemaking process. The Services have rewritten the "Assurances" section of the preamble and regulatory language to improve clarity and readability. Many commenters were confused by the language in the proposed rule, and asked the Services to provide a clearer explanation of this section. Accordingly, the Services have edited and reorganized the Assurances provision, but have not made any substantive changes.

(1) Some of the definitions used in this rulemaking process will now be codified as definitions in 50 CFR 17.3 for FWS and 50 CFR 222.3 for NMFS. These definitions were concepts identified in the "Background" section of the proposed rule.

(2) The rule was revised so the Services will only provide assurances for species listed on a permit that are adequately covered in the conservation plan and specifically identified on the permit.

(3) The Services have clarified that the duration of the assurances is the same as the length of the permit.

(4) The Services revised the rule so that there is only one level of assurances provided to permittees, instead of one level of assurances for standard HCPs and another level for HCPs that were developed to provide a "net benefit" for the covered species.

(5) The Services have clarified the rule so that it is apparent that No Surprises assurances do not apply to Federal agencies who have a continuing obligation to contribute to the conservation of threatened and endangered species under section 7(a)(1) of the ESA.

(6) The Services believe that HCPs are, and will continue to be, carefully crafted so that unforeseen circumstances will be rare, if at all, and that the Services will be able to successfully handle any unforeseen circumstance so that species are not jeopardized. To help ensure that unforeseen circumstances are a rare occurrence, the Service revised the rule in appropriate areas.

(7) The Services replaced the term "properly functioning," which was used in the proposed rule to "properly implemented." This change accurately reflects the intent of the Services when discussing the implementation of HCPs.

(8) The Services eliminated the permit-shield provisions from the final rule.

(9) The Services revised the final rule by replacing the term "property interests" with the term "natural resources," which more accurately describes the intent of the Services.

Description/Overview of the Final Habitat Conservation Plan Assurances ("No Surprises" Policy) Rule

The information presented below briefly describes the "No Surprises" assurances adopted in this final rule. These assurances provide economic and regulatory certainty for non-Federal property owners that participate in the ESA's section 10(a)(1)(B) permitting process through the following:

1. General assurances. The No Surprises assurances apply only to incidental take permits issued in accordance with the requirements of the Services' regulations where the conservation plan is being properly implemented, and apply only to species adequately covered by the conservation plan.

Discussion: Once an HCP permit has been issued and its terms and conditions are being fully complied with, the permittee may remain secure regarding the agreed upon cost of conservation and mitigation. If the status of a species addressed under an HCP unexpectedly worsens because of unforeseen circumstances, the primary obligation for implementing additional conservation measures would be the responsibility of the Federal government, other government agencies, or other non-Federal landowners who have not yet developed an HCP.

"Adequately covered" under an HCP for listed species refers to any species addressed in an HCP that has satisfied the permit issuance criteria under section 10(a)(2)(B) of the ESA. For

terms of the conservation plan without the consent of the permittee.

(C) The Director will have the burden of demonstrating that such unforeseen circumstances exist, using the best scientific and commercial data available. These findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of the affected species. The Director will consider, but not be limited to, the following factors:

(1) Size of the current range of the affected species;

(2) Percentage of range adversely affected by the conservation plan;

(3) Percentage of range conserved by the conservation plan;

(4) Ecological significance of that portion of the range affected by the conservation plan;

(5) Level of knowledge about the affected species and the degree of specificity of the species' conservation program under the conservation plan; and

(6) Whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

(6) Nothing in this rule will be construed to limit or constrain the Director, any Federal, State, local, or Tribal government agency, or a private entity, from taking additional actions at its own expense to protect or conserve a species included in a conservation plan.

PART 222—ENDANGERED FISH OR WILDLIFE

5. The authority citation for part 222 is revised to read as follows:

Authority: 16 U.S.C. 1531–1543 and 16 U.S.C. 1361 *et seq.*

Subpart C—Endangered Fish or Wildlife Permits

6. In part 222, a new section is added to read as follows:

222.3 Definitions.

These definitions apply only to § 222.22:

Adequately covered means, with respect to species listed pursuant to section 4 of the ESA, that a proposed conservation plan has satisfied the permit issuance criteria under section 10(a)(2)(B) of the ESA for the species covered by the plan and, with respect to unlisted species, that a proposed conservation plan has satisfied the permit issuance criteria under section 10(a)(2)(B) of the ESA that would otherwise apply if the unlisted species covered by the plan were actually listed. For the Services to cover a species under a conservation plan, it must be listed on the section 10(a)(1)(B) permit.

Changed circumstances means changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and NMFS and that can be planned for (*e.g.*, the listing of new species, or a fire or other natural catastrophic event in areas prone to such events).

Conserved habitat areas means areas explicitly designated for habitat restoration, acquisition, protection, or other conservation purposes under a conservation plan.

Conservation plan means the plan required by section 10(a)(2)(A) of the ESA that an applicant must submit when applying for an incidental take permit. Conservation plans also are known as "habitat conservation plans" or "HCPs."

Operating conservation program means those conservation management activities which are expressly agreed upon and described in a conservation plan or its Implementing Agreement, if any, and which are to be undertaken for the affected species when implementing an approved conservation plan, including measures to respond to changed circumstances.

Properly implemented conservation plan means any conservation plan, Implementing Agreement and permit whose commitments and provisions have been or are being fully implemented by the permittee.

Unforeseen circumstances means changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers and NMFS at the time of the conservation plan's negotiation and development, and that result in a substantial and adverse change in the status of the covered species.

§ 222.22 [Amended]

7. In § 222.22, paragraphs (g) and (h) are added.

* * * * *

(g) *Assurances provided to permittee in case of changed or unforeseen circumstances.* The assurances in this paragraph (g) apply only to incidental take permits issued in accordance with paragraph (c) of this section where the conservation plan is being properly implemented, and apply only with respect to species adequately covered by the conservation plan. These assurances cannot be provided to Federal agencies. This rule does not apply to incidental take permits issued prior to March 25, 1998. The assurances provided in incidental take permits issued prior to March 25, 1998 remain in effect, and those permits will not be revised as a result of this rulemaking.

(1) *Changed circumstances provided for in the plan.* If additional conservation and mitigation measures are deemed necessary to respond to changed circumstances and were provided for in the plan's operating conservation program, the permittee will implement the measures specified in the plan.

(2) *Changed circumstances not provided for in the plan.* If additional conservation and mitigation measures are deemed necessary to respond to changed circumstances and such measures were not provided for in the plan's operating conservation program NMFS will not require any conservation and mitigation measures in addition to those provided for in the plan without the consent of the permittee, provided the plan is being properly implemented.

(3) *Unforeseen circumstances.* (i) In negotiating unforeseen circumstances, NMFS will not require the commitment of additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources beyond the level otherwise agreed upon for the species covered by the conservation plan without the consent of the permittee.

(ii) If additional conservation and mitigation measures are deemed necessary to respond to unforeseen circumstances, NMFS may require additional measures of the permittee where the conservation plan is being properly implemented, but only if such measures are limited to modifications within conserved habitat areas, if any, or to the conservation plan's operating conservation program for the affected species, and maintain the original terms of the conservation plan to the maximum extent possible. Additional conservation and mitigation measures will not involve the commitment of additional land, water or financial compensation or additional restrictions on the use of land, water, or other natural resources otherwise available for development or use under the original terms of the conservation plan without the consent of the permittee.

(iii) NMFS will have the burden of demonstrating that unforeseen circumstances exist, using the best scientific and commercial data available. These findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of the affected species. NMFS will

nsider, but not be limited to, the lowing factors:
(A) Size of the current range of the ected species;
(B) Percentage of range adversely ected by the conservation plan;
(C) Percentage of range conserved by conservation plan;
(D) Ecological significance of that rtion of the range affected by the nservation plan;
(E) Level of knowledge about the ected species and the degree of ecificity of the species' conservation program under the conservation plan; and

(F) Whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

(h) Nothing in this rule will be construed to limit or constrain the Assistant Administrator, any Federal, State, local, or tribal government agency, or a private entity, from taking additional actions at its own expense to protect or conserve a species included in a conservation plan.

Dated: February 13, 1998.

Rolland A. Schmitten,

Assistant Administrator for Fisheries, National Marine Fisheries Service.

Dated: February 11, 1998.

Donald J. Barry,

Acting Assistant Secretary, Fish, Wildlife, and Parks, Department of Interior.

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